Baffinland Iron Mines Corporation

HAZARDOUS MATERIALS AND HAZARDOUS WASTE MANAGEMENT PLAN

BAF-PH1-830-P16-0011

Rev 2

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TRACK CHANGES TABLE

A review and update of the Hazardous Materials and Hazardous Waste Management Plan has been undertaken, with the following salient revisions to the September 2013 version (H337697-0000-07-126-0002, Rev 2, FEIS Appendix 10C-5).

Index of Major Changes/Modifications in Revision 2

Item No.	Description of Change	Relevant Section
1	Updated introduction section to consider the 2014 Work Plan	Section 1.1
2	Added definition for incinerator waste	Section 1.3
3	Updated water licence conditions to align with conditions outlined in Type 'A' Water License (2AM-MRY1325)	Section 1.4
4	Major Hazardous Materials section moved to section 4	Section 4
5	Updated handling and storage requirements. Updated hazardous waste generation estimates.	Section 5
6	Roles and Responsibility section updated to reflect current project structure	Section 6
7	Updated with current MSDS sheets representative of 2014 project inventories	Appendix A
8	Updated to include the 2014 Work Plan	Appendix B
9	Update Type Water Licence Concordance Table to reflect revised plan structure	Appendix D

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Abbreviations

Acronym	Description
Baffinland	Baffinland Iron Mines Corporation
CCME	Canadian Council of Ministers of the Environment
EHS	Environmental, Health and Safety
EIS	Environmental Impact Statement
EPCM	Engineering, procurement, and construction management
EPP	Environmental Protection Plan
ERCB	Energy Resources Conservation Board
IIBA	Inuit Impacts Benefits Agreement
the Project	Mary River Project
NIRB	Nunavut Impact Review Board
NWB	Nunavut Water Board
NWT	Northwest Territories
QIA	Qikiqtani Inuit Association
TDG	Transportation of Dangerous Goods
VEC	valued ecosystem components
WMP	waste management plan

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1 INTRODUCTION

Baffinland Iron Mines Corporation (Baffinland) is committed to taking the necessary steps to ensure that the use, collection, handling, storage, transportation and disposal of hazardous wastes generated during the construction, operation and closure of the Mary River Project is conducted in a safe, efficient and environmentally compliant manner. A key step in achieving this goal is the preparation and ongoing revisions of the Hazardous Materials and Hazardous Waste Management Plan for Construction, Operation and Closure (the Plan). The Plan establishes the roles and responsibilities of employees, contractors and other site personnel, as well as presenting protocols for handling, storing and disposing of hazardous materials on site. The intent is to afford a high degree of control over the use, collection, handling, storage, transportation and disposal of hazardous materials.

1.1 2014 WORK PLAN UPDATE

A 2014 Work Plan was submitted to the Nunavut Water Board and others on October 31, 2013 (see Appendix B). Works and activities proposed have been screened by the NIRB, unless noted otherwise, and have been considered in the Project Certificate No. 005 issued by the NIRB on December 28, 2012. The general scope for the 2014 Work Plan includes:

- The development and construction of infrastructure required for site capture at Milne Port and the Mine Site for the launching of the 18 MT Mary River Project.
- Ongoing environmental baseline data collection and geotechnical drilling in order to support the development of the 18 MT Project. These activities will resume at the Milne Port site, along the Tote Road, at the Mine Site, at numerous quarry sites and at other Project development areas.

In order to support these activities, Baffinland will operate various hazardous waste and hazardous material handling infrastructure as described within this Plan. The current Type A Water License (2AM-MRY1325) and Type B Water License (2BB-MRY1114), authorizes Baffinland to operate said infrastructure in accordance with the Nunavut Water Board conditions as described in the respective licenses. The QIA Commercial Lease Commercial Lease No.Q13C301 allows Baffinland to undertake the approved activities on specified Inuit Owned Land (IOL).

The Hazardous Materials and Hazardous Waste Management Plan (the Plan) is an update to the existing plan and supersedes the H349000-1000-07-126-0008, Revision 1, dated September 2013. The hazardous material and hazardous waste management infrastructure at Milne Port and Mine Site project sites will continue to be used as currently approved and designed. For 2014, this plan will be applied as appropriate to project sites applicable under the existing Type B and Type A Water Licence including Milne Port and the Mary River Mine Site.

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It shall be noted given that the proposed Early Revenue Phase (ERP) is currently under review; any changes to activities not already considered during this revision will be considered and captured in subsequent revisions if approval of the Baffinland ERP is granted.

1.2 PURPOSE

The purpose of this plan is to provide a consolidated source of information on the safe and environmentally sound transportation, storage, and handling of the key hazardous materials or wastes that are required for use or generated from Project activities and processes.. A hazardous material is one that, as a result of its physical, chemical, or other properties, poses a hazard to human health or the environment when it is improperly handled, used, stored, disposed of, or otherwise managed. In combination with the Baffinland 'Emergency Response and Spill Contingency Plans' (BAF-PH1-830-P16-0007) this Hazardous Materials and Hazardous Waste Management Plan provide instruction on the prevention, detection, containment, response, and mitigation of accidents that could result from handling hazardous materials.

The plan is based on the following principles for best practice management of hazardous materials and/or waste:

- Identify and prepare materials and waste inventories.
- Characterize potential environmental hazards posed by those materials.
- Allocate clear responsibility for managing hazardous materials.
- Describe methods for transport, storage, handling and use.
- Identify means of long-term storage and disposal.
- Prepare contingency and emergency response plans.
- Ensure training for management, workers, and contractors whose responsibilities include handling hazardous materials.
- Maintain and review records of hazardous material consumption and incidents in order to anticipate and avoid impacts on personal health and the environment.

Baffinland recognizes that incorporating proper hazardous material management into other environmental management plans and systems leads to risk reduction, improved process control, and cost savings.

Hazardous materials to be used at the Mary River Project will be manufactured, delivered, stored, and handled in compliance with applicable federal and territorial regulation. Baffinland is strongly committed to preventing, to the greatest extent possible, both inadvertent release of these substances to the environment and accidents resulting from mishandling or mishap. Baffinland will implement

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programs for employee training, facility inspection, periodic drills to test systems, and procedural review to address deficiencies, accountability, and continuous improvement objectives.

Baffinland will actively work towards minimizing the generation of hazardous wastes by investigating practical alternatives to the use of specific hazardous materials, by recycling products and containers wherever feasible, and by treating wastes using best practice technologies before any permitted release or discharge to the receiving environment.

1.3 DEFINITIONS

Project : The necessary tasks and work executed during the lifespan of the Project at the Project Site, including the construction, operation, closure and reclamation phases, of the Project.

Site : The areas occupied by the Project facilities (permanent or temporary) during the construction, operation, closure and reclamation phases of the Project.

Contractor : A person or business which provides goods, material, equipment, personnel, and/or services to Baffinland Iron Mines Corporation under terms specified in a contract.

Waste : The residual waste material (hazardous, non-hazardous or Putrescible) generated during the construction, operation, closure and reclamation phases of the Project.

Hazardous Waste : The wastes generated during the lifespan of the Project that present a threat to the human health or the environment because they exhibit one or more of the following characteristics: corrosive, reactive, explosive, toxic, inflammable, or biologically infectious.

Non-Hazardous Waste : The wastes generated during the lifespan of the Project that do not present a threat to human health or the environment.

Putrescible Wastes : The wastes generated during the lifespan of the Project that degrade very rapidly, i.e., plants, food scraps or animal remains.

Incinerator Wastes : Waste identified as suitable for incineration based on incineration technology used on-site, applicable regulations and project approvals. Includes: food waste, domestic waste, packaging waste, wood waste, absorbents, and some types of filters (e.g., air filters)

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1.4 HAZARDOUS MATERIALS REGULATORY REQUIREMENTS

Both federal and territorial legislation regulates the management of hazardous materials in Nunavut.

Copies of relevant legal documents will be kept on file at the Mine Site. Management and safety personnel will provide an overview of the applicable regulations to all employees as part of their initiation and ongoing training.

A number of Acts and Regulations provide specific requirements for the management of the different types of hazardous materials at the Mary River Project. They are:

1.4.1 FEDERAL

- Transportation of Dangerous Goods Act and Regulations (TDGA and TDGR).
- Explosives Act.
- National Fire Code.
- Canadian Council of Ministers for the Environment (CCME) Guidelines for Above-Ground Storage Tanks.

1.4.2 TERRITORIAL

- Transportation of Dangerous Goods Act (RSNWT 1988) and Regulations.
- Explosives Use Act and Regulations.
- Fire Prevention Act and Regulations.
- Mine Health and Safety Act and Regulations.
- Work Site Hazardous Materials Information System Regulations (WHMIS).

The TDGA classifies hazardous materials into nine main classes according to an internationally recognized system, as follows:

- Class 1 – Explosives.
- Class 1 – Gases.
- Class 3 – Flammable liquids.
- Class 4 – Flammable solids.
- Class 5 – Oxidizing substances and organic products.
- Class 6 – Poisonous (toxic) and infectious substances.
- Class 8 – Corrosives.
- Class 9 – Miscellaneous products or substances.

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The Project is subject to Environmental Terms and Conditions in Baffinland's Commercial Lease with the QIA (Q13C301), a Type 'A' Water Licence and a Type 'B' Water Licence. Conditions regarding aspects of hazardous material and hazardous waste management as outlined in this Plan specified by the Commercial Lease Environmental Terms and Conditions (Schedule F) include:

- The Tenant shall remove all Drill Waste containing poisonous or persistent chemical additives to an approved disposal facility.
- The Tenant shall not allow any Drill Waste to spread to the surrounding lands or watercourses.
- The Tenant shall dispose of all combustible waste petroleum products by incineration or removal.
- The Tenant shall dispose of all toxic or persistent substances in a manner as approved in writing by the Landlord.
- The Tenant shall report spills immediately to the Landlord.

Conditions regarding aspects of hazardous waste and hazardous materials as outlined in this Plan are specified by the water license(s) and include:

- The Licencee shall prevent any chemicals, fuel or wastes associated with the undertaking from entering any Water body.
- The Licencee shall locate areas designated for waste disposal at a minimum distance of thirty-one (31) metres from the ordinary High Water Mark of any water body such that the quality, quantity or flow of water is not impaired, unless otherwise approved by the Board in writing.
- The Licensee shall remove from the project site, all hazardous wastes generated through the course of the Construction and Operations Phases, for disposal at an approved Waste Disposal Facility.
- The Licencee shall test the bottom ash generated by all Incinerator Systems, by using the acceptable test procedures for analyzing residuals, prior to being disposed of at any Landfill Facility. If the composition of the ash makes it unsuitable for disposal at the Landfill facilities, the Licencee shall direct the Waste to an appropriate facility for disposal. The records of analysis results and volumes of ash shall be maintained and provided to an Inspector upon request.
- The Licencee shall not open burn plastics, wood treated with preservatives, electric wire, Styrofoam, asbestos or painted wood, to prevent the deposition of waste materials of incomplete combustion and/or leachate from contaminated ash residual, from impacting any surrounding waters, unless otherwise approved by the Board in writing.
- The Licencee shall submit to the Board and the Inspector, thirty (30) days prior to the removal and transfer of waste, a declaration of authorization from any community receiving waste from the project, which clearly states that authorization has been granted for the deposit by the Licencee at the Hamlet's appropriately licenced facilities.

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- The Licencee shall provide at least ten (10) days' notice to the Inspector prior to planned Discharges from any Waste Management Facility, Oily Water/Wastewater Treatment Facilities, Sewage Treatment Facilities, and any other relevant facilities associated with the Project. The notice shall include the estimated volume proposed for Discharge and the location and description of the receiving environment.
- The Licencee shall maintain records of all Waste backhauled from the Mary River Project and confirmation of proper disposal through the use of Waste manifest tracking systems and registration with the Government of Nunavut, Department of Environment. These records shall be made available upon request, to an Inspector or the Board.

1.5 RELATIONSHIP TO OTHER MANAGEMENT PLANS

This plan is based on the concepts and principles found in Baffinland's EHS Management System Framework Standard (BAF-PH1-830-STD-0001) and Baffinland's Hazard Identification and Risk Assessment Standard (BAF-PH1-830-PRO-0001). This plan should be viewed in concert with the following additional plans:

- Environmental Protection Plan (BAF-PH1-830-P16-0008).
- Surface Water, Aquatic Ecosystems, Fish and Fish Habitat Management Plan (BAF-PH1-830-P16-0026).
- Fresh Water, Sewage and Wastewater Management Plan (BAF-PH1-830-P16-0010).
- Interim Mine Closure and Reclamation Plan (BAF-PH1-830-P16-0012).
- Air Quality and Noise Abatement Management Plan (BAF-PH1-830-P16-0002) .
- Emergency Response and Spill Protection Plan (BAF-PH1-830-P16-0007).
- Explosives Management Plan (BAF-PH1-830-P16-0009).
- Terrestrial Environmental Management and Monitoring Plan (BAF-PH1-830-P16-0027).
- Waste Management Plan (BAF-PH1-830-P16-0028).

1.6 BAFFINLAND'S COMMITMENTS

Baffinland provides adequate resources to implement and maintain the EHS Management System including the necessary human, material and financial resources. Baffinland's Heath Safety and Environment (HSE) Policy and Baffinland's Sustainable Development Policy are presented in Section 2.

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1.7 UPDATE OF THIS MANAGEMENT PLAN

The Hazardous Materials and Hazardous Waste Management Plan is a "living document". It will be regularly updated on the basis of management reviews (as outlined in Section 9), incident investigations, regulatory changes or other Project related changes.

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2 BAFFINLAND POLICY

2.1 HEALTH SAFETY AND ENVIRONMENT (HSE) POLICY

Baffinland
Iron Mines Corporation

Mary River Project
Health, Safety and Environment Policy

The Baffinland Iron Mines Corporation (BIMC) Mary River Project Health, Safety and Environment Policy is a statement of our commitment to achieving a safe, healthy and environmentally responsible workplace. We will not compromise this policy for the achievement of any other organizational goal.

The Mary River Project implements this Policy through the following commitments:

- Continual improvement of safety, occupational health and environmental performance.
- Meeting or exceeding the requirements of regulations and company policies.
- Integrating sustainable development principles into our decision-making processes.
- Maintaining an effective Health, Safety and Environment Management System.
- Sharing and adopting improved technologies and best practices to prevent injuries, occupational illnesses and environmental impacts.
- Engaging stakeholders through open and transparent communication.
- Efficiently using resources, and practicing responsible minimization, reuse, recycling and disposal of waste.
- Rehabilitation of disturbed lands to a safe, acceptable, and localized state.

Our commitment to provide the leadership and action necessary to accomplish this policy is exemplified by the following principles:

- All injuries, occupational illnesses and environmental impacts can be prevented.
- Employee involvement and active contribution is essential and required.
- Management is responsible for preventing injuries, occupational illnesses and environmental impacts.
- Working in a manner that is healthy, safe and environmentally sound is a condition of employment.
- All operating exposures can be safeguarded.
- Training employees to work in a manner that is healthy, safe and environmentally sound is essential.
- Prevention of personal injuries, occupational illnesses and environmental impacts is good business.
- Respect for the communities in which we operate is the basis for productive relationships.

We have a responsibility to provide a safe workplace and utilize systems of work to meet this goal. All employees must be clear in understanding the personal responsibilities and accountabilities in relation to the tasks we undertake.

The Mary River Project has no higher priority than the health and safety of all people working on our behalf and the responsible management of the environment. In ensuring our overall profitability and business success every Baffinland and business partner employee working at one of our work sites is required to adhere to this policy.

Tom Peddon
President and Chief Executive Officer
March 2013

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2.2 BAFFINLAND SUSTAINABLE DEVELOPMENT POLICY

Baffinland

At Baffinland Iron Mines Corporation, we are committed to conducting all aspects of our business in accordance with the principles of sustainable corporate responsibility and always with the needs of future generations in mind. Everything we do is underpinned by our responsibility to protect the environment, to operate safely and fiscally responsibly and to create authentic relationships. We expect each and every employee, contractor, and visitor to demonstrate a personal commitment to this policy through their actions. We will communicate the Sustainable Corporate Policy to the public, all employees and contractors and it will be reviewed and revised as necessary on an annual basis.

These four pillars form the foundation of our corporate responsibility strategy:

Health and Safety
Environment
Investing in our Communities and People
Transparent Governance

1.0 HEALTH AND SAFETY

- We strive to achieve the safest workplace for our employees and contractors; free from occupational injury and illness from the very earliest of planning stages. Why? Because our people are our greatest asset. Nothing is as important as their health and safety.
- We report, manage and learn from injuries, illnesses and high potential incidents to foster a workplace culture focused on safety and the prevention of incidents.
- We foster and maintain a positive culture of shared responsibility based on participation, behaviour and awareness. We allow our workers and contractors the right to stop any work if and when they see something that is not safe.

2.0 ENVIRONMENT

- We employ a balance of the best scientific and traditional Inuit knowledge to safeguard the environment.
- We apply the principles of pollution prevention and continuous improvement to minimize ecosystem impacts, and facilitate biodiversity conservation.
- We continuously seek to use energy, raw materials and natural resources more efficiently and effectively. We strive to develop pioneering new processes and more sustainable practices.
- We understand the importance of closure planning. We ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts.

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3.0 INVESTING IN OUR COMMUNITIES AND PEOPLE

- We respect human rights and the dignity of others. We honour and respect the unique culture, values and traditions of the Inuit people.
- We contribute to the social, cultural and economic development of sustainable communities adjacent to our operations.
- We honour our commitments by being sensitive to local needs and priorities through engagement with local communities, governments, employees and the public. We work in active partnership to create a shared understanding of relevant social, economic and environmental issues, and take their views into consideration when making decisions.

4.0 TRANSPARENT GOVERNANCE

- We will take steps to understand, evaluate and manage risks on a continuing basis, including those that impact the environment, employees, contractors, local communities, customers and shareholders.
- We ensure that adequate resources are available and that systems are in place to implement risk-based management systems, including defined standards and objectives for continuous improvement.
- We measure and review performance with respect to our environmental, safety, health, socio-economic commitments and set annual targets and objectives.
- We conduct all activities in compliance with the highest applicable legal requirements and internal standards

We strive to employ our shareholder's capital effectively and efficiently. We demonstrate honesty and integrity by applying the highest standards of ethical conduct.



Tom Paddon
President and Chief Executive Officer
September 2011

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3 TARGETED VALUED ECOSYSTEM COMPONENTS

Hazardous materials used and hazardous waste will be generated throughout the life cycle of the Project. To ensure that hazardous materials and/or wastes are handled, stored and managed in a safe and environmentally acceptable manner, Baffinland will apply best practices for its hazardous materials management activities.

Inappropriate handling, storage and discharge/release of hazardous materials could impact the following Valued Ecosystem Components (VEC):

- Soils (spills and contamination).
- Water quality (contamination of runoff).
- Fish and fish habitat.
- Vegetation (uptake of contaminants or loss of vegetation).
- Birds (exposure and ingestion of contaminants).
- Terrestrial wildlife (exposure and ingestion of contaminants).
- Human health (exposure and ingestion of contaminants).

3.1 TYPES OF HAZARDOUS MATERIALS/WASTES

The Mary River Project will require the use of the following types of classified hazardous materials:

- Fuel and Lubricants – diesel fuel, oils, greases, anti-freeze, and solvents used for equipment operation and maintenance.
- Explosives – ammonium nitrate and high explosives used for blasting in the mine.
- Laboratory Wastes – various by-products classified as hazardous waste and chemicals used in the assay laboratory.
- Waste hydrocarbons and hydrocarbon products.
- Liquid chemical waste (glycols, solvent, paint, brake fluid, hydraulic fluids, etc.).
- Solid chemical waste (batteries, florescent lights, aerosol cans, etc.).
- Electronic waste (e-waste).
- Biomedical waste.
- Ozone depleting substances (ODS) (i.e. refrigerants, etc.).
- Compressed gas cylinders.

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4 MAJOR HAZARDOUS MATERIALS ON-SITE

4.1 HAZARDOUS WASTE MATERIALS OF SPECIAL INTERESTS

Two particular products: ammonium nitrate and diesel fuel will be used in relatively large quantities throughout the life of the Project. Appropriate procedures and guidelines have been developed to ensure that these materials are handled and used with no adverse effect on people or the environment. Product characteristics and use are briefly described below.

4.1.1 AMMONIUM NITRATE

Ammonium nitrate (AN) () is essentially a fertilizer product with formula, NH_4NO_3, manufactured and used for agricultural purposes in many parts of the world. It is also used in the manufacture of commercial blasting explosives. In addition to ANFO (a mixture of ammonium nitrate and fuel oil), AN is an important raw material in the manufacture of other products such as nitro-glycerine, water gels/slurries, and other types of blasting emulsions. Trials with modern ANFO blasting agent were conducted through the 1950s and 1960s, leading to its current status as the most widely used commercial explosive in the world, representing about 70% of total usage. AN-based explosives are a vital part of every construction Project and are indispensable in the mining industry. Millions of tonnes of AN are produced annually throughout the world and handled without incident.

4.1.1.1 AN Physical Properties

AN is a stable, inorganic, solid compound. It is completely soluble in water and must be kept dry to remain effective for its intended purpose. AN products vary in composition, blend, and surface treatment. For instance, granular fertilizer products are coated with various materials to seal the particles from moisture contamination, whereas AN prills (pellets) produced for use in ANFO explosives are intentionally porous to permit fuel oil to be absorbed during the manufacturing process. The prills are generally white or off-white, and shelf life in a tightly closed container is unlimited. AN itself is not an explosive, but it is an oxidizer and can only explode or decompose under specific conditions, such as: high temperature (between 160°C and 200°C); bulk storage in a confined space; contamination with organic substances such as oil or waxes; contamination with inorganic materials such as chlorides and metals (chromium, copper, cobalt, nickel); and exposure to strong shock waves from other explosions. Similarly, AN is not combustible in isolation, but as an oxidizing agent, the fire hazard increases when it is in contact with other combustible materials, even in both the presence or absence of air. AN must be stored in a dry, well-ventilated area away from potential sources of heat, fire, or explosion. AN is odourless under normal conditions but releases toxic nitrous and ammonia fumes on explosion, decomposition, or involvement in a fire. Direct and unprotected contact with dry AN can cause discomfort and inflammation of eyes, skin, and respiratory membranes. Its oral toxicity is slight to moderate, although swallowing large amounts can have serious, if not fatal, effects from the ammonia and nitrate salts. It has no known chronic effects, however, and repeated or prolonged exposure is not known to aggravate pre-existing medical conditions. AN when in solution can be highly toxic to fish and

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can enhance the potential for eutrophication in the aquatic receiving environment (Guideline for the Release of Ammonia Dissolved in Water Found in Wastewater Effluents, Environmental Canada, 2013).

4.1.1.2 Handling and Storage

Although AN is classified as a hazardous product, its storage and handling at Mary River do not represent significant risk when the proper precautions are taken. At site, qualified explosives contractors will manage AN and other explosives-related materials. The AN tote bags (usually one cubic metre volume) will be stored in a safe area away from water bodies and from the explosives storage magazine. AN bags will be handled individually when needed for the preparation of batches of explosive.

Any spills will be swept up and placed in suitable containers for use or disposal. Empty bags are not considered to be hazardous waste, and will be burned in the site incinerator. Personnel exposed to AN will wear suitable personal protective equipment.

4.1.1.3 Regulatory Context

In Canada, the production, storage, and use of AN are subject to strict precautionary measures under the Explosives Act and Regulations, and the Canada Transportation Act, Ammonium Nitrate Storage Facilities Regulations. The Explosives Act is administered by the Explosives Regulatory Division (ERD) of Natural Resources Canada.

4.1.2 DIESEL

Hydrocarbon products and chemicals such as combustible diesel fuels, toxic anti-freeze, compressed gases, lubricants, and cutting oils are widely used in the North. These products meet vital needs for power generation, heating, and vehicle operation. Diesel fuel is by far the largest volume of petroleum hydrocarbon product shipped annually to communities in Nunavut. The potential environmental dangers of transporting and burning diesel fuels are well understood. The transportation, storage, and handling of diesel products are strictly regulated by both federal and territorial legislation. Baffinland will ensure that all such requirements are met and emphasize the need for regular inspection of storage and distribution facilities on site to ensure mechanical soundness and to prevent leaks and the uncontained release of diesel fuel.

4.2 SEWAGE SLUDGE

Off spec sewage sludge on site must be treated and disposed of in a safe and effective manner. The sections below identify sewage sludge handling guidelines which will be adopted by on-site staff involved in handling or management sewage sludge.

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4.2.1 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Appropriate PPE should be provided for workers likely to have exposure to treated sewage sludge. The choices of PPE include goggles, splash-proof face shields, respirators, liquid-repellent coveralls, and gloves. Face shields should be made available for all jobs in which there is a potential for exposure to spray or high-pressure leaks. Management and employee representatives should work together to determine which job duties are likely to result in this type of exposure, to conduct appropriate on-site monitoring, and to determine which type of PPE is needed in conjunction with a qualified safety and health professional. If respirators are needed, a comprehensive program would include respirator fit-testing and training or retraining.

4.2.2 HYGIENE AND SANITATION

Hand-washing stations with clean water and mild soap should be readily available whenever contact with treated sewage sludge occurs. In the case of workers in the field, portable sanitation equipment, including clean water and soap, will be provided. Cabs should be wiped down and cleaned of residual mud (or settled dust) frequently to reduce potential for exposure to treated sewage sludge.

4.2.3 TRAINING

Periodic training on standard hygiene practices for treated sewage sludge workers should be conducted by qualified safety and health professionals to cover issues such as the following:

- Frequent and routine hand washing (the most valuable safeguard in preventing infection by agents present in treated sewage sludge), especially before eating or smoking.
- The proper use of appropriate PPE, such as coveralls, boots, gloves, goggles, respirators, and face shields.
- The removal of contaminated PPE and the use of available on-site showers, lockers, and laundry services.
- Proper storage, cleaning, or disposal of contaminated PPE.
- Instructions that work clothes and boots should not be worn home or outside the immediate work environment.
- Prohibition of eating, drinking, or smoking while working in or around treated sewage sludge.
- Procedures for controlling exposures to chemical agents that may be in treated sewage sludge.

4.3 FUELS AND LUBRICANTS

Material categories, site handling and storage requirements, and personal protective equipment recommended by manufacturers in MSDSs are summarized in TABLE 4-1 and TABLE 4-2.

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TABLE 4-1: FUEL PRODUCTS – HAZARD CLASSES, POTENTIAL IMPACTS AND STORAGE LOCATIONS

Material	Class	Total Amount – Container	Potential Impact
Diesel	3	Refer to Annex A	Water and soil contamination
Aviation fuel	3		Water and soil contamination
Motor oil	NR	TBD – Barrels and/or pails	Soil contamination
Hydraulic fluid	NR	TBD – Barrels and/or pails	Soil contamination
Varsol	3	TBD – Barrels and/or pails	Soil contamination
Vehicle grease	NR	TBD – Barrels and/or pails	Negligible risk with proper handling
Ethylene glycol	NR	TBD – Barrels and/or pails	Negligible risk with proper handling

NR: Not Regulated

TABLE 4-2: FUEL PRODUCTS - SAFE HANDLING PROCEDURES

Material	Handling Procedure	Personal Protective Equipment
Diesel	Do not get in eyes, on skin, or on clothing. Avoid breathing vapours, mist, fume, or dust. Do not swallow. May be aspirated into lungs. Wear protective equipment and/or garments if exposure conditions warrant. Wash thoroughly after handling. Launder contaminated clothing before reuse. Use with adequate ventilation. Keep away from heat, sparks, and flames. Store in a well-ventilated area. Store in a closed container. Bond and ground during transfer.	Safety goggles Neoprene or nitrile gloves Protective garments Ensure adequate ventilation
Aviation fuel	See diesel procedures above.	
Motor oil	Wear protective clothing and impervious gloves when working with used motor oils.	Safety goggles Neoprene or nitrile gloves Protective garments
Hydraulic fluid	Keep container closed until ready for use.	Chemical goggles
Varsol	Avoid eye contact. Use with adequate ventilation. Wash thoroughly after handling. Empty container retains residue. Follow label instructions. Avoid repeated skin contact. Store in cool, ventilated area, away from ignition sources and incompatibles. Keep container tightly closed.	Chemical goggles Rubber gloves Protective garments Ensure adequate ventilation
Vehicle grease	Minimize breathing vapor, mist, or fumes. Avoid prolonged or repeated contact with skin. Remove contaminated clothing; launder or dry-clean before re-use. Remove contaminated shoes and thoroughly clean before re-use; discard if oil-soaked. Cleanse skin thoroughly after contact, before breaks and meals, and at end of work period. Product is readily removed from skin by waterless hand cleaners followed by washing thoroughly with soap and water.	Safety goggles Neoprene or nitrile gloves Protective garments Ensure adequate ventilation

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Material	Handling Procedure	Personal Protective Equipment
	To prevent fire or explosion risk from static accumulation and discharge, effectively ground product transfer system in accordance with the National Fire Code. Keep containers closed when not in use. Do not store near heat, sparks, flame, or strong oxidants.	
Ethylene glycol	Ensure adequate ventilation. Wear protective gloves and chemical safety goggles. Keep in tightly closed container, stored in a cool, dry, ventilated area. Separate from acids and oxidizing materials. Empty containers of this product retain product residues and may be hazardous.	Chemical goggles Neoprene or nitrile Gloves Protective garments Ensure adequate ventilation

A contract supplier or trained Baffinland employee will fill the fuel storage tanks in the main tank farms at Milne Port and the Mary River Mine Site. General procedures to be followed are listed below. Similar procedures would be followed for fuelling remote station tanks.

Before fuel transfer, verify that:

- All fuel transfer hoses have been connected properly and couplings are tight.
- Transfer hoses are not obviously damaged.
- Fuel transfer personnel are familiar with procedures.
- Personnel are located at both the fuel delivery truck and fuel transfer tank(s) and can manually:
  - Shut off the flow of fuel.
  - If a high liquid level shutoff device is installed at the delivery tank, verify that the shutoff is operating correctly each time it is used.
  - Fuel transfer will then proceed per the established procedures of the contract supplier.
  - Any accidents or spills must be reported immediately to the HSE Manager.

On closure of the mine and facilities, some storage capacity will be left in place at site for diesel fuel for the use of personnel involved in close-out and reclamation activities. Small amounts of other petroleum products will also continue to be available. More details are provided in the “Reclamation and Closure Plan.”

4.4 EXPLOSIVES

Explosives are required for blasting rock required for construction, waste rock and ore in the open pit mine. Storage, use, and handling of blasting materials are strictly regulated in Nunavut. All explosives handling, use and storage will be performed in accordance to the Mary River Project: Explosives Management Plan and will be performed by a licensed contractor.

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Material categories, site handling and storage requirements, and personal protective equipment recommended by manufacturers in MSDSs are summarized in TABLE 4-3.

TABLE 4-3: EXPLOSIVES - HAZARD CLASSES AND POTENTIAL IMPACTS

Material	Class	Potential Impact
Ammonium nitrate	5.1	Water contamination
High explosive detonators	1	Negligible with proper handling
Blasting caps	1	Negligible with proper handling

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5 HAZARDOUS MATERIALS/WASTE LIFECYCLE APPROACH

The aim of the Hazardous Materials and Hazardous Waste Management Plan is to implement a sound hazardous materials minimization program that will focus upon the principles of Lifecycle Management, with the goal of managing the material from procurement/site delivery to its use/disposal. The Hazardous Materials and Hazardous Waste Management approach is in conformance with Hazard Identification and Risk Assessment Standard (BAF-PH1-830-PRO-0001). It covers product supply, transportation, storage, and handling, recycle, and waste disposal. Baffinland is committed to ensuring proper life cycle management of all products used at the Mary River sites, including hazardous materials. Baffinland and its contractors will deal only with reputable, certified suppliers, transporters, and expediters.

5.1 DELIVERY

All hazardous materials will be delivered to site by commercial carriers in accordance with the requirements of the Canadian Transportation of Dangerous Goods Act (TDGA). Carriers will be licensed and inspected as required by the Department of Transportation. All required permits, licences, and certificates of compliance are the responsibility of the carrier. All shipments must be properly identified and placarded. Shipping papers must be accessible and include information describing the substance, immediate health hazards, fire and explosion risks, immediate precautions, fire-fighting information, procedures for handling leaks or spills, first aid measures, and emergency response telephone numbers.

Each transportation company will be required to develop a spill prevention, control, and countermeasures plan to address the materials they are transporting. In the event of a release during transport, the commercial transportation company is responsible for first response and cleanup.

5.2 HAZARDOUS MATERIALS IDENTIFICATION AND HANDLING

Once dangerous goods are received at the workplace, additional regulations apply. The federal Workplace Hazardous Materials Information System (WHMIS) calls for the proper labelling of products, the availability of product information in the form of MSDSs, and employee education on how to identify and handle hazardous products. MSDS sheets of all hazardous materials used on site are presented in Appendix A.

In accordance with applicable Environmental Canada guidelines, tanks used for the storage of hazardous materials will be installed in secondary containment areas sized to hold at least 110% of the volume of the largest tank or will be certified double walled vessels.

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Baffinland has prepared emergency response procedures for spilled chemical substances, as provided in the Emergency Response and Spill Contingency Plans (BAF-PH1-830-P16-0007). These procedures outline the correct response to accidental spills or releases of hazardous materials to minimize health risks and environmental effects. Included are procedures for evacuating personnel, maintaining safety, cleanup and neutralization activities, emergency contacts, internal and external notifications to regulatory authorities, and incident documentation.

5.3 HAZARDOUS WASTE GENERATION AND HANDLING

Once used, residual hazardous material may become hazardous waste. Hazardous wastes include liquids or solids designated as hazardous wastes under either federal or provincial regulations, i.e. hydrocarbon liquids, used batteries, various chemicals used during concrete operations, coating materials and a wide variety of other materials including any containers, containing residual amounts of hazardous materials. More generally, chemicals or materials of unknown properties will be considered as a hazardous waste unless it can be shown otherwise.

Hazardous waste shall only be handled by trained workers and shall strictly follow the procedures set out in applicable standard operating procedures, job hazard assessments, and other relevant documents (e.g., the Environmental Protection Plan and environmental permits). The handling and disposal of hazardous waste shall comply with the appropriate legislation. A detailed list of hazardous wastes generated will be kept by Baffinland and updated periodically.

Hazardous waste shall be clearly labelled and at no time shall hazardous waste be combined with other solid non-hazardous waste. Spill kits shall be available inside the hazardous waste storage areas (refer to the Spill Contingency Plan, BAF-PH1-830-P16-0007, for requirements of spill kits). Should a hazardous waste spill occur Baffinland or its assigned representative will oversee its clean-up, removal of contaminated material, transportation and disposal of the hazardous waste contaminated material at an approved off-site hazardous waste landfill.

There shall be no smoking within 10 m of the hazardous waste storage locations.

A special class of hazardous wastes are biological wastes generated at the medical clinic and first aid stations. While the amounts will be small, the nature of such waste requires separate packaging and disposal. Such waste will be packaged, labelled and transported for disposal to a facility licensed to dispose of such waste.

Waste Oil generated during the construction phase shall be properly handled, stored and disposed of according to Used Oil Control Regulations (82/02) and the Government of Nunavut, Department of Environment, Environmental Guideline for Used Oil and Waste Fuel (June 2012)

Material categories, site handling and storage requirements, and personal protective equipment for hazardous waste are summarized in TABLE 5-1.

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TABLE 5-1: HAZARDOUS WASTE HANDLING REQUIREMENTS

Material	Handling Procedure	Personal Protective Equipment
Liquid chemical waste (glycols, solvents, paint, brake fluid, hydraulic fluids, etc.)	Do not get in eyes, on skin, or on clothing. Avoid breathing vapours, mist, fume, or dust. Do not swallow. May be aspirated into lungs. Wear protective equipment and/or garments if exposure conditions warrant. Wash thoroughly after handling. Launder contaminated clothing before reuse. Use with adequate ventilation. Keep away from heat, sparks, and flames. Store in a well-ventilated area. Store in a closed container. Bond and ground during transfer.	Safety goggles Neoprene or nitrile gloves Protective garments Ensure adequate ventilation
Solid chemical waste (batteries, fluorescent lights, aerosol cans, etc.)	Avoid breathing vapours mist fumes and ensure they are stored in well ventilated area. Store in an area away from direct sunlight and ensure containers are sealed at all times. Ensure no visible leaks or damage to containers holding the waste. Keep away from heat, sparks and flames. Use self closing and flame resistant containers where possible.	
Electronic waste (TVs, computer CRTs (screens) and computer hard drives	Where possible Environmental Protection Act (EPA) encourages reuse and recycling of end-of life electronic waste. Dismantling and providing reuse possibilities, enables intact natural resources to be conserved and air and water pollution caused by hazardous disposal avoided. Sanitize before disposal and return to manufacturer where possible.	Safety goggles Rubber gloves Protective garments – Lab coat and safety shoes
Laboratory chemical waste	Avoid contact with eyes skin clothing. Do not breathe dust or other vapours. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product. Store between 10° and 25°C. Keep away from: acids/ acid fumes. Oxidizers - Protect from heat moisture and ensure container lids are tightly closed at all times	Safety glasses with top and side shields Disposable latex gloves Lab coat and other protective garments Ensure adequate ventilation Have an eyewash station nearby Have a safety shower nearby. Use a fume hood to avoid exposure to dust, mist or vapor.

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Material	Handling Procedure	Personal Protective Equipment
Biomedical waste	Avoid eye contact. Use with adequate ventilation. Wash thoroughly after handling. Ensure waste is stored in areas away from general traffic and accessible only to authorized person. Follow label instructions. Avoid repeated skin contact. Store in cool, ventilated area. Keep container tightly closed. Waste cannot be stored for long periods and shall be transported in leak proof containers.	Chemical goggles Disposable latex gloves Protective garments Ensure adequate ventilation
Ozone depleting substances (ODS) (i.e. refrigerants, etc.)	Should be permanently labelled with the quantity and type of ozone depleting substance contained within that equipment. Compressor rooms housing stationary refrigeration and air conditioning systems should have refrigerant detectors and alarms installed to detect refrigerant leaks and emissions. Ensure trained licensed personal.	Safety goggles Disposable latex gloves Protective garments Ensure adequate ventilation
Compressed gas cylinders	Do not smoke when handling or transporting these cylinders. Store cylinders in the upright position and secure with an insulated chain or non-conductive belt. Ensure that protective caps are in place and that the area is well ventilated. Protect cylinders from contact with ground, ice, snow, water, salt, corrosion and high temperatures. Storage areas for compressed gas cylinders must not contain any unnecessary combustible materials or uncontrolled ignition sources. Be aware that environmental conditions, such as heat exposure, may cause the temperature of the cylinder to rise to excessive levels that could lead to a release of product even if the ambient temperature is relatively low.	Disposable latex Gloves, Safety glasses Safety shoes Protective garments

5.4 HAZARDOUS WASTE TEMPORARY STORAGE ON-SITE

Hazardous wastes that will be generated on site will be of similar types during both construction and operations phases. These wastes will be temporarily stored in containers and/or at designated locations on site at the Mine Site, Milne Port, and Steensby Port.

Hazardous wastes generated from the temporary and permanent shelters along the Tote Road will be temporarily stored in containers at the shelter and subsequently temporarily stored at one of the designated on-site locations.

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TABLE 5-2 presented hazardous waste management method by waste material. TABLE 5-3 shows the estimated hazardous waste quantities onsite for the Project. This estimate is also presented in the Waste Management Plan (BAF-PH1-830-P16-0028).

5.4.1 HAZARDOUS WASTE CONTAINERS

The following general waste storage requirements apply to most hazardous wastes:

- Store in original container when possible or in containers manufactured to store hazardous waste.
- Sound, sealable, undamaged containers.
- Store in 16 gauge (or lower) metal or plastic drums, or other appropriate container.
- Label according to WHMIS and TDG.
- Keep containers closed or sealed at all times unless in use.
- Protect containers from damage and weather.
- Store in secure area with controlled access.
- Train personnel in appropriate practices.
- Store in manner to prevent spills to environment.
- Never store with food or in food containers.

5.4.2 HAZARDOUS WASTE STORAGE AREAS

The storage areas will abide by the following criteria:

- Storage areas for hazardous wastes will be located at a minimum distance of thirty-one (31) metres from the ordinary High Water Mark of any water body such that the quality, quantity or flow of water is not impaired.
- Storage areas for hazardous waste will be in lined and bermed facilities that will contain any spillage locally and prevent discharge to adjacent land and water.
- Drainage into and from the site is controlled to prevent spills or leaks from leaving the site and to prevent runoff from entering the site.
- Incompatible wastes are segregated by chemical compatibility to ensure safety of workers and facility.
- Only persons authorized to enter and trained in waste handling procedures have access to the storage area.
- Regular inspections are performed and recorded. Containers are placed so that each container can be inspected for signs of leaks or deterioration. Leaking or deteriorated containers will be removed and their content transferred to a sound container.

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- A record is maintained of the type and amount of waste in the storage.
- Storage sites have emergency response equipment appropriate for the hazardous waste stored on the site.
- Storage site will be registered as required by regulations.

When a material becomes a waste it will then be stored and/or disposed of in accordance with specific government regulations and guidelines. Overall, hazardous waste treatment, recycling, and disposal facilities are lacking in Nunavut. Baffinland will therefore store most waste materials in secure facilities until they can be transported south for recycling or disposal.

TABLE 5-2: HAZARDOUS WASTE STORAGE REQUIREMENTS

Waste Material	Waste Type	Classification	General Management Method	Final Disposal
Absorbents – and other similar spill response material	Petroleum	Hazardous if used for a spill clean-up. Not TDG regulated.	Collect in white Quatrex bags. Store full bags in the waste berm at MR and MI until final disposal.	Offsite disposal
Activated Carbon	Petroleum	Hazardous. Not TDG regulated	Collect in white Quatrex bags. Store in the waste berm at MR and MI until final disposal.	Offsite disposal
Aerosol Cans	'Household' Hazardous Waste	Hazardous. TDG regulated as "Aerosol, Flammable, Class 2.1, UN 1950"	Disposal bins located at various locations inside the main facilities, and at the waste sorting areas. Store full drums in the waste berm in open top drums.	Offsite disposal
Appliances	Inert/Chemical	May be hazardous.	Appliances may contain ozone depleting substances (refrigerator) or electronic boards. Manage accordingly. Store in contained location until approval by environment office to dispose in landfill.	Landfill
Batteries, wet (lead - acid)	Chemical	Hazardous. TDG regulated as "Batteries, wet, filled with acid, class 8, UN 2794"	Collect in black Quatrex bags in the Waste Sorting Area. Store full bags in the waste berm at MR and MI until final disposal.	Offsite disposal
Batteries, rechargeable (NiCad, Mercury, Lithium, Silver-Oxide)	'Household' Hazardous Waste	Hazardous. Small household-type bateries are generally not TDG regulated.	Disposal bins (same as for alkaline batteries) are located at various locations inside the main facilities. Segregate per type and transfer to different 20L pails. Transfer to 20L pail, then in open top drums. Store in the waste berm. Computer batteries should be brought to the Environment Office.	Offsite disposal

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Waste Material	Waste Type	Classification	General Management Method	Final Disposal
Batteries, dry (alkaline)	'Household' Hazardous Waste	Hazardous. Not TDG regulated.	Disposal bins (same as for rechargeable batteries) are located at various locations inside the main facilities. Transfer to 20L pail, then in open top drums. Store in the waste berm.	Offsite disposal
Biomedical Waste – Sharps, human anatomical, blood, and body fluids	Biomedical	Biomedical hazard.	Contain and store in suitable biohazard container at the medical office until disposal.	Offsite disposal
Calcium Chloride	Chemical	Hazardous. Not TDG regulated.	Collect and store in white Quatrex bags.	Offsite disposal
Chemicals – spent lab reagents	Chemical	Hazardous. Shipping TDG instructions should follow MSDS recommendations.	Management method should follow MSDS recommendations.	Offsite disposal
Cigarette butts	Chemical	Hazardous. Not TDG regulated.	Collect in cigarette butts receptacles outside each main entrance.	Offsite disposal
Compressed gas cylinders	Chemical	Hazardous. TDG regulation varies depending on gas.	Safely empty cylinders of gases. Store away from sources of heat and ignition. Return containers to manufacturer for reuse following TDG procedures. When not shipped offsite, remove valves and purge cylinder with compressed air or inert gas. Dispose of as metal.	Offsite reuse / Landfill
Contaminated Soils	Petroleum	Hazardous. Not TDG regulated	Store on site in white Quatrex bags. Decontaminated on site in landfarms	Onsite treatment
Contaminated snow, water, ice	Petroleum	Hazardous. Not TDG regulated	Collect in trays, drums, or pumped via pipeline. Store in closed top drums in the waste berm until treatment in Oil/Water Separator.	Onsite treatment
Diesel fuel	Petroleum	Hazardous. TDG regulated as "Diesel, Class 3, UN 1202, FP 39°C"	Collect in trays, drums, or pumped via pipeline. Store in closed top drums in the waste berm until final disposal. Not a waste unless contaminated by a substance that makes it unusable as a fuel. Diesel not suitable as mobile fuel can be used for heating values.	Offsite disposal/ onsite recovery
Drums – empty	Petroleum	Hazardous. Not TDG regulated	Empty drums frequently contain residuals. Drain content of drum in adequate container. Crush and package drums on pallets. Store in waste berm until final disposal.	Offsite disposal

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Waste Material	Waste Type	Classification	General Management Method	Final Disposal
Drums – residuals	Petroleum	Hazardous. Considered the same hazard as original product.	Drum residuals are to be collected in different containers for reuse (fuel, jet A, oil) or disposal (antifreeze or other product). Reuse fuel and oil for heating and other uses.	Onsite recovery/ Offsite disposal
Electronic Equipment	'Household' Hazardous Waste	Hazardous. Not TDG regulated. May contain heavy metals.	Typical electronic wastes consist of used computers, cell phones, cameras, TVs and monitor screens, media players, switches, and testing equipment. Electronic wastes shall be brought to the Environment Office. They are stored in contained location until offsite shipment for recycling. Batteries shall be removed of equipement and managed accordingly.	Offsite recycling
Fluorescent Lamps – bulbs and tubes	'Household' Hazardous Waste	Hazardous in large quantities (trace amount of mercury). Not TDG regulated.	Bulbs disposal bins are located at various locations inside the main facilities. Repack in original or reused boxes. Store tubes in recycling container. Store in contained location until offsite shipment for recycling.	Offsite disposal
Filters – Lube oil	Petroleum	Hazardous. Not TDG regulated.	Drain and crush filters. Collect in open top drums and store in the waste berm.	Offsite disposal
Gasoline	Petroleum	Hazardous. TDG regulated as "Gasoline, Class 3, UN 1203, FP -39°C"	Collect in trays, drums, or pumped via pipeline. Store in closed top drums in the waste berm until final disposal. Not a waste unless contaminated by a substance that makes it unusable as a fuel.	Offsite disposal (if waste)
Glycol	Chemical	Hazardous. Not TDG regulated.	Collect in trays, drums, or pumped via pipeline. Store in closed top drums or 1000L tote tanks / cubes in the waste berm until final disposal.	Offsite disposal
Grease	Petroleum	Non-hazardous	Store in open top drums in the waste berm until final disposal.	Offsite disposal
Human Waste	Domestic	Hazardous. Not TDG regulated	Store in open top drums in the waste berm until final disposal.	Offsite disposal
Hydraulic fluid	Petroleum	Hazardous. Not TDG regulated.	Collect in trays, drums, or pumped via pipeline. Store in closed top drums in the waste berm until final disposal.	Offsite disposal
Incinerator Ash	Inert/ Chemical	Usually inert, if non-hazardous.	Composition of incinerator ash will depend on the wastes that were incinerated. Disposal in open top drums. Suitable for disposal in the landfill.	Landfill/off-site if hazardous

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Waste Material	Waste Type	Classification	General Management Method	Final Disposal
Jet A Fuel	Petroleum	Hazardous. TDG regulated as "Aviation gas, UN 1863, FP 39°C"	Collect in trays, drums, or pumped via pipeline. Store in closed top drums in the waste berm until final disposal. Not a waste unless contaminated by a substance that makes it unusable as a fuel. Jet A not suitable as aviation fuel can be used for heating values.	Onsite recovery/ Offsite disposal
Kitchen Grease/Oil	Domestic	Non-hazardous.	Collect in closed-top drums in a seacan outside the kitchen. Transport to Milne Inlet a week before backhaul for final disposal.	Offsite disposal
Lube Oil	Petroleum	Hazardous. Not TDG regulated.	Collect in trays, drums, or pumped via pipeline. Store in 1000L tote tanks / cubes in the waste berm until final disposal. Possible reuse as heating oil or other uses in approved furnaces.	Offsite disposal / Onsite reuse
Methanol	Chemical	Hazardous. TDG regulated as "Methanol, Class 3, UN 1230, P.G. II"	Collect in UN certified container. Store in the waste berm.	Offsite disposal
Oily rags and similar debris	Petroleum	Not hazardous if used for cleaning. Classified as Absorbent if used to clean-up spills	Suitable for incineration. Collect in drums at workplace sorting area. Bring to incinerator and disperse between waste loads.	Incineration
Ozone Depleting Substances (ODS, i.e. air conditioning and refrigerant gases)	Chemical	Hazardous.	ODS must be removed by certified technician before disposal of unit. ODS must be stored as per instructions from certified technician.	Offsite disposal
Paint	Petroleum	May be hazardous if oil based.	Collect in white Quatrex bags. Store in the waste berm at MR and MI until final disposal.	Offsite disposal
Plastics – oil/ hydrocarbon containers, contaminated berm liner	Petroleum	Hazardous. Not TDG regulated.	Drain fluid in appropriate cube or drum. Collect in white Quatrex bags. Store in the waste berm until final disposal.	Offsite disposal
Unusual waste	To be determined	To be determined	Bring to the Environment Office, if size permits. Proper management and disposal will be determined on a case-by-case basis.	To be determined

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TABLE 5-3: ESTIMATED HAZARDOUS WASTE GENERATION PER ANNUM

Waste Category	Waste Description	Disposal Method	Estimated Generation (kg/person/day)	Est. Total Annual Production (tonnes)	Est. Total Annual Production with 20% Contingency (tonnes)
2014 Work Plan (without ERP Approval)					
Batteries	Misc.	Shipped off Site	0.125	14.93	17.92
Hydro Carbon Contaminated Material	Sludge, Absorbents, Oil Filters etc	Incinerated/Shipped off Site	0.288	34.30	41.16
Waste Oil	Maintenance	Incinerated/Shipped off Site	1.732	206.30	247.55
Waste Fuels	Maintenance	Incinerated/Shipped off Site	0.129	15.32	18.38
Waste Grease	Domestic/ Maintenance	Incinerated/Shipped off Site	0.046	5.42	6.51
Waste Hazardous Liquids	Other, Paint, Oily Water	Shipped off Site	0.561	66.86	80.23
Waste Aerosol Canisters	Misc.	Shipped off Site	0.004	0.43	0.51
Contaminated Containers/Solids	Various	Shipped off Site	0.447	53.25	63.89
Misc Hazardous Materials	Misc.	Shipped off Site	0.350	41.73	50.08
TOTAL				**438.53**	**526.24**
2014 Work Plan (with ERP Approval)					
Batteries	Misc.	Shipped off Site	0.125	35.48	42.57
Hydro Carbon Contaminated Material	Sludge, Absorbents, Oil Filters etc	Incinerated/Shipped off Site	0.288	81.48	97.77
Waste Oil	Maintenance	Incinerated/Shipped off Site	1.732	490.05	588.06
Waste Fuels	Maintenance	Incinerated/Shipped off Site	0.129	36.38	43.66
Waste Grease	Domestic/ Maintenance	Incinerated/Shipped off Site	0.046	12.89	15.46
Waste Hazardous Liquids	Other, Paint, Oily Water	Shipped off Site	0.561	158.82	190.59

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Waste Category	Waste Description	Disposal Method	Estimated Generation (kg/person/day)	Est. Total Annual Production (tonnes)	Est. Total Annual Production with 20% Contingency (tonnes)
Waste Aerosol Canisters	Misc.	Shipped off Site	0.004	1.01	1.21
Contaminated Containers/Solids	Various	Shipped off Site	0.447	126.48	151.78
Misc Hazardous Materials	Misc.	Shipped off Site	0.350	99.13	118.95
TOTAL				**1,041.71**	**1,250.05**
ERP Operations Phase (incl. 18 Mt/a Construction Phase)					
Batteries	Misc.	Shipped off Site	0.125	62.71	75.26
Hydro Carbon Contaminated Material	Sludge, Absorbents, Oil Filters etc	Incinerated/Shipped off Site	0.288	144.03	172.84
Waste Oil	Maintenance	Incinerated/Shipped off Site	1.732	866.28	1039.53
Waste Fuels	Maintenance	Incinerated/Shipped off Site	0.129	64.31	77.17
Waste Grease	Domestic/ Maintenance	Incinerated/Shipped off Site	0.046	22.78	27.34
Waste Hazardous Liquids	Other, Paint, Oily Water	Shipped off Site	0.561	280.76	336.91
Waste Aerosol Canisters	Misc.	Shipped off Site	0.004	1.78	2.14
Contaminated Containers/Solids	Various	Shipped off Site	0.447	223.59	268.31
Misc Hazardous Materials	Misc.	Shipped off Site	0.350	175.23	210.28
TOTAL				**1,841.48**	**2,209.77**

5.5 HAZARDOUS WASTE TRANSPORTATION OFF-SITE

Hazardous Wastes will be shipped to registered hazardous waste disposal facilities or to recycling depots as per the Basel Convention. Hazardous wastes will not go to community hamlets. Storage and shipping containers will have appropriate containment measures. Manifests will be prepared for materials shipped off-site and the receivers will be required to maintain chain of custody records. Shipping will be undertaken only by those trained in the Transportation of Dangerous Goods (TDG). Hazardous waste

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storage and handling areas will be routinely inspected for leaks, spills, and the implementation of appropriate containment measures

Baffinland will maintain records of waste backhauled from the Mary River Project and confirmation of proper disposal through the use of Waste manifest tracking systems and registration with the Government of Nunavut, Department of Environment. These records will be made available upon request, to an Inspector or the Board.

5.6 EPP PROCEDURES RELEVANT TO THIS HAZARDOUS MATERIALS MANAGEMENT PLAN

TABLE 5-4 outlines the Environmental Protection Plan (EPP) (BAF-PH1-830-P16-0008) procedures that are relevant to the Hazardous Materials Management Plan. The EPP is a living document and is subject to on-going updates.

TABLE 5-4: CONTENT OF THE EPP RELATED TO THE HAZARDOUS MATERIALS MANAGEMENT PLAN

Section	Title/Description
2.5	Geotechnical Drilling Operations
2.6	Equipment Operations
2.7	Fuel Storage and Handling
2.14	Solid Waste Management
2.15	Sewage Treatment
2.16	Hazardous Waste Management
2.17	Road Construction and Borrow Development
2.19	Road Traffic Management
2.21	Exploration Drilling Operations
3.7	Off-Site Waste Disposal Log

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6 ROLES AND RESPONSIBILITIES

6.1 ENVIRONMENTAL RESPONSIBILITIES

The Baffinland Environmental Team is organized into two parts, on site as well as off site. The organisational structure for the Mary River Project in relation to the environment discipline is shown in the TABLE 6-1 below. Communication channels are described as liaisons in the tables outlining the responsibilities and accountabilities in the following sections.

6.1.1 ENVIRONMENTAL PROJECT TEAM

6.1.1.1 The Baffinland Environmental Team

The Baffinland Environmental Team will oversee all environmental and community works on and off site. The Baffinland Corporate Environmental Team responsibilities are summarized in TABLE 6-1.

TABLE 6-1: BAFFINLAND IRON MINES CORPORATION SENIOR MANAGEMENT

Baffinland Iron Mines Corporation Senior Management	
Position	**Responsibilities and Accountabilities**
Project Director	- Reports to Baffinland's CEO - Overall accountability for the Project execution - Allocation of resources (human and financial) for the implementation of Baffinland's commitments and objectives related to health, safety and environment during construction of the Project - Accountable for on-site environmental, health and safety performance during construction of the Project
VP Operations	- Reports to Baffinland's CEO - Overall accountability for the operation of the Project - Allocation of resources (human and financial) for the implementation of Baffinland's commitments and objectives related to health, safety and environment during operation - Accountable for on-site environmental, health and safety performance during operation
VP Sustainable Development, Health, Safety and Environment	- Reports to Baffinland's CEO - Establish corporate environmental policies and objectives - Monitors and reports on Baffinland's performance related to environmental, health and safety policies and objectives - Community liaison - Liaise with regulatory authorities - Obtains necessary permits and authorizations - Monitors compliance with terms and conditions of permits and licences - Routine EHS audit of contractor performance while on site
Manager Purchasing and Contract	- Reports to Baffinland's Project Director - Accountable for procurement and purchasing - Ensure that environmental commitments, policies and objectives are included in all contract documents

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Baffinland Iron Mines Corporation Senior Management	
Position	**Responsibilities and Accountabilities**
VP Corporate Affairs	- Reports to Baffinland's CEO - Accountable for external communication (Governments, media, NGO, others) related to Baffinland's press release and overall communication of site incidents/events

The Baffinland Environmental Team will oversee all environmental activities on site. These responsibilities on site are outlined in TABLE 6-2.

TABLE 6-2: BAFFINLAND IRON MINES CORPORATION ON-SITE MANAGEMENT TEAM

Baffinland Iron Mines Corporation On-Site Management Team	
Position	**Responsibilities and Accountabilities**
Environmental Manager	- Reports to VP Sustainable Development, Health, Safety and Environment - Liaises with the Project Director, Construction Manager and the Emergency Response Team - Monitors environmental performance of contractors on site - Monitors compliance with permits, licenses and authorizations - Regulatory environmental monitoring and reporting (monthly, annual) - Routine audit of contractor's environmental performance on-site - Initiate/supervise environmental studies - Investigate and reports on accidents and incidents when they occur - Review and update environmental management plans
Environmental Coordinator/Superintendent	- Reports to Environmental Manager - Specific accountabilities for environmental monitoring and reporting - Provides induction and environmental awareness training to new employees and contract workers
Environmental Support Groups	- Reports to the Environmental Manager - Environmental database management - Various sampling, monitoring and reporting activities as required by permits, licenses and environmental management plans - Prepare updates to environmental protection plan and management plans
Environmental Monitors	- Reports to the Environmental Manager - Conduct monitoring activities as per the Environmental Management Plans
QIA Monitors	- Various monitoring and follow up activities - Roles will be defined in the IIBA agreement

6.1.2 MARY RIVER PROJECT ORGANIZATIONAL CHARTS

For further information regarding the Mary River Projects organizational structure in relation to the environment discipline, please refer to the FIGURE 6-1 below:

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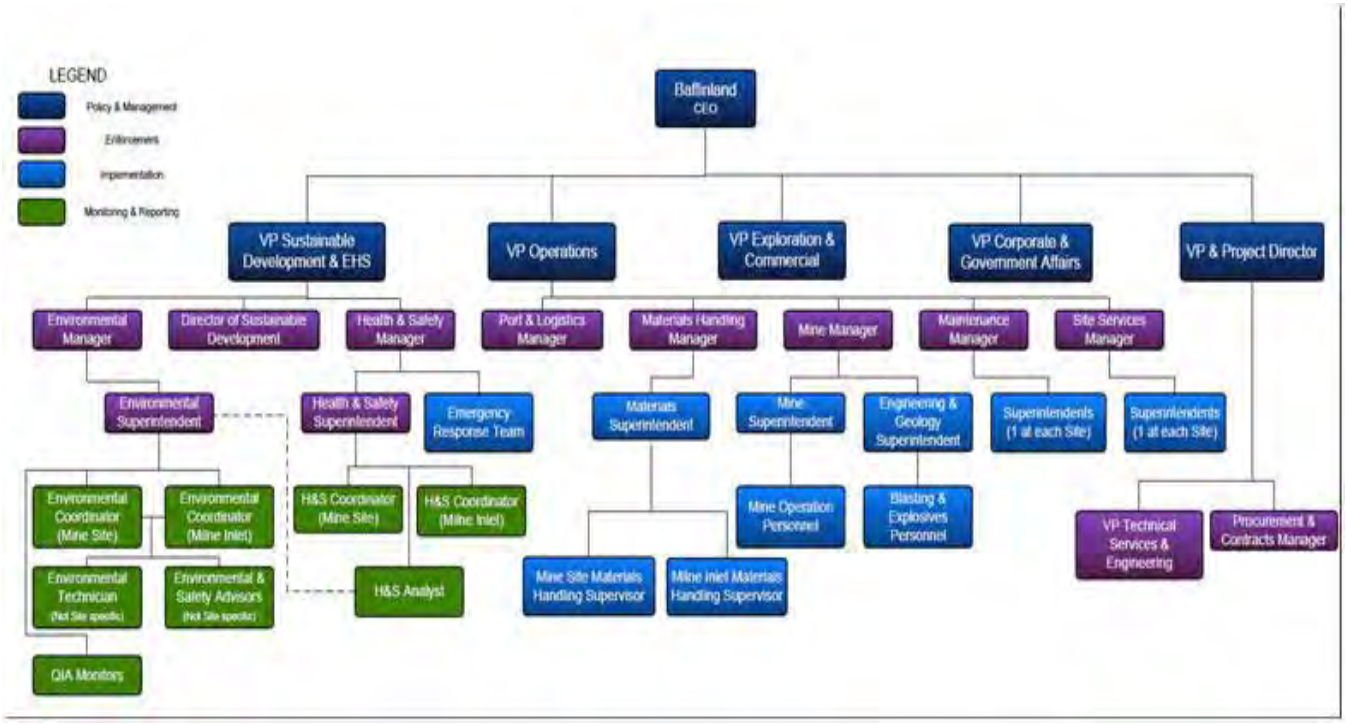


FIGURE 6-1: MARY RIVER PROJECT ORGANIZATION CHART

6.2 TRAINING AND AWARENESS

Staff and sub-contractors working on site will receive environmental training as part of the Site Orientation, to achieve a basic level of environmental awareness understanding of their obligations regarding compliance with regulatory requirements, commitments and best practices.

Operations superintendents and contractor supervisors will be provided with this Management Plan as necessary, and will receive additional orientation with respect to the requirements outlined in this Plan. In addition, all supervising level staff and sub-contractors will be provided with the Operational Standards (found in the Environmental Protection Plan) as a written guidance for their work.

Targeted environmental awareness training will be provided to both individuals and groups of workers assuming a specific authority or responsibility for environmental management or those undertaking an activity with an elevated high risk of environmental impact. These will be delivered in the form of toolbox/tailgate meetings or other means as appropriate.

The content of the environmental component of the site induction will include at a minimum:

- Location of environmental sensitivities.
- Location of additional information on environmental matters.

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- Due diligence responsibilities.
- Responsibilities related to waste management, minimizing noise as necessary, road traffic rules, etc.
- Principles and necessary steps to avoid encounters with bears or other wildlife and what to do if one such encounter occurs.

With respect to hazardous materials management, Baffinland will adopt a training and awareness plan which will consider:

- The differing level of risks and potential consequences associated with different types of hazardous materials.
- The different responsibilities, abilities, and literacy of employees.
- The culture of the employees.
- Contractors involved and their relevant experience/expertise.
- The trainers, training methods, and settings.
- Training frequency.
- Documentation of training and evaluation of training.

Baffinland will regularly review and update the training and awareness plan based on changes in training needs and regulatory required training.

6.3 COMMUNICATION

The types of communications for which members of the team will participate include the following:

- Formal written correspondence and meetings with stakeholders.
- Site visits by community representatives.
- Design, construction and planning meetings.
- Field inspections and monitoring reports disseminated by the Environmental Manager.
- Electronic communications.
- Tailgate/toolbox meetings.
- Formal written correspondence and meetings with government regulatory bodies.
- Formal environmental awareness training.

Communications will be appropriately recorded and filed for future reference. Where appropriate, the copies of communications will be forwarded to the Operations Manager(s), and Environmental Manager.

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6.4 EXTERNAL COMMUNICATIONS

Effective forms of communication include the proactive notification to external stakeholders of Project activity. Project activity updates will be provided to the communities of North Baffin through various means including regular meetings, public notices and radio announcements as appropriate. Baffinland will maintain Community Liaison Offices to assist in this regard.

6.5 CONSTRUCTION

During the construction phase of the Project, the Baffinland VP of Mine Operations and Site Managers will be responsible for implementing this Plan.

This Management Plan will be updated to take into account the numerous construction sites, and types of construction equipment utilized.

6.6 OPERATION AND CLOSURE

For the operations and closure phases, Baffinland will revise its organizational structure to reflect the realities of the operation. The Environmental Manager will be responsible for subsequent updates and implementation of the Plan.

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7 PERFORMANCE INDICATORS, THRESHOLDS AND INCIDENT RESPONSE

Regular inspections of hazardous materials management facilities will ensure compliance with this Hazardous Materials Management Plan. The Environmental Protection Plan (BAF-PH1-830-P16-0008) and associated operations procedures/work instructions outline detailed procedures for handling and storage of fuel, lubricants and other hazardous materials. These procedures are in place and training will be provided to employees and contractors on hazardous materials handling. Accidental spills are the most likely type of environmental incident to occur while conducting the above mentioned activities. Response procedures, documented in the Environmental Protection Plan (BAF-PH1-830-P16-0008) and the Emergency Response and Spill Protection Plans (BAF-PH1-830-P16-0007), are in place to deal with these occurrences.

The ultimate performance indicator for hazardous materials management is the number of incidents of non compliance reported on a daily or monthly basis. Incidents of non-compliance are classified by type and each type entails remedial actions as outlined in Hazard Identification and Risk Assessment Procedure (BAF-PH1-830-PRO-0001).

Where an investigation triggers a review and update of established Environmental Protection Plan (BAF-PH1-830-P16-0008) procedures, these reviews and update will be carried out in accordance the procedures established by Baffinland`s EHS Framework.

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8 MONITORING AND REPORTING REQUIREMENTS

8.1 HAZARDOUS MATERIALS MONITORING

Hazardous materials monitoring includes the visual inspection of three main components of the hazardous materials management system (described below) and the measurement and recording of hazardous materials taken off site. The following information will be reported on an annual basis as currently is the practice:

- The quantities hazardous materials transported off-site for disposal.
- The location and name of the disposal facility for each hazardous materials type.
- The date that each was hauled off-site for disposal, for each occasion that these are removed from the site.
- Quantities of non-hazardous inert solid hazardous materials disposed in the landfill.
- Quantities of hydrocarbon contaminated soils and water processed in treatment facilities.

Regular visual inspection of hazardous materials management facilities will be conducted by the Environmental Manager, or designate, to ensure proper operation and adequate environmental/health and safety controls are in place.

Hazardous materials audits will be undertaken periodically generation points to ensure hazardous materials streams are properly segregated.

Landfarm monitoring on the Project will be done in accordance to Annex 5 of the Waste Management Plan (BAF-PH1-830-P16-0028).

8.2 OPERATIONS MONITORING

In addition to specific monitoring and reporting requirements under the regulatory approvals such as the water license, QIA Commercial Lease, land use permits, and fisheries authorization as well as monitoring of Project effects, the Environmental Manager, or designate will coordinate routine inspections of various aspects of the operations. Routine inspections are conducted to confirm overall conformance with the requirements of the Hazardous Materials Management Plan, companion Environmental Protection Plan (BAF-PH1-830-P16-0008), and operating procedures/work instructions, and will include inspections of site-based hazardous materials management activities.

Compliance Monitoring and/or Inspection Forms are used to document the findings and required actions. These reports are generated as an internal operational management tool to promote continuous improvement in environmental performance and stewardship. Checklists are used as

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internal operational monitoring and compliance tools. These checklists are integrated into the EPP and other operating procedures/work instructions.

8.3 DATA MANAGEMENT

The Environmental Manager is responsible for data management and reporting related to hazardous materials management. The data management system includes conducting routine inspections and monitoring, and providing these results to appropriate parties as required.

8.4 STAKEHOLDER REPORTING

Reporting of waste management activities will be included in the respective NWB and NIRB annual reports. In addition, interested stakeholders and the public may request detailed information as part of the Stakeholder Involvement Plan (BAF-PH1-830-P16-0025).

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9 ADAPTIVE STRATEGIES

Baffinland is committed to continual improvement in its work activities with the aim of reducing risks to the environment and improving operational effectiveness. The strategy employed at Baffinland is regular monitoring supported by operational change and adoption of other mitigating measures if warranted.

Housekeeping and operational measures have been instituted. As part of the Environmental Protection Plan (BAF-PH1-830-P16-0008), work procedures will continuously be adapted with the goal to reduce the use of hazardous materials. Regular scheduled inspections of hazardous materials storage facilities along with the non-compliance reporting system described in Section 9 will ensure continual improvement and adaptation of hazardous materials management strategies throughout the life cycle of the Project.

As per the requirements of Baffinland`s EHS Management Framework, the company will conduct and document management reviews of its Hazardous Materials and Hazardous Waste Management Plan on a regular basis. Such reviews will ensure the integration of monitoring results for the Hazardous Materials and Hazardous Waste Management Plan are integrated with other aspects of the Project and that necessary adjustments are implemented as required. These reviews also provide a formal mechanism to assess the effectiveness of the management in achieving the company's objectives and maintaining on-going compliance with Project permits and authorizations.

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10 QA/QC

As per the requirements of Baffinland`s EHS Framework Standard (BAF-PH1-830-STD-0001), regular audits will be undertaken to ensure compliance with the current Hazardous Materials and Hazardous Waste Management Plan and that best management practices are implemented for hazardous materials management. The result of these audits will form the basis for an annual written statement of assurance by management on the effectiveness of its Hazardous Materials and Hazardous Waste Management Plan.

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Appendix A -
Material Safety Data Sheets

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Mary River Mine Site

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Material Safety Data Sheets

SANFORD BRANDS

A Newell Rubbermaid Company

MATERIAL SAFETY DATA SHEET

MSDS # 80001

Section One: Identification

Sanford, L.P.
2707 Butterfield Road
Oak Brook, IL 60523 USA
800-323-0749 or 630-481-2000

EMERGENCY MEDICAL NUMBER:

888-786-0972

Product Name: Expo Low Odor Dry Erase Markers

Colors: All Colors, except Pink

Sanford is a member of The Art and Creative Materials Institute, Inc. This product is certified by the Institute to be labeled in accordance with the voluntary chronic hazard labeling standard ASTM D-4236 and is labeled with the AP Non Toxic Seal. Products bearing the AP Approved Product Seal of The Art and Creative Materials Institute, Inc. are certified in a program of toxicological evaluation by a medical expert, subject to review by the Institute Toxicology Advisory Board, to contain no materials in sufficient quantities to be toxic or injurious to humans, or to cause acute toxicity or chronic health problems.

Section Two: Hazard Identification

This product is considered safe under normal use conditions.

Section Three: Composition

Ethanol (64-17-5), Isopropyl alcohol (67-63-0), Butanol (71-36-3)

Section Four: First Aid Measures

Inhalation: This product is considered safe under normal use conditions.

Skin Contact: If irritation occurs rinse affected area with water.

Eye Contact: Rinse thorougly with water .

Ingestion: This product is considered safe under normal use conditions.

Section Five: Fire Fighting Measures

Flash Point: >43 F (TOC)

Flammability Limits (% by volume): Lower: 3.3% Upper: 19.0%

Extinguishing Media: As appropriate for surrounding area.

Special Fire Fighting Measures: None

Unusual Fire and Explosion Hazards: None

Section Six: Accidental Release Measures

In Case of Spill or Accidental Release: Wipe up with absorbent material.

Section Seven: Handling and Storage

Handling: Do not shake marker.

Storage: Replace cap when not in use. Store markers horizontally.

Section Eight: Exposure Controls and Personal Protection

Eye Protection: None under normal use conditions.

Clothing: None under normal use conditions.

Respirator: None under normal use conditions.

Section Nine: Physical and Chemical Properties

For ink unless otherwise specified:

Boiling Point:	174.2 F (ethanol)
Specific Gravity:	~1
Vapor Pressure:	Not determined
Solubility in Water:	Miscible
Evaporation Rate:	Not determined
Appearance/Odor:	Colored ink; alcoholic odor

Section Ten: Stability and Reactivity

Stability:	Stable
Conditions to Avoid:	Open flame
Chemical Incompatibility:	None known
Hazardous Decomposition:	None known
Hazardous Polymerization:	Will not occur

Section Eleven: Toxicological Information

See Section Two: Hazard Identification for any hazards

Section Twelve: Ecological Information

Not available

Section Thirteen: Disposal Considerations

Dispose of in accordance with Federal, State, and Local Regulations.

Section Fourteen: Transport Information

DOT:	Not regulated
IATA:	Not regulated
IMO:	Not regulated

Section Fifteen: Regulatory Information

US:	All components in this product are listed on or exempt from the Toxic Substances Control Act (TSCA) Inventory.
Canada:	All Components in this product are listed on or exempt from the Domestic Substance List (DSL).

Section Sixteen: Other Information

HMIS Code	
Health	0
Flammability	1
Reactivity	0
Personal Protection	N/A

0=Minimal / 4 = Severe

Sanford has been advised by Counsel that the OSHA Hazard Communication Standard and the Health Canada Workplace Hazardous Materials Information Standard do not apply to the Sanford Product described in this Material Safety Data Sheet. The reasons for the exemptions are contained in 29 CFR 1910.1200(b)(6)(ix) as amended Sept 14, 2009 per the Code of Federal Regulations and also Canadian Hazardous Products Act part 12 section (f) as amended June 1, 2009. The information contained in this MSDS is forwarded to you for your information, but is not meant to imply that the product is covered by nor is this MSDS meant to comply with all requirements of the hazard communication standards.

K-G PACKAGING
8001 KEELE STREET, P.O BOX 89
CONCORD; L4K 1Y8; ONTARIO
CANADA 905--669-9855

PRODUCT: 3958-1420 WD40 3.578L & SPRAY APPLICATOR



Section 01: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER	K-G PACKAGING INC. 8001 KEELE STREET P.O. BOX 89 ONTARIO CANADA L4K 1Y8 CANUTEC EMERGENCY #:1-613-996-6666(24HR)
PRODUCT NAME	3958-1420 WD40 3.578L & SPRAY APPLICATOR
CHEMICAL FAMILY	ORGANIC MIXTURE.
MOLECULAR WEIGHT	NOT APPLICABLE.
CHEMICAL FORMULA	NOT APPLICABLE.
TRADE NAMES & SYNONYMS	3958-1420 WD40 3.578L & SPRAY APPLICATOR
PRODUCT USES	LUBRICANT/PENETRANT.
FORMULA/LAB BOOK #	

Section 02: COMPOSITION/INFORMATION INGREDIENTS

Hazardous Ingredients	%	Exposure Limit	C.A.S.#	LD/50, Route,Species	LC/50 Route,Species
PETROLEUM BASE OIL	15-40	5mg/m3	64742-53-6/64742-56-9/64742-65-0	N/A	N/A
HYDROTREATED MIDDLE PETROLEUM DISTILLATE	40-70	N/A	64742-47-8	NOT CONTROLLED BY WHMIS	NOT CONTROLLED BY WHMIS
NON-HAZARDOUS INGREDIENTS:	7-15				
SURFACTANTS	1-5	N/A	PROPRIETARY	N/A	N/A

Section 03: HAZARDS IDENTIFICATION

ROUTE OF ENTRY:

INGESTION	MAY CAUSE HEADACHE, NAUSEA, VOMITING AND WEAKNESS.
INHALATION, CHRONIC	UNKNOWN.
INHALATION	INHALATION OF SOLVENTS MAY CAUSE IRRITATION.
EYE CONTACT	MAY CAUSE IRRITATION.
SKIN ABSORPTION	NO DATA AVAILABLE FOR THIS PRODUCT MIXTURE.
SKIN CONTACT	MAY CAUSE IRRITATION.
EFFECTS OF ACUTE EXPOSURE	DIZZINESS, NAUSEA. IRRITATION TO SKIN & EYES.
EFFECTS OF CHRONIC EXPOSURE	SOLVENTS MAY CAUSE DEFATTING DERMATITIS .
EXPOSURE LIMIT OF MATERIAL	SEE SECTION 2.

Section 04: FIRST AID MEASURES

EMERGENCY FIRST AID PROCEDURE	IN CASE OF EYE CONTACT, FLUSH IMMEDIATELY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION. FOR SKIN, WASH THOROUGHLY WITH SOAP AND WATER. IF AFFECTED BY INHALATION OF VAPOUR OR SPRAY MIST, REMOVE TO FRESH AIR. IF SWALLOWED; DO NOT INDUCE VOMITING, GET MEDICAL ATTENTION.

Section 05: FIRE FIGHTING MEASURES

AUTO IGNITION TEMPERATURE (°C)	232.
SPECIAL PROCEDURES	WATER FROM FOGGING NOZZLES MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT BUILD-UP IF EXPOSED TO EXTREME TEMPERATURES. FULL PROTECTIVE EQUIPMENT INCLUDING SELF CONTAINED BREATHING APPARTATUS SHOULD BE WORN IN A FIRE INVOLVING THIS MATERIAL.
FLAMMABILITY	COMBUSTIBLE.
IF YES, UNDER WHICH CONDITIONS?	EXCESSIVE HEAT, SPARKS AND OPEN FLAME.
EXTINGUISHING MEDIA	WATER, CARBON DIOXIDE, DRY CHEMICAL, FOAM.
FLASH POINT (C), TAG CLOSED CUP	LOWEST KNOWN VALUE IS MINERAL SPIRIT @ 43C.
UPPER FLAMMABLE LIMIT (% BY VOLUME)	8.9.
LOWER FLAMMABLE LIMIT (% BY VOLUME)	1.4.
EXPLOSION DATA	
SENSITIVITY TO STATIC DISCHARGE	NOT APPLICABLE.
SENSITIVITY TO IMPACT	NOT APPLICABLE.
HAZARDOUS COMBUSTION PRODUCTS	HYDROCARBON FUMES AND SMOKE. CARBON MONOXIDE WHERE COMBUSTION IS INCOMPLETE.

PRODUCT: 3958-1420 WD40 3.578L & SPRAY APPLICATOR

Section 06: ACCIDENTAL RELEASE MEASURES

LEAK/SPILL	REMOVE ALL SOURCES OF IGNITION. USE AN INERT ABSORBENT MATERIAL, AND NON-SPARKING TOOLS. VENTILATE AREA. PREVENT FROM ENTERING A WATERCOURSE.

Section 07: HANDLING AND STORAGE

STORAGE NEEDS	KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAMES.
ENGINEERING CONTROLS	VENTILATION - LOCAL (MECHANICAL IF USED INDOORS ON A CONTINUOUS BASIS).
HANDLING PROCEDURES AND EQUIPMENT	STORE IN A COOL, WELL VENTILATED AREA NOT TO EXCEED 50 DEG C.
SYNERGISTIC MATERIALS	NONE KNOWN.

Section 08: EXPOSURE CONTROLS/PERSONAL PROTECTION

GLOVES/ TYPE	WEAR CHEMICAL RESISTANT GLOVES.
RESPIRATORY/TYPE	IF USED INDOORS ON A CONTINUOUS BASIS, USE OF A CARTRIDGE TYPE RESPIRATOR (NIOSH/MSHATC 23C OR EQUIVALENT) IS RECOMMENDED.
EYE/TYPE	SAFETY GLASSES.
FOOTWEAR/TYPE	RUBBER SAFETY BOOTS.
OTHER/TYPE	NOT REQUIRED.

Section 09: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	LIQUID.
APPEARANCE	LIGHT AMBER.
ODOR	CHARACTERISTIC.
ODOR THRESHOLD	NOT AVAILABLE.
VAPOUR PRESSURE(PSIG)-AEROSOL @ 20 C	N/A.
BOILING POINT (°C)(CONC)	159-315.
EVAPORATION RATE. n-BUTYL ACETATE = 1	NOT AVAILABLE.
VAPOUR DENSITY (AIR=1) (BY WEIGHT)	GREATER THAN 1.
SOLUBILITY IN WATER g/L (20°C)	NOT SOLUBLE.
pH	NOT APPLICABLE.
SPECIFIC GRAVITY (LIQUID)	0.80-0.84.
COEFFICIENT OF WATER\OIL DIST	NOT AVAILABLE.
FREEZING POINT: (°C)	NOT AVAILABLE.
PERCENT VOLATILE (BY VOLUME)	80-85.

Section 10: STABILITY AND REACTIVITY

HAZARDOUS PRODUCTS OF DECOMPOSITION	HYDROCARBON FUMES AND SMOKE. CARBON MONOXIDE WHERE COMBUSTION IS INCOMPLETE.
CHEMICAL STABILITY:	
YES	UNDER NORMAL CONDITIONS.
NO, WHICH CONDITIONS?	NOT APPLICABLE.
COMPATIBILITY WITH OTHER SUBSTANCES:	
NO, WHICH ONES?	STRONG OXIDIZING AGENTS.
REACTIVITY CONDITIONS?	NOT APPLICABLE.
HAZARDOUS POLYMERIZATION	WILL NOT OCCUR.

Section 11: TOXICOLOGICAL INFORMATION

REPRODUCTIVE EFFECTS	NO INFORMATION IS AVAILABLE AND NO ADVERSE REPRODUCTIVE EFFECTS ARE ANTICIPATED.
IRRITANCY OF MATERIAL	SLIGHT.
SENSITIZING CAPABILITY OF MATERIAL	UNKNOWN.
CARCINOGENICITY OF MATERIAL	THE INGREDIENTS OF THIS PRODUCT ARE NOT LISTED AS CARCINOGENS BY NTP, (NATIONAL TOXICOLOGY PROGRAM), NOT REGULATED AS CARCINOGENS BY OSHA, (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION), AND HAVE NOT BEEN EVALUATED BY IARC,(INTERNATIONAL AGENCY FOR RESEARCH ON CANCER), NOR BY ACGIH (AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS).
TERATOGENICITY	NO INFORMATION IS AVAILABLE AND NO ADVERSE TERATOGENIC EFFECTS ARE ANTICIPATED.
MUTAGENICITY	NO INFORMATION IS AVAILABLE AND NO ADVERSE MUTAGENIC EFFECTS ARE ANTICIPATED.

Section 12: ECOLOGICAL CONSIDERATIONS

ENVIRONMENTAL	NOT AVAILABLE.

Section 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL	DO NOT PUNCTURE OR INCINERATE CONTAINERS, EVEN WHEN EMPTY. DISPOSE OF IN ACCORDANCE WITH LOCAL, PROVINCIAL AND FEDERAL REGULATIONS.

PRODUCT: 3958-1420 WD40 3.578L & SPRAY APPLICATOR

Section 14: TRANSPORTATION INFORMATION

T.D.G. CLASSIFICATION.....	FLAMMABLE LIQUID, N.O.S. (PETROLEUM DISTILLATES MIXTURE), CLASS 3, UN1993, PG III.
D.O.T. CLASSIFICATION.....	FLAMMABLE LIQUID, N.O.S. (PETROLEUM DISTILLATES MIXTURE), CLASS 3, UN1993, PG III.

Section 15: REGULATORY INFORMATION

CANADIAN REGULATIONS:

WHMIS CLASSIFICATION.....	B3.
NFCC SECTION 4.1.....	CLASS II.
CEPA (Canadian Enviromental Protection Act)	ALL SUBSTANCES IN THIS PRODUCT ARE LISTED ON THE CANADIAN DOMESTIC SUBSTANCES LIST (DSL) OR ARE NOT REQUIRED TO BE LISTED.

U.S. REGULATIONS:

HMIS RATING HEALTH.....	2 MODERATE HAZARD.
HMIS RATING FLAMMABILITY.....	2 MODERATE HAZARD.
HMIS RATING REACTIVITY.....	0 MINIMAL HAZARD.
HMIS RATING PERSONAL PROTECTION.....	B.
NFPA CODE 30B.....	CLASS II.
SARA 313 INFORMATION:.....	THIS PRODUCT CONTAINS NO INGREDIENTS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF THE EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT OF 1986 AND OF 40 CFR 372. . CAS #: CHEMICAL NAME: . N/A.
CALIFORNIA PROPOSITION 65:.....	THE FOLLOWING STATEMENT IS MADE IN ORDER TO COMPLY WITH THE CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT OF 1986: . WARNING: THIS PRODUCT DOES NOT INTENTIONALLY CONTAIN ANY CHEMICALS KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM. . CAS #: CHEMICAL NAME: . N/A.
TSCA (Toxic Substances Control Act).....	ALL COMPONENT OF THIS PRODUCT ARE LISTED ON THE TSCA INVENTORY. ANY IMPURITIES PRESENT IN THIS PRODUCT ARE EXEMPT FROM LISTING.
VOC (w/w%).....	80-85.

Section 16: OTHER INFORMATION

NOTICE FROM KG PACKAGING INC	THE INFORMATION ON THIS MATERIAL SAFETY DATA SHEET IS PROVIDED BY K-G PACKAGING INC. FREE OF CHARGE. WHILE BELIEVED TO BE RELIABLE, IT IS INTENDED FOR USE BY SKILLED PERSONS AT THEIR OWN RISK. K-G PACKAGING INC. ASSUMES NO RESPONSIBILITY FOR EVENTS RESULTING OR DAMAGES INCURRED FROM ITS USE. THE INFORMATION ON THIS MATERIAL SAFETY DATA SHEET RELATES ONLY TO THE SPECIFIC MATERIAL DESIGNATED HEREIN AND DOES NOT RELATE TO USE IN COMBINATION WITH ANY OTHER MATERIAL OR IN ANY PROCESS.
PREPARED BY.....	TECHNICAL SERVICES
PREPARATION DATE	Feb17/11

Schering-Plough HealthCare Products Canada,
a division of Schering-Plough Canada Inc.
3535 Trans-Canada
Pointe-Claire, Quebec
Canada H9R 1B4

MATERIAL SAFETY DATA SHEET

Merck urges each user or recipient of this MSDS to read the entire data sheet to become aware of the hazards associated with this material.

SECTION 1. IDENTIFICATION OF SUBSTANCE AND CONTACT INFORMATION

MSDS NAME: **Muskol Liquid Pump Spray, 30% DEET**

SYNONYM(S): Muskol Insect Repellent Pump Spray
Muskol Insect Repellent Classic

MSDS NUMBER: SP001587

EMERGENCY NUMBER(S): (908) 423-6000 (24/7/36) English Only
Transportation Emergencies - CANUTEC:
(613) 996-6666 (Canada)

INFORMATION: Schering-Plough HealthCare Products Canada
Customer Service (English): 1-800-361-6550
Service à la clientèle (French): 1-800-361-2431

MERCK MSDS HELPLINE: (800) 770-8878 (US and Canada)
(908) 473-3371 (Worldwide)
Monday to Friday, 9am to 5pm (US Eastern Time)

SECTION 2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Liquid
Clear, Colorless to light yellow
Characteristic odor
Flammable.
May be severely irritating to the eyes.
May be harmful by inhalation.
Absorbed through the skin.
Harmful if swallowed or absorbed through the skin in large amounts.
May cause effects to:
nervous system
cardiovascular system
liver
kidney
May be harmful to fish and aquatic organisms.

Consumers: Refer to the package insert or product label for appropriate consumer-specific information about this product when used according to manufacturer's directions.

POTENTIAL HEALTH EFFECTS:

The following summary is based upon available information about the individual ingredients of the mixture, or of the expected properties of the mixture.

DEET is a common insect repellent which is applied directly to the skin. DEET may cause stinging and slight to moderate eye and mucous membrane irritation. DEET may cause contact dermatitis or excerbation of pre-existing skin disease in sensitive individuals. DEET is efficiently absorbed from the skin or gut. If large amounts of DEET are inhaled, ingested, or applied dermally (especially areas of skin that are occluded), the potential for severe toxicity exists. However, compared to the widespread use of the product, there are relatively few cases of toxicity. Reported acute or chronic effects from overexposure to DEET were restlessness, drowsiness, irritability, weakness, headaches, incoordination, slurred speech, confusion, insomnia, tremor, flexing or extending of extremities, decreases in blood pressure, decreased heartbeat, skin effects (rashes, bullous eruptions and necrosis), pyschosis, seizures, prolonged disability, coma, or anaphylactic reaction. Death has been reported when large amounts of DEET were ingested.

Ethanol (ethyl alcohol) is an eye, nose, and mucous membrane irritant. It may cause skin irritation or sensitization after prolonged exposure. Acute effects of ethanol may include headache, dizziness, nausea, sensations of warmth and cold, numbness, fatigue, breathing difficulty, cough, tearing, vision impairment, incoordination, decreased reaction time, alteration of mood and personality, slurred speech, coma and respiratory depression. Chronic effects may include concentration difficulty, sleepiness, kidney and liver damage, and cardiac effects. Chronic ingestion of ethanol may cause cancer of the oral cavity, pharynx, larynx, esophagus, and liver. Oral ingestion of alcohol during pregnancy may cause Fetal Alcohol Syndrome (FAS) including joint, limb, and cardiac abnormalities and behavioral and learning impairment. There have been no reports of FAS as a result of occupational handling of ethanol.

LISTED CARCINOGENS

INGREDIENT	CAS NUMBER	OSHA	IARC	NTP	ACGIH
Ethyl Alcohol	64-17-5		1	K	A3

Ethanol (ethyl alcohol): IARC (International Agency for Research on Cancer) has classified Alcoholic Beverages as Group 1 (indicating in their evaluation that the agent is carcinogenic to humans). However, occupational handling or manufacturer's specified use of this product is not expected to result in relevant exposures.

SECTION 3. COMPOSITION AND INFORMATION ON INGREDIENTS

PRODUCT USE: Consumer product

CHEMICAL FORMULA: Mixture.

The formulation for this product is proprietary information. Only hazardous ingredients in concentrations of 1% or greater and/or carcinogenic ingredients in concentrations of 0.1% or greater are listed in the Chemical Composition table. Active ingredients in any concentration are listed.

CHEMICAL COMPOSITION

INGREDIENT	CAS NUMBER	PERCENT
Diethyltoluamide (DEET)	134-62-3	30
Ethyl Alcohol	64-17-5	50-60

ADDITIONAL INFORMATION: This MSDS is written to provide health and safety information for individuals who will be handling the final product formulation during research, manufacturing, and distribution. For health and safety information for individual ingredients used during manufacturing, refer to the appropriate MSDS for each ingredient. Refer to the package insert or product label for handling guidance for the consumer.

SECTION 4. FIRST AID MEASURES

INHALATION: Remove to fresh air. If any trouble breathing, get immediate medical attention. Administer artificial respiration if breathing has ceased. If irritation or symptoms occur or persist, consult a physician.

SKIN CONTACT: In case of skin contact, while wearing protective gloves, carefully remove any contaminated clothing, including shoes, and wash skin thoroughly with soap and water. If irritation or symptoms occur or persist, consult a physician.

EYE CONTACT: In case of eye contact, IMMEDIATELY rinse eyes thoroughly with plenty of water. If wearing contact lenses, remove only after initial rinse, and continue rinsing eyes for at least 15 minutes. Get IMMEDIATE medical attention.

INGESTION: Rinse mouth and drink a glass of water. Do not induce vomiting unless under the direction of a qualified medical professional or Poison Control Center. If symptoms persist, consult a physician.

SECTION 5. FIRE FIGHTING MEASURES

FLAMMABILITY DATA:

Flash Point:	Ethanol (50%): 24 deg C (79 deg F) Method: Close cup Ethanol (100%): 13 deg C (55 deg F) Method: Closed cup
Classification:	Flammable (US OSHA Criteria) Flammable (Canada WHMIS Criteria)
Autoignition Temperature:	Ethanol (100%): 363 deg C (685 deg F)

SPECIAL FIRE FIGHTING PROCEDURES:
Wear full protective clothing and self-contained breathing apparatus (SCBA).

SUITABLE EXTINGUISHING MEDIA:
Carbon dioxide (CO2), extinguishing powder or water spray.

See Section 9 for Physical and Chemical Properties.

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:
Wear appropriate personal protective equipment as specified in Section 8. Keep personnel away from the clean-up area.

SPILL RESPONSE / CLEANUP:
All spills should be handled according to site requirements and based on precautions cited in the MSDS. In the case of liquids, use proper absorbent materials. For laboratories and small-scale operations, incidental spills within a hood or enclosure should be cleaned by using a HEPA filtered vacuum or wet cleaning methods as appropriate. For large dry or liquid spills or those spills outside enclosure or hood, appropriate emergency response personnel should be notified. In manufacturing and large-scale operations, HEPA vacuuming prior to wet mopping or cleaning is required.

See Sections 9 and 10 for additional physical, chemical, and hazard information.

SECTION 7. HANDLING AND STORAGE

HANDLING:
Avoid contact with eyes. Keep containers adequately sealed during material transfer, transport, or when not in use. Wash face, hands, and any exposed skin after handling. Do not eat, drink, or smoke when using this substance or mixture.

Appropriate handling of this material is dependent on many factors, including physical form, duration and frequency of process or task, and effectiveness of engineering controls. Site-specific risk assessments should be conducted to determine the feasibility and the appropriateness of all exposure control measures. See Section 8 (Exposure Controls) for additional guidance.

STORAGE:
Store in a cool, dry, well ventilated area. Keep away from heat, sparks, open flames, and direct sunlight.

See Section 8 for exposure controls and additional safe handling information.

SECTION 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

EXPOSURE CONTROLS
The health hazard risks of handling this material are dependent on many factors, including physical form, duration and frequency of process or task, and effectiveness of engineering controls. Site-specific risk assessments should be conducted to determine the feasibility and the appropriateness of all exposure control measures. Exposure controls for normal operating or routine procedures follow a tiered strategy. Engineering controls are the preferred means of long-term or permanent exposure control. If engineering controls are not feasible, appropriate use of personal protective equipment (PPE) may be considered as alternative control measures. Exposure controls for non-routine operations must be evaluated and addressed as part of the site-specific risk assessment.

RECOMMENDED PERSONAL PROTECTIVE EQUIPMENT (PPE):

Respiratory Protection: None required for consumer use of this product.

Respiratory protective equipment (RPE) may be required for certain laboratory and large-scale manufacturing tasks if potential airborne breathing zone concentrations of substances exceed the relevant exposure limit(s). Workplace risk assessment should be completed before specifying and implementing RPE usage. Potential exposure points and pathways, task duration and frequency, potential employee contact with the substance, and the ability of the substance to be rendered airborne during specific tasks should be evaluated. Initial and ongoing strategies of quantitative exposure measurement should be obtained as required by the workplace risk assessment. All RPE must conform to local and regional specifications for efficacy and performance. Consult your site or corporate health and safety professional for additional guidance.

Skin Protection: None required for consumer use of this product.

Gloves that provide an appropriate barrier to the skin are recommended if there is potential for contact with this material. Consult your site safety staff for guidance.

Eye Protection: None required for consumer use of this product.

Safety glasses with side shields. Use of goggles or full face protection is required if there is potential for contact with this material. Consult your site safety staff for guidance.

Body Protection: None required for consumer use of this product.

In small-scale or laboratory operations, lab coats or equivalent protection is required. Disposable Tyvek or other dust impermeable suit should be considered based on procedure or level of exposure. Use of additional PPE such as shoe coverings, gauntlets, hood, or head covering may be necessary. Consult your site safety staff for guidance.

In large-scale or manufacturing operations, disposable Tyvek or other dust impermeable suit is recommended and based on level of exposure. Use of additional PPE such as shoe coverings, gauntlets, hood, or head covering may be necessary. Consult your site safety staff for guidance.

EXPOSURE LIMIT VALUES

INGREDIENT	CAS NUMBER	ACGIH TLV (TWA)	OSHA PEL (TWA)
Ethyl Alcohol	64-17-5		1000 ppm 1900 mg/m^3

INGREDIENT	CAS NUMBER	ACGIH TLV (STEL / SKIN)	ACGIH TLV (CEIL)	OSHA PEL (STEL / SKIN)	OSHA PEL (CEIL)
Ethyl Alcohol	64-17-5	1000 ppm			

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

FORM: Liquid
COLOR: Clear, Colorless to light yellow
ODOR: Characteristic odor
VAPOR PRESSURE: 45.1 psi @ 21.1 deg C
SPECIFIC GRAVITY: 0.9977 at 25 deg C
SOLUBILITY:

Water: Not determined

See Section 5 for flammability/explosivity information.

SECTION 10. STABILITY AND REACTIVITY

STABILITY/ REACTIVITY:
Stable under normal conditions.

INCOMPATIBLE MATERIALS / CONDITIONS TO AVOID:
Keep away from heat, sparks, open flame, and direct sunlight. Oxidizers. Acetyl chloride.

HAZARDOUS DECOMPOSITION PRODUCTS / REACTIONS:
No dangerous decomposition is expected if used according to manufacturer's specifications.

SECTION 11. TOXICOLOGICAL INFORMATION

There are no data available specifically for this formulation. The data shown below pertains to the following individual ingredients in the formulation, or are from studies conducted using similar formulas containing the same active and/or hazardous ingredients found in this product.

ACUTE TOXICITY DATA

INHALATION:
Deet: LC50: 5.95 mg/L

Ethanol: Inhalation LC50 (10hr): 20,000ppm
Ethanol caused dose dependent effects following inhalation exposure in rats on the central nervous system including drowsiness, incoordination, narcosis and excitation.

SKIN:
Similiar product formulations were shown to be slightly irritating to animals.

DEET caused minimal to moderate transient dermal irritation in animals, which cleared by day 7.

Ethanol was mildly to moderately irritating to the skin of rabbits.

EYE:
Similar product formulations were shown to be moderate to severe eye irritants to animals.

Ethanol (95%) was irritating to the eyes of rabbits.

ORAL:
Clinical signs of toxicity noted in animals treated with DEET at 50 to 500 mg/kg included piloerection, increased vocalization and decreased activity. At lethal doses, animals showed signs of lacrimation, depression, prostration, tremors, asphyxial convulsions or respiratory failure usually preceding cardiac failure.

Ethanol: Oral LD50: 6.2 to 17.8 g/kg (rat); 5.5 to 6.6 g/kg (dog)

DERMAL AND RESPIRATORY SENSITIZATION:
Ethanol has been shown to be a weak sensitizer in a human patch test. Ethanol was negative in the mouse ear sensitization assay.

REPEAT DOSE TOXICITY DATA

SUBCHRONIC / CHRONIC TOXICITY:
Subchronic (56 to 90 days) to chronic (2-year) oral studies with DEET were conducted in animals. Effects noted at dosages ranging from 8.4 to 10,000 mg/kg/day included decreases in food consumption and weight, salivation, tremors, elevated liver and kidney weights and cholesterol, and death (high dose groups only). Microscopic findings were observed in the kidneys, testis, epidiymides, and uterus. NOELs ranged from 61 to 100 mg/kg/day across species.

Repeated oral and inhalation exposure to high concentrations of ethanol has caused kidney and liver damage in animals.

REPRODUCTIVE / DEVELOPMENTAL TOXICITY:
DEET caused no effects on reproduction or development in animals administered oral doses up to 1,000 mg/kg/day. Maternal toxicity was observed at the higher dosages and was consisted with that seen in acute, subchronic and chronic studies. The reproductive and developmental NOEL was 250 mg/kg/day.

Ethanol: Exposure to large doses during gestation is reported to cause effects on reproduction, including fetotoxicity and growth retardation in mice, rats, and rabbits. However, no teratogenic effects were reported.

MUTAGENICITY / GENOTOXICITY:
DEET was negative in a bacterial mutagenicity study (Ames), a chromosome aberration study, a dominant lethal test, and in an unscheduled DNA synthesis assay. DEET was negative in a mouse lymphoma assay without metabolic activation but positive with metabolic activation.

Ethanol was positive in a bacterial mutagenicity study (Ames) and negative in a mammalian mutagenicity study (mouse lymphoma).

CARCINOGENICITY:
There was no evidence of carcinogenicity in mice or rats treated with DEET at dosages up to 1000 mg/kg/day for 78 weeks and 2 years, respectively.

Rats given 25 to 50% ethanol by oral gavage or in the drinking water for one to two years did not show a significant increase in tumors compared to the control groups. Mice given 43% ethanol in drinking water for three years showed an increase in papillomas of the forestomach, malignant lymphomas and lung adenomas. Ethanol was an effective promoter of liver tumors in rats given a single intraperitoneal dose of diethylnitrosamine followed by treatment of ethanol in the drinking water for 12 to 18 months.

SECTION 12. ECOLOGICAL INFORMATION

There are no data for the final product or its formulation(s). The information presented below pertains to the following ingredient(s).

ECOTOXICITY DATA

INGREDIENT ECOTOXICITY

Deet: 96-hr LC50 (rainbow trout): 75 mg/L
Deet: 48-hr EC50 (daphnid): 75 mg/L
Deet: Avian Oral LD50 (quail): 1375 mg/kg

Ethanol: 96-hr (static) LC50 (rainbow trout): 13 g/L
Ethanol: 96-hr (flow-through) LC50 (fathead minnow): 12.9-15.3 g/L

ENVIRONMENTAL DATA

OTHER INGREDIENT ENVIRONMENTAL DATA:

DEET: n-Octanol/Water Partition Coefficient (log Pow): 2.02
DEET will be stable to hydrolysis at pH levels 5 to 9.

SECTION 13. DISPOSAL CONSIDERATIONS

MATERIAL WASTE:
Disposal must be in accordance with applicable federal, state/provincial, and/or local regulations. Incineration is the preferred method of disposal, when appropriate. Operations that involve the crushing or shredding of waste materials or returned goods must be handled to meet the recommended exposure limit(s).

PACKAGING AND CONTAINERS:
Disposal must be in accordance with applicable federal, state/provincial, and/or local regulations.

SECTION 14. TRANSPORT INFORMATION

Refer to site-specific procedures and requirements for additional guidance.

DOT CLASSIFICATION:

Proper Shipping Name:	Ethanol Solutions
Hazard Class:	3
UN Number:	UN 1170
Packing Group:	II

IATA/ICAO CLASSIFICATION:

Proper Shipping Name:	Ethanol Solutions
Hazard Class:	3
UN Number:	UN 1170
Packing Group:	II

ADR CLASSIFICATION:

Proper Shipping Name:	Ethanol Solutions
Hazard Class:	3
UN Number:	UN 1170
Packing Group:	II

IMDG/IMO CLASSIFICATION:

Proper Shipping Name:	Ethanol Solutions

Hazard Class:	3
UN Number:	UN 1170
Packing Group:	II

SECTION 15. REGULATORY INFORMATION

WHMIS CLASSIFICATIONS:

This product has been classified in accordance with the hazard criteria on the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. The final packaged product is not subject to WHMIS classification. The following classification applies to the bulk formulation handled in the workplace.

Controlled Product Class:	B2: Flammable Liquid D1B: Toxic D2B: Toxic



TSCA LISTING

INGREDIENT	TSCA
Diethyltoluamide (DEET)	X
Ethyl Alcohol	X

SECTION 16. OTHER INFORMATION

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequence of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

DEPARTMENT ISSUING MSDS:

Global Safety and Environmental Affairs
Occupational and Environmental Toxicology
Schering Corporation
556 Morris Avenue
Summit, NJ 07901 USA

MERCK MSDS HELPLINE:

(800) 770-8878 (US and Canada)
(908) 473-3371 (Worldwide)
Monday to Friday, 9am to 5pm (US Eastern Time)

MSDS CREATION DATE: 24-Oct-2002
SUPERSEDES DATE: 28-Jan-2008

SECTIONS CHANGED (CAN SUBFORMAT): 1

MATERIAL SAFETY DATA SHEET
LPS® 1

Revision Date: **September 19, 2011** **Supersedes:** **November 19, 2008**

Section 1 • Product and Company Identification

Product Name: LPS® 1

Part Number(s): 00116, 00122, 01128, 00105, 00155, C30116, C00122, C01128, C00105, C00155

Chemical Name: Petroleum Distillates

Product Use: An industrial lubricant designed to displace moisture from mechanical and electrical equipment, provide light-duty lubrication and short-term rust prevention.

Manufacturer Information: LPS Laboratories, 4647 Hugh Howell Road, Tucker, GA, USA 30084
TEL: USA & Canada: 1 800 241-8334
Outside USA and Canada: +1 770 243-8800
FAX: USA & Canada: 1 800 543-1563
Outside USA and Canada: +1 770 243-8899

Emergency Telephone Number: Chemtrec: USA & Canada: 1 800 424-9300
Outside USA and Canada: +1 703 527-3887

Website: http://www.lpslabs.com

Section 2 • Hazards Identification

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Emergency Overview:

Aerosol: DANGER: Flammable. Contents under pressure. Harmful or fatal if swallowed.

Bulk: DANGER: Combustible. Keep away from heat and flame. Harmful or fatal if swallowed.

Primary route(s) of entry: Skin and eye contact. Inhalation.

Potential Acute Health Effects:

Eyes: Irritating to eyes.

Skin: Repeated exposure may cause skin dryness or cracking.

Inhalation: Excessive inhalation of vapors can cause irritation of the respiratory tract, nausea, dizziness or headache.

Ingestion: Product has a low order of acute oral toxicity, but ingestion of large quantities may cause nausea, vomiting, and gastrointestinal irritation. May cause injury if aspirated into lungs.

Potential Chronic Health Effects:

Carcinogenic Effects: **NTP:** No **IARC:** No **OSHA:** No **ACGIH:** No

Mutagenic Effects: None

Teratogenic Effects: None

Target Organs: None

Medical conditions aggravated by exposure:
Persons with pre-existing central nervous system (CNS) disease, neurological conditions, skin disorders, chronic respiratory diseases, or impaired liver or kidney function should avoid exposure.

Signs and Symptoms
Stinging in eyes. Repeated or prolonged skin contact can cause redness, irritation, and scaling of the skin (dermatitis). Breathing of high vapor concentrations may cause headaches, stupor, irritation of throat and eyes, and kidney effects.

Section 3 • Composition / Information on Ingredients

Component	CASRN	Weight Percent
Distillates (Petroleum), Hydrotreated Light	64742-47-8	70 - 80%
Distillates (Petroleum), Hydrotreated Middle	64742-46-7	20 - 30%
Carbon Dioxide (aerosol only)	124-38-9	1 - 5%

Section 4 • First Aid Measures

Eyes: Check for and remove contact lenses. If irritation or redness develops, flush eyes with cool, clean, low pressure water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of the eye and eyelid tissue. DO NOT use eye ointment. Seek medical attention immediately.

Skin: Remove contaminated shoes and clothing. Clean affected area thoroughly with mild soap and water. DO NOT use ointments. Seek medical attention if irritation persists.

Inhalation: Immediately move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). If breathing is difficult, seek medical attention immediately.

Ingestion: DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. DO NOT leave victim unattended. Seek medical attention immediately.

Section 5 • Fire Fighting Measures

Products of Combustion: Carbon monoxide and carbon dioxide.

General Fire Hazards: High heat will cause product to boil, evolving vapor that could cause explosive rupture of closed containers. Aerosols may explode upon heating, spread fire and overcome sprinkler systems.

Firefighting media: SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use CO_2, water spray, fog or foam. Cool containing vessels with water jet in order to prevent pressure build-up, auto-ignition or explosions.

Sensitivity to Impact: None **Sensitivity to Static Discharge:** None

Protection Clothing (Fire): Wear protective clothing and equipment suitable for the surrounding fire, including helmet, face mask, and self-contained breathing apparatus.

Special Remarks on Explosion Hazards:
High heat will cause product to boil, evolving vapor that could cause explosive rupture of closed containers. Aerosols may explode upon heating, spread fire and overcome sprinkler systems.

Section 6 • Accidental Release Measures

Containment Procedures:
Small Spill and Leak: Absorb with an inert material and dispose of properly.
Large Spill and Leak: Secure the area and control access. Dike far ahead of a liquid spill to ensure complete collection. Pick up free liquid for disposal using absorbent pads, sand, or other inert non-combustible absorbent materials. Place into appropriate waste containers for later disposal.

Clean-Up Procedures: Contain and recover spilled material when possible.

Evacuation Procedures: Ventilate area of leak or spill. Keep unnecessary and unprotected people away.

Special Procedures: Remove all sources of ignition. Ventilate area. Wear personal protective equipment during cleanup.

Section 7 • Handling and Storage

Handling: DO NOT spray into or around ignition sources. DO NOT allow material to come in contact with eyes or skin. Wear appropriate protective equipment during handling. Keep container closed. Avoid breathing vapors or mists. Use only with adequate ventilation. Wash thoroughly after handling.

Storage: Keep container in a cool, well-ventilated area. Avoid all sources of ignition (spark or flame). Store between 40°F and 120°F (4.4°C and 49°C).

Precautions to be taken in handling and storage:
Store aerosols as Level 3 Aerosol (NFPA 30B). Store all materials in a dry, well-ventilated area. Avoid breathing vapors.

Section 8 • Exposure Controls / Personal Protection

Exposure Guidelines:

Component	CASRN	OSHA	ACGIH	NIOSH	Supplier
Distillates (Petroleum), Hydrotreated Light	64742-47-8	5 mg/m3 (oil mist) PEL	5 mg/m3 (oil mist) TLV 10 mg/m3 (oil mist) STEL	5 mg/m3 (oil mist) TWA 10 mg/m3 (oil mist) STEL	100 ppm TWA 525 mg/m3 TWA
Distillates (Petroleum), Hydrotreated Middle	64742-46-7	5 mg/m3 (oil mist) PEL	5 mg/m3 (oil mist) TLV 10 mg/m3 (oil mist) STEL	5 mg/m3 (oil mist) TWA 10 mg/m3 (oil mist) STEL	None reported
Carbon Dioxide (aerosol only)	124-38-9	5000 ppm PEL	5000 ppm TLV 30000 ppm STEL	5000 ppm TWA 30000 ppm STEL	None reported

Engineering Controls: Provide general and/or local exhaust ventilation to keep exposures below the exposure guidelines listed above.

Personal protective equipment

Eye protection: Safety glasses with side shields conforming to appropriate regulations. Eye wash fountain and emergency shower facilities are recommended.

Hand protection: Normally no hand protection is required; however, if product will be sprayed for an extended period, "overspray" onto skin may occur. If so, wear chemical resistant gloves conforming to appropriate regulations. Please observe the instructions regarding permeability and breakthrough time that are provided by the supplier of the gloves.

Respiratory protection: Typical use of this product under normal conditions does not require the use of respiratory protection. If airborne concentrations are above the applicable exposure limits (listed above), use NIOSH approved respiratory protection (i.e. organic vapor cartridge).

General Hygiene Considerations: Wash thoroughly after handling. Have eye-wash facilities immediately available.

Section 9 • Physical and Chemical Properties

Appearance:	Liquid	**Color:**	Pale amber
Odor:	Characteristic	**Evaporation Rate:**	< 0.1 (BuAc = 1)
Solubility Description:	Not soluble in water	**Flash Point:**	79°C (175°F) - dispensed liquid
Boiling Point:	213°C (415°F)	**Flash Point Method:**	Tag-Closed Cup
Specific Gravity (H2O=1):	0.79 - 0.81 @ 20°C	**Decomposition Temperature:**	Not established
Vapor Density (air = 1):	> 1	**Auto ignition temperature:**	> 228°C (442ºF)
Vapor Pressure:	< 0.05 mm Hg @ 20ºC	**Flammable limits (estimated):**	LOWER: 0.6% UPPER: 7.0%
Rule 1171 PPc:	Not applicable	**Partition Coefficient (octanol/water):**	< 1
V.O.C. Content:	Aerosol: < 25.0% per State & Federal Consumer Product Regulations Bulk: < 25.0% per State & Federal Consumer Product Regulations	**Odor Threshold:**	Not established
Melting Point:	< -50ºC (-58ºF)	**Viscosity:**	< 3.8 cSt @ 25ºC
pH:	Not applicable	**Volatiles:**	95 - 96%
Heat of combustion:	Aerosol: > 30 kJ/g Bulk: > 30 kJ/g		

Section 10 • Stability and Reactivity

Chemical Stability:	Product is stable under recommended storage conditions.
Conditions to Avoid:	Keep away from heat and ignition sources.
Incompatibility:	Reactive or incompatible with oxidizing agents.
Hazardous Decomposition:	Combustion will generate smoke, possibly thick and choking, resulting in zero visibility and combustion products include carbon monoxide and carbon dioxide.
Hazardous Polymerization:	Will not occur.

Section 11 • Toxicological Information

Acute and Chronic Toxicity

A: General Product Information
An acute toxicity study of this product has not been conducted. Information given in this section relates only to individual constituents contained in this preparation.

B: Component Analysis

Component	CASRN	LC-50	LD-50
Distillates (Petroleum), Hydrotreated Light	64742-47-8	> 6.8 mg/L*	> 5 g/kg*
Distillates (Petroleum), Hydrotreated Middle	64742-46-7	Not established	Not established
Carbon Dioxide (aerosol only)	124-38-9	470000 ppm / rat / 30 minutes	Not appropriate

* Supplier Data

Section 12 • Ecological Information

Mobility: Semi-volatile. Readily absorbed into soil. **Persistence / Degradability:** Only slightly biodegradable

Bioaccumulative potential: No bioaccumulation potential **Other adverse effects:** None known

Ecological studies have not been conducted for this product. The following information is available for component(s) of this product.

Ecotoxicity

Effects on Organisms	Component	CASRN	Test	Species	Results
Acute Toxicity on Fishes	Distillates (Petroleum), Hydrotreated Light	64742-47-8	96-hr LC50	Oncorhynchus Mykiss	3,200 µg/L*
Acute Toxicity on Daphnia	No data available				
Bacterial Inhibition					
Growth inhibition of algae					
Bioaccumulation in fish					

* Supplier Data

For the 64742-47-8 component, no toxicity has been observed in water due to extremely low water solubility. However, hydrocarbon and petroleum distillates are potentially toxic to freshwater and saltwater ecosystems. If material is spilled on soil, some potential toxic effects could occur before biodegradation could remove material.

If spilled, the 64742-46-7 constituent may kill grasses and small plants by interfering with transpiration. Spilled material may coat gill structures of fish resulting in suffocation if spilled in shallow, running water. This product may be toxic to amphibians by preventing dermal respiration. This product may also cause gastrointestinal distress to birds and mammals through ingestion. Biodegradation of this product is possible within 90 to 120 days in aerobic environments at temperatures above 21°C.

Section 13 • Disposal Considerations

Waste Status: In its purchased form, non-aerosol material does not meet the definition of a RCRA hazardous waste. Aerosol products, if depressurized and emptied to less than 1 inch (2.54 cm) of fluid contents are classified as non-hazardous waste under 40 CFR 261.7 (U.S.). However, if disposed of in its received form, an aerosol carries the waste code D003. (U.S.).

Disposal: Waste must be disposed of in accordance with any and all applicable environmental control rules and/or regulations.

Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information inaccurate, incomplete, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive than federal laws and regulations.

Section 14 • Transport Information

Aerosol

D.O.T. Ground	**Shipping Name:**	Consumer Commodity	**UN No.:**	NA
	Hazard Class:	ORM-D	**Technical Name:**	NA
	Subclass:	NA	**Hazard Label:**	ORM-D Already on box
	Packing Group:	NA		
Road/Rail - ADR/RID	**UN No.:**	1950	**ADR Class:**	2
	Packing Group:	NA	**Classification Code:**	5F
	Name and description:	AEROSOLS, flammable	**Hazard ID No.:**	NA
	Labeling:	2.1	**Technical Name:**	NA
IMDG-IMO	**UN No.:**	1950	**Class:**	2
	Shipping Name:	Aerosols	**Subsidiary Risk:**	2.1
	Labeling:	NA	**Packing Group:**	NA
	Packing Instructions:	P003, LP02	**EmS:**	F-D, S-U
	Marine pollutant:	No	**Technical Name:**	NA
IATA - ICAO:	**UN No.:**	1950	**Class:**	2.1
	Shipping Name:	Aerosols, flammable	**Subclass:**	NA
	Packing Instructions:	203, Y203 (Ltd. Qty.)	**Packing Group:**	NA
	Labeling:	Flammable Gas	**Technical Name:**	NA

Non-aerosol versions of this product are not regulated by any mode of transportation.

The preceding information is subject to change and must be verified prior to shipment. It is the responsibility of anyone offering hazardous materials for shipment to ensure compliance with all applicable regulations.

Section 15 • Regulatory Information

U.S. Federal Regulations

RCRA Hazardous Waste No.: D003 (aerosol only)

Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA):
None

Toxic Substances Control Act (TSCA):
All components of this product are TSCA inventory listed and/or are exempt.

Superfund Amendments and Reauthorization Act (SARA) Title III SARA Section 311/312 (40 CFR 370) Hazard Categories:
Sudden Release of Pressure (aerosols only), Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard

This product contains the following toxic chemical(s) subject to reporting requirements of SARA Section 313 (40 CFR 372):
No individual section 313 component is present at or above 1%.

Section 112 Hazardous Air Pollutants (HAPs): None

State Regulations

California: This product does not contain chemical(s) known to the State of California to cause cancer, birth defects or other reproductive harm.

California and OTC States: This product conforms to consumer product regulations.

New Jersey Right to Know:
Aerosol: Distillates (Petroleum), Hydrotreated Light 64742-47-8 ● Distillates (Petroleum), Hydrotreated Middle 64742-46-7 ● Carbon Dioxide 124-38-9 ● Calcium Sulfonate 61789-86-4 ● Sorbitan Trioleate 26266-58-0
Bulk: Distillates (Petroleum), Hydrotreated Light 64742-47-8 ● Distillates (Petroleum), Hydrotreated Middle 64742-46-7 ● Calcium Sulfonate 61789-86-4 ● Sorbitan Trioleate 26266-58-0 ● C18 Unsaturated Dimer Fatty Acids 61788-89-4

International Regulations

Canadian Environmental Protection Act (CEPA):
All of the components of this product are included on the Canadian Domestic Substances list (DSL).

Canadian Workplace Hazardous Materials Information System WHMIS:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

WHMIS Classification:
Aerosol: Class A, Class B5, Class D2B



WHMIS Classification:
Bulk: Class B3, Class D2B



Other Regulations:

Montreal Protocol listed ingredients:	None
Stockholm Convention listed ingredients:	None
Rotterdam Convention listed engredients:	None
RoHS Compliant:	Yes

MATERIAL SAFETY DATA SHEET
LPS® 1

Revision Date: **September 19, 2011** **Supersedes:** **November 19, 2008**

Section 16 • Other Information

MSDS#: 10116 MSDS Preparation Responsible Name: Elena Badiuzzi Compliance Manager Telephone: +1 770 243-8800	**HMIS 1996**		**HMIS III**		**NFPA** Flammability Health  Reactivity Special	
	Health:	1	Health:	[/] 1		
	Flammability:	2	Flammability Aerosol: Flammability Bulk:	4 2		
	Reactivity:	0	Physical Hazard Aerosol: Physical Hazard Bulk:	2 0		

Notice to Reader:
To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Elena Badiuzzi, Compliance Manager
LPS Laboratories, a division of Illinois Tool Works

Revision Number: 002.1

Issue date: 05/04/2010

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: LOCTITE® 416™ INSTANT ADHESIVE SUPERBONDER®
Product type: Cyanoacrylate
IDH number: 209589
Item number: 41661
Region: United States

Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

Contact information:
Telephone: 860.571.5100
Emergency telephone: 860.571.5100
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS:

Physical state: Liquid
Color: Clear colorless
Odor: Irritating

HEALTH: 2
FLAMMABILITY: 2
PHYSICAL HAZARD: 1
Personal Protection: See MSDS Section 8

WARNING: COMBUSTIBLE LIQUID AND VAPOR.
BONDS SKIN IN SECONDS.
MAY CAUSE EYE AND RESPIRATORY TRACT IRRITATION.

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects

Inhalation: Exposure to vapors above the established exposure limit results in respiratory irritation, which may lead to difficulty in breathing and tightness in the chest.

Skin contact: Cyanoacrylates generate heat on solidification. In rare circumstances a large drop will burn the skin. Cured adhesive does not present a health hazard even if bonded to the skin. Bonds skin in seconds. May cause skin irritation. Cyanoacrylates have been reported to cause allergic reaction but due to rapid polymerization at the skin surface, an allergic response is rare.

Eye contact: Irritating to eyes. Causes excessive tearing. Eyelids may bond.

Ingestion: Not expected to be harmful by ingestion. Rapidly polymerizes (solidifies) and bonds in mouth. It is almost impossible to swallow.

Existing conditions aggravated by exposure: Eye, skin, and respiratory disorders.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Ethyl 2-cyanoacrylate	7085-85-0	60 - 100
Thickener	Proprietary	10 - 30

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If symptoms persist, seek medical advice.

Skin contact:	Do not pull bonded skin apart. Soak in warm soapy water. Gently peel apart using a blunt instrument. If skin is burned due to the rapid generation of heat by a large drop, seek medical attention. If lips are bonded, apply warm water to the lips and encourage wetting and pressure from saliva in mouth. Peel or roll lips apart. Do not pull lips apart with direct opposing force.
Eye contact:	Immediately flush with plenty of water for at least 15 minutes. Get medical attention. If eyelids are bonded closed, release eyelashes with warm water by covering with a wet pad. Do not force eye open. Cyanoacrylate will bond to eye protein and will cause a lachrymatory effect which will help to debond the adhesive. Keep eye covered until debonding is complete, usually within 1-3 days. Medical attention should be sought in case solid particles of polymerized cyanoacrylate trapped behind the eyelid caused abrasive damage.
Ingestion:	Ensure breathing passages are not obstructed. The product will polymerize rapidly and bond to the mouth making it almost impossible to swallow. Saliva will separate any solidified product in several hours. Prevent the patient from swallowing any separated mass.
Notes to physician:	Surgery is not necessary to separate accidentally bonded tissues. Experience has shown that bonded tissues are best treated by passive, non-surgical first aid. If rapid curing has caused thermal burns they should be treated symptomatically after adhesive is removed.

5. FIRE FIGHTING MEASURES

Flash point:	80 - 93.3 °C (176°F - 199.94 °F) Tagliabue closed cup
Autoignition temperature:	485 °C (905°F)
Flammable/Explosive limits - lower:	Not determined
Flammable/Explosive limits - upper:	Not determined
Extinguishing media:	Water spray (fog), foam, dry chemical or carbon dioxide.
Special firefighting procedures:	Wear a self-contained breathing apparatus with a full face piece operated in pressure-demand or other positive pressure mode.
Unusual fire or explosion hazards:	None
Hazardous combustion products:	Trace amounts of toxic and/or irritating fumes may be released and the use of breathing apparatus is recommended.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:	Ventilate area.
Clean-up methods:	Do not use cloths for mopping up. Flood with water to complete polymerization and scrape off the floor. Cured material can be disposed of as non-hazardous waste.

7. HANDLING AND STORAGE

Handling:	Avoid contact with fabric or paper goods. Contact with these materials may cause rapid polymerization which can generate smoke and strong irritating vapors, and cause thermal burns. Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling.

Storage: Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

For information on product shelf life contact Henkel Customer Service at (800) 243-4874.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Ethyl 2-cyanoacrylate	0.2 ppm TWA	None	None	None
Thickener	None	None	None	None

Engineering controls: Use positive down-draft exhaust ventilation if general ventilation is insufficient to maintain vapor concentration below established exposure limits.

Respiratory protection: Use NIOSH approved respirator if there is potential to exceed exposure limit(s). Use an organic vapor respirator for concentrations exceeding the Occupational Exposure Limit.

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use nitrile gloves and aprons as necessary to prevent contact. Do not use PVC, nylon or cotton.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid
Color: Clear colorless
Odor: Irritating
Odor threshold: 1 - 2 ppm
pH: Not applicable
Vapor pressure: < 0.5 mm hg (77 °F (25°C))
Boiling point/range: > 212 °F (> 100°C)
Melting point/ range: Not determined
Specific gravity: 1.1 at 68 °F (20°C)
Vapor density: 3 Approximately
Flash point: 80 - 93.3 °C (176°F - 199.94 °F) Tagliabue closed cup
Flammable/Explosive limits - lower: Not determined
Flammable/Explosive limits - upper: Not determined
Autoignition temperature: 485 °C (905°F)
Evaporation rate: Not available
Solubility in water: Polymerises in presence of water.
Partition coefficient (n-octanol/water): Not determined
VOC content: < 2 %; < 20 g/l (California SCAQMD Method 316B) (Estimated)

10. STABILITY AND REACTIVITY

Stability: Stable under recommended storage conditions.

Hazardous reactions: Rapid exothermic polymerization will occur in the presence of water, amines, alkalis and alcohols.

Hazardous decomposition products: None

Incompatible materials: Water, amines, alkalis and alcohols.

Conditions to avoid: Spontaneous polymerization.

11. TOXICOLOGICAL INFORMATION

Acute oral product toxicity: LD50 (rat) > 5,000 mg/kg (Estimated)

Acute dermal product toxicity: LD50 (rabbit) > 2,000 mg/kg (Estimated)

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Ethyl 2-cyanoacrylate	No	No	No
Thickener	No	No	No

Hazardous components	Health Effects/Target Organs
Ethyl 2-cyanoacrylate	Irritant, Allergen, Respiratory
Thickener	Irritant

12. ECOLOGICAL INFORMATION

Ecological information: Not known.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: Combustible liquid, n.o.s. (Cyanoacrylate ester)
Hazard class or division: Combustible Liquid
Identification number: NA 1993
Packing group: III
Exceptions: Unrestricted, (Not more than 450 Liters)

International Air Transportation (ICAO/IATA)

Proper shipping name: Aviation regulated liquid, n.o.s. (Cyanoacrylate ester)
Hazard class or division: 9
Identification number: UN 3334
Packing group: None
Exceptions: Primary packs containing less than 500ml are unregulated by this mode of transport and may be shipped unrestricted.

Water Transportation (IMO/IMDG)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12(b) Export Notification: None above reporting de minimus

CERCLA/SARA Section 302 EHS: None above reporting de minimus
CERCLA/SARA Section 311/312: Fire, Reactive, Delayed Health, Immediate Health
CERCLA/SARA 313: None above reporting de minimus

California Proposition 65: No California Proposition 65 listed chemicals are known to be present.

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

WHMIS hazard class: B.3, D.2.B

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: New Material Safety Data Sheet format.

Prepared by: Kyra Kozak Woods, Manager, Regulatory Affairs

DISCLAIMER: The data contained herein are furnished for information only and are believed to be reliable. However, Henkel Corporation does not assume responsibility for any results obtained by persons over whose methods Henkel Corporation has no control. It is the user's responsibility to determine the suitability of Henkel's products or any production methods mentioned herein for a particular purpose, and to adopt such precautions as may be advisable for the protection of property and persons against any hazards that may be involved in the handling and use of any of Henkel Corporation's products. In light of the foregoing, Henkel Corporation specifically disclaims all warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel Corporation further disclaims any liability for consequential or incidental damages of any kind, including lost profits.

Revision Number: 002.1

Issue date: 05/04/2010

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Contact information:
Telephone: 860.571.5100
Emergency telephone: 860.571.5100
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS:

Physical state:	Liquid
Color:	Clear colorless
Odor:	Irritating

HEALTH:	2
FLAMMABILITY:	2
PHYSICAL HAZARD:	1
Personal Protection:	See MSDS Section 8

WARNING: COMBUSTIBLE LIQUID AND VAPOR.
BONDS SKIN IN SECONDS.
MAY CAUSE EYE AND RESPIRATORY TRACT IRRITATION.

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects

Inhalation: Exposure to vapors above the established exposure limit results in respiratory irritation, which may lead to difficulty in breathing and tightness in the chest.

Skin contact: Cyanoacrylates generate heat on solidification. In rare circumstances a large drop will burn the skin. Cured adhesive does not present a health hazard even if bonded to the skin. Bonds skin in seconds. May cause skin irritation. Cyanoacrylates have been reported to cause allergic reaction but due to rapid polymerization at the skin surface, an allergic response is rare.

Eye contact: Irritating to eyes. Causes excessive tearing. Eyelids may bond.

Ingestion: Not expected to be harmful by ingestion. Rapidly polymerizes (solidifies) and bonds in mouth. It is almost impossible to swallow.

Existing conditions aggravated by exposure: Eye, skin, and respiratory disorders.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Ethyl 2-cyanoacrylate	7085-85-0	60 - 100
Thickener	Proprietary	10 - 30

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If symptoms persist, seek medical advice.

Skin contact:	Do not pull bonded skin apart. Soak in warm soapy water. Gently peel apart using a blunt instrument. If skin is burned due to the rapid generation of heat by a large drop, seek medical attention. If lips are bonded, apply warm water to the lips and encourage wetting and pressure from saliva in mouth. Peel or roll lips apart. Do not pull lips apart with direct opposing force.
Eye contact:	Immediately flush with plenty of water for at least 15 minutes. Get medical attention. If eyelids are bonded closed, release eyelashes with warm water by covering with a wet pad. Do not force eye open. Cyanoacrylate will bond to eye protein and will cause a lachrymatory effect which will help to debond the adhesive. Keep eye covered until debonding is complete, usually within 1-3 days. Medical attention should be sought in case solid particles of polymerized cyanoacrylate trapped behind the eyelid caused abrasive damage.
Ingestion:	Ensure breathing passages are not obstructed. The product will polymerize rapidly and bond to the mouth making it almost impossible to swallow. Saliva will separate any solidified product in several hours. Prevent the patient from swallowing any separated mass.
Notes to physician:	Surgery is not necessary to separate accidentally bonded tissues. Experience has shown that bonded tissues are best treated by passive, non-surgical first aid. If rapid curing has caused thermal burns they should be treated symptomatically after adhesive is removed.

5. FIRE FIGHTING MEASURES

Flash point:	80 - 93.3 °C (176°F - 199.94 °F) Tagliabue closed cup
Autoignition temperature:	485 °C (905°F)
Flammable/Explosive limits - lower:	Not determined
Flammable/Explosive limits - upper:	Not determined
Extinguishing media:	Water spray (fog), foam, dry chemical or carbon dioxide.
Special firefighting procedures:	Wear a self-contained breathing apparatus with a full face piece operated in pressure-demand or other positive pressure mode.
Unusual fire or explosion hazards:	None
Hazardous combustion products:	Trace amounts of toxic and/or irritating fumes may be released and the use of breathing apparatus is recommended.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:	Ventilate area.
Clean-up methods:	Do not use cloths for mopping up. Flood with water to complete polymerization and scrape off the floor. Cured material can be disposed of as non-hazardous waste.

7. HANDLING AND STORAGE

Handling:	Avoid contact with fabric or paper goods. Contact with these materials may cause rapid polymerization which can generate smoke and strong irritating vapors, and cause thermal burns. Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling.

Storage: Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

For information on product shelf life contact Henkel Customer Service at (800) 243-4874.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Ethyl 2-cyanoacrylate	0.2 ppm TWA	None	None	None
Thickener	None	None	None	None

Engineering controls: Use positive down-draft exhaust ventilation if general ventilation is insufficient to maintain vapor concentration below established exposure limits.

Respiratory protection: Use NIOSH approved respirator if there is potential to exceed exposure limit(s). Use an organic vapor respirator for concentrations exceeding the Occupational Exposure Limit.

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use nitrile gloves and aprons as necessary to prevent contact. Do not use PVC, nylon or cotton.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid
Color: Clear colorless
Odor: Irritating
Odor threshold: 1 - 2 ppm
pH: Not applicable
Vapor pressure: < 0.5 mm hg (77 °F (25°C))
Boiling point/range: > 212 °F (> 100°C)
Melting point/ range: Not determined
Specific gravity: 1.1 at 68 °F (20°C)
Vapor density: 3 Approximately
Flash point: 80 - 93.3 °C (176°F - 199.94 °F) Tagliabue closed cup
Flammable/Explosive limits - lower: Not determined
Flammable/Explosive limits - upper: Not determined
Autoignition temperature: 485 °C (905°F)
Evaporation rate: Not available
Solubility in water: Polymerises in presence of water.
Partition coefficient (n-octanol/water): Not determined
VOC content: < 2 %; < 20 g/l (California SCAQMD Method 316B) (Estimated)

10. STABILITY AND REACTIVITY

Stability: Stable under recommended storage conditions.

Hazardous reactions: Rapid exothermic polymerization will occur in the presence of water, amines, alkalis and alcohols.

Hazardous decomposition products: None

Incompatible materials: Water, amines, alkalis and alcohols.

Conditions to avoid: Spontaneous polymerization.

11. TOXICOLOGICAL INFORMATION

Acute oral product toxicity: LD50 (rat) > 5,000 mg/kg (Estimated)

Acute dermal product toxicity: LD50 (rabbit) > 2,000 mg/kg (Estimated)

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Ethyl 2-cyanoacrylate	No	No	No
Thickener	No	No	No

Hazardous components	Health Effects/Target Organs
Ethyl 2-cyanoacrylate	Irritant, Allergen, Respiratory
Thickener	Irritant

12. ECOLOGICAL INFORMATION

Ecological information: Not known.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: Combustible liquid, n.o.s. (Cyanoacrylate ester)
Hazard class or division: Combustible Liquid
Identification number: NA 1993
Packing group: III
Exceptions: Unrestricted, (Not more than 450 Liters)

International Air Transportation (ICAO/IATA)

Proper shipping name: Aviation regulated liquid, n.o.s. (Cyanoacrylate ester)
Hazard class or division: 9
Identification number: UN 3334
Packing group: None
Exceptions: Primary packs containing less than 500ml are unregulated by this mode of transport and may be shipped unrestricted.

Water Transportation (IMO/IMDG)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12(b) Export Notification: None above reporting de minimus

CERCLA/SARA Section 302 EHS: None above reporting de minimus
CERCLA/SARA Section 311/312: Fire, Reactive, Delayed Health, Immediate Health
CERCLA/SARA 313: None above reporting de minimus

California Proposition 65: No California Proposition 65 listed chemicals are known to be present.

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

WHMIS hazard class: B.3, D.2.B

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: New Material Safety Data Sheet format.

Prepared by: Kyra Kozak Woods, Manager, Regulatory Affairs

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Section 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name:	Howes Lubricator Diesel Treat
Part Number(s):	103060, 103061, 103062, 103063, 103064, 103065, 103066, 103068
Company Identification:	R.B. Howes & Co., Inc. 60 Ocean State Drive North Kingstown, RI 02852 Tel: 800-438-9080 or 401-294-5500
Emergency Telephone Number:	Chemtrec 1-800-424-9300 or 703-527-3887 (24 hours)

Section 2. HAZARDS IDENTIFICATION

Emergency Overview

Combustible. Light amber oil-like liquid with distinctive odor. Prolonged or repeated skin contact may cause skin irritation. Ingestion harmful or fatal if not treated. Prolonged exposure to heavy concentrations of vapors may cause irritation to mucus membranes and airway. Respiratory diseases such as asthma and skin conditions such as rashes, cuts or similar skin diseases are generally aggravated by exposure. Do not handle near excessive heat, sparks, flame or strong oxidants. Incompatible with (material to avoid) strong oxidants like liquid chlorine or concentrated oxygen. This material could be a slipping hazard if spilled.

OSHA Regulatory Status

This product contains components that are considered to be hazardous under OSHA's Hazard Communication Standard (29 CFR 1900.1200).

Potential Health Effects

Eye Contact: May cause redness and mild irritation.

Skin Contact: Prolonged contact may cause mild irritation.

Ingestion: Can cause cramps and nausea.

Inhalation: Prolonged exposure may irritate the respiratory tract.

Carcinogen: OSHA: no
IARC: Ethylbenzene & Vinyl Acetate, Group 2B, possible human carcinogenic
NTP: no

Section 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS #	% by Volume
Petroleum Distillates	64742-46-7	1.00 – 70.0
Aliphatic Hydrocarbon	8052-41-3	1.00 – 50.0
1,2,4 Trimethylbenzene	95-63-6	0.50 – 1.50
1,3,5 Trimethylbenzene	108-67-8	0.01 – 0.60
Trimethylbenzene	25551-13-7	0.01 – 0.30
Ethylbenzene	100-41-4	0.01 – 0.05
Vinyl Acetate	108-05-4	0.01 – 0.05

Section 4. FIRST AID MEASURES

Eye contact:
Flush eyes with plenty of water for several minutes. Get medical attention if irritation persists.

Skin contact:
Wash skin with plenty of soap and water for several minutes. Get medical attention if irritation persists.

Ingestion:
Do not induce vomiting. Water may be given slowly. Contact physician immediately.

Inhalation:
If irritation or headache occurs, remove to fresh air. If signs/symptoms continue, get medical attention.

Additionally:
In all cases, if symptoms persist, contact physician.

Section 5. FIRE FIGHTING MEASURES

Flash point:
150°F / 65.5°C (Rapid Flash Point Closed-Cup, ASTM D3243)

Autoignition temperature:
Data not available.

Upper flammable limit:
Data not available.

Lower flammable limit:
Data not available.

Extinguishing media:
Foam, CO2, water fog or spray.

Fire fighting equipment:
Recommend wearing self contained breathing apparatus. Avoid breathing vapors or fumes. Cool exposed containers with water spray.

Unusual fire and explosion hazard:
Combustible liquid. May form combustible mixtures at or above the flash point. Empty product containers may contain product residue. Do not pressurize, cut, heat, weld or expose containers to flame or other sources of ignition.

National Fire Protection Association (NFPA)

Flammability (red):	2
Health (blue):	1
Reactivity (yellow):	0
Special (white):	

Section 6. ACCIDENTAL RELEASE MEASURES

Use appropriate personal protective equipment (PPE). (see section 8) Soak up the spill with oil absorbents, sand or other non-combustible material. Place residue in suitable, covered and properly labeled container. Dispose in accordance with federal, state and local laws.

Section 7. HANDLING AND STORAGE

Keep away from sources of ignition. Keep container closed when not in use.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

OSHA Permissible Exposure Limits (PEL's);
8-hour Time Weighted Averages (TWA)

Petroleum Distillates	TWA:	2000 ppm
Aliphatic Hydrocarbon	TWA:	500 ppm
1,2,4 Trimethylbenzene	TWA:	25 ppm
1,3,5 Trimethylbenzene	TWA:	25 ppm
Trimethylbenzene	TWA:	25 ppm
Ethylbenzene	TWA:	100 ppm
Vinyl Acetate	TWA:	10 ppm

Engineering Controls
Good general ventilation should be sufficient to control airborne levels.

Respiratory Protection
Respirator use is not expected to be necessary under normal conditions of use. If application creates mist, wear a NIOSH approved respirator.

Skin Protection
For brief contact, no precautions other than wearing long sleeves should be needed. Use chemical resistant gloves such as neoprene.

Eye/Face Protection
Safety glasses with side shield, anti-splash goggles or face shield.

Hygiene Recommendations
Avoid breathing mist or vapor. Avoid contact with skin and eyes. Keep an eyewash kit available. If clothing is contaminated, remove clothing and thoroughly wash the affected area. Launder contaminated clothing before reuse.

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Light amber
Odor:	Distinctive
Physical State:	Liquid
Flash:	150°F / 65.5°C (Rapid Flash Point Closed-Cup, ASTM D3243)
VOC:	823 (g/l)
pH:	Not determined
Vapor Pressure:	<.1mm Hg
Vapor Density:	>1 (air = 1)
Boiling Point:	327°F / 164°C
Freezing Point:	Not determined
Solubility in Water:	Insoluble
Specific Gravity:	<.9 (H2O = 1)

Section 10. STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal ambient temperature (70°F / 21°C) and pressure (14.7 psi / 760 mmHg).
Conditions to Avoid:	Combustible when exposed to excessive heat, sparks, flames or strong oxidants.
Incompatible Materials:	Contact with strong oxidizers like chlorine or concentrated oxygen.
Hazardous Decomposition Products:	Under fire conditions: Carbon oxides (CO, CO2)
Hazardous Polymerization:	Hazardous polymerization will not occur.

Section 11. TOXICOLOGICAL INFORMATION

	Oral (rat) LD50	Dermal (rabbit) LD50	Inhalation (rat) LC50
Petroleum Distillates	5,000 mg/kg	3,000 mg/kg	
Aliphatic Hydrocarbon	5,000 mg/kg	3,000 mg/kg	5,500 mg/m3
1,2,4 Trimethylbenzene	5,000 mg/kg	3160 mg/kg	18,000 mg/m3
1,3,5 Trimethylbenzene	23,000 mg/kg		24,000 mg/m3
Trimethylbenzene	8,970 mg/kg		
Ethylbenzene	3,500 mg/kg	17,800 mg/kg	55,000 mg/m3
Vinyl Acetate	2,900 mg/kg	2,335 mg/kg	11,400 mg/m3

Section 12. ECOLOGICAL INFORMATION

No ecotoxicological studies have been conducted on this product.

Section 13. DISPOSAL CONSIDERATIONS

Waste management should be in compliance with federal, state and local laws.

Section 14. TRANSPORT INFORMATION

The information in this section is for reference only and should not take the place of a shipping paper (bill of lading) specific to an order. Please note that the proper Shipping Name / Hazard Class may vary by packaging, properties and mode of transportation.

49 CFR §173.150(f) Exceptions for Class 3 flammable and combustible liquids.

Howes part number(s): 103060, 103061, 103062, 103063, 103064, 103065, 103066, 103068
Non-bulk packaging (≤ 119 gal. liquid; ≤ 882 lbs. solid):
This product is non hazardous when packaged in non-bulk packaging.

Howes part number(s): N/A
Bulk packaging (> 119 gal. liquid; > 882 lbs. solid):
This product is hazardous when packaged in bulk packaging and the Proper Shipping Name would be:

Proper Shipping Name:	Petroleum distillates, n.o.s.
UN Identification Number:	UN1268
Hazard Class – Primary:	3
Packing Group:	III
Flash Point:	150°F / 65.5°C

49 CFR §172.101 (Appendix B) List of Marine Pollutants

This product is not a marine pollutant as defined in 49 CFR §171.8.

Section 15. REGULATORY INFORMATION

U.S. Regulations:

Clean Air Act (CAA) 112(r) Accidental Release Prevention Substances: Vinyl Acetate.

Clean Water Act (CWA) 307 Priority Pollutants: Ethylbenzene.

Clean Water Act (CWA) 311 Hazardous Substances: Ethylbenzene, Vinyl Acetate.

CERCLA 302 Hazardous Substances: Ethylbenzene RQ 1,000 lbs.

Proposition 65 California Safe Drinking Water and Toxic Enforcement Act of 1986: (Known to cause cancer) Ethylbenzene.

SARA 302/304 Emergency Planning and Notification Substances: No products were found.

SARA 313 Toxic Chemical Notification: Ethylbenzene, 1,2,4 Trimethylbenzene, Vinyl Acetate.

TSCA Inventory Status: All components are included or are exempted from listing on the US Toxic Substances Control Act Inventory.

Section 16. OTHER INFORMATION

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health (Blue)	1
Flammability (Red)	2
Reactivity (Yellow)	0
Personal Protection (White)	B

MSDS PREPARATION

Prepared By:	VP of Logistics
Issue Date:	August 26, 2011
Supersedes Date:	March 31, 2011

The recommendations and data presented herein are based on sources considered to be reliable. Any use inconsistent with our recommendations may affect the risk characterization. However, no warranty is expressed or implied regarding the accuracy of the data or the results obtained from the use of this information or the use of the product. R.B. Howes & Co., Inc. expressly disclaims all liability for loss or damage, including consequential loss, or injury to persons (including death) arising directly or indirectly from reliance upon the information or misuse of the material.

Material Safety Data Sheet

Flexo Products Limited 4777 Kent Avenue, Niagara Falls, ON L2H 1J5
Phone: (905) 354-2723 **Fax:** (905) 354-1301 **Web Site:** www.flexoproducts.com

White Vinegar

Use:
Code: RFVINEGAR

Date of MSDS: December 1, 2011
WHMIS: Not Regulated
TDG: Not Regulated
HMIS: Health -0, Flammability - 0, Reactivity - 0

Emergency Telephone # CANUTEC 613-996-6666

I - HAZARDOUS INGREDIENTS

Chemical Name	Wt/Wt %	CAS #	LD50 (mg/kg)	LC50
Acetic Acid	3-7	not available	not available	not available

II - PHYSICAL DATA

Physical State: liquid
Viscosity: water thin
Vapour Pressure: not available
Oil/Water Factor: not available
Appearance: clear colourless
pH: not available
Vapour Density: similar
Evaporation Rate: similar
Odour: vinegar
Specific Gravity: not available
Boiling Point (^oC): not available
Odour Threshold: not available
Freezing Point (^oC): not available

III - FIRE AND EXPLOSION DATA

Conditions of Flammability: not flammable
UFL: not available
Flash Point and Test Method: not available
LFL: not available
Sensitivity to Static Discharge or Mechanical Impact: not available
Auto-Ignition Temperature: not available
Hazardous Combustion Products: not available
Means of Extinction: not available

IV - REACTIVITY DATA

Conditions of Chemical Instability: stable
Conditions of Reactivity: not applicable
Incompatible Substances: not available
Hazardous Decomposition Products: not available
Storage Requirements: store in closed containers away from incompatible materials

V - TOXICOLOGICAL PROPERTIES

Synergistic Materials: not available
Route(s) of Entry: skin, eyes, ingestion, inhalation

Irritancy of Product: hazardous
Sensitization: not available

Acute Effects
Eye: contact can cause moderate to high irritation
Skin: not available
Inhalation: vapours can cause dizziness
Ingestion: large amounts may cause nausea, vomiting & other medical problems
Prolonged or Repeated Exposure: Skin - not available

Chronic Effects
Carcinogen: non-hazardous
Teratogen: not available
Mutagen: not available
Reproductive Toxin: not available

VI - FIRST AID MEASURES

Eye Contact: Immediately flush with water for 15 minutes. If irritation persists, contact a physician.
Skin Contact: Not Applicable
Inhalation: Remove to fresh air. If symptoms persist, contact a physician.
Ingestion: Do not induce vomiting. Rinse mouth with water, then drink one glass of water. Contact a physician immediately. Never give anything by mouth if victim is unconscious, is rapidly losing consciousness or is convulsing.

VII - PROTECTIVE EQUIPMENT

Personal Protective Equipment:
Eyes: safety glasses
Skin: not normally required
Respiratory: not normally required if good ventilation is maintained
Ventilation: general ventilation normally adequate

VIII - SPECIAL MEASURES

For Leaks or Spills: Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered labeled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice.
Waste Disposal: Review all Federal, Provincial, and local regulations prior to disposal.

The information contained herein was obtained from reliable sources. No warranty, expressed or implied, is made and supplier will not be liable for any losses, injuries. For independent information on ingredients in this or any other material, we recommend contact with the Canadian Center for Occupational Health and Safety (CCOHS) in Hamilton, ON (1-800-263-8466) or CSST in Montreal, Quebec (514-873-3990).

MSDS Name	**DEVCON® Flexane® High Performance Putty**
Manufacturer Name	ITW Devcon
Stock No.:	15330
Kit MSDS Revision Date	1/15/2011

Components	
	FLEXANE HIGH PERFORMANCE PUTTY CURING AGENT
	FLEXANE HIGH PERFORMANCE PUTTY RESIN
ITW Devcon Product Code : 15330	

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**FLEXANE HIGH PERFORMANCE PUTTY CURING AGENT**
Manufacturer Name:	ITW Devcon
Address:	30 Endicott Street Danvers, MA 01923
General Phone Number:	(978) 777-1100
Emergency Phone Number:	(800) 424-9300
CHEMTREC:	For emergencies in the US, call CHEMTREC: 800-424-9300
Canutec:	In Canada, call CANUTEC: (613) 996-6666 (call collect)
MSDS Revision Date:	1/15/2011

HMIS

Health Hazard	2*
Fire Hazard	1
Reactivity	0
Personal Protection	x

* Chronic Health Effects

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Ingredient Percent
Diethyltoluenediamine	68479-98-1	60 - 100 by weight
Carbon black	1333-86-4	5 - 10 by weight
Dipropylene glycol dibenzoate	27138-31-4	10 - 30 by weight
Epoxidized soybean oil	8013-07-8	10 - 30 by weight

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview:	WARNING! Harmful. Irritant.
Route of Exposure:	Eyes. Skin. Inhalation. Ingestion.
Potential Health Effects:	
Eye:	Can cause severe eye irritation and burns. Eye contact may cause permanent damage or blindness.
Skin:	Causes severe skin irritation. May cause permanent skin damage.
Inhalation:	Vapor or mist may cause severe respiratory system irritation.
Ingestion:	Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.
Chronic Health Effects:	Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction.
Signs/Symptoms:	Overexposure may cause eye watering or discomfort, redness and swelling.
Target Organs:	Eyes. Skin. Respiratory system. Digestive system.
Aggravation of Pre-Existing Conditions:	May aggravate pre-existing respiratory disorders, allergy, eczema, or skin conditions.

SECTION 4 - FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.
Skin Contact:	Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

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SECTION 5 - FIRE FIGHTING MEASURES

Flammable Properties:	Material supports combustion.
Flash Point:	>275°F (135°C)
Flash Point Method:	Tag Closed Cup (TCC)
Auto Ignition Temperature:	Not determined.
Lower Flammable/Explosive Limit:	Not determined.
Upper Flammable/Explosive Limit:	Not determined.
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.
Extinguishing Media:	Use carbon dioxide (CO2) or dry chemical when fighting fires involving this material.
Unsuitable Media:	Water or foam may cause frothing.
Protective Equipment:	As in any fire, wear Self-Contained Breathing Apparatus (SCBA), MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spill Cleanup Measures:	Absorb spill with inert material (e,g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Clean up spills immediately observing precautions in the protective equipment section. After removal, flush spill area with soap and water to remove trace residue. Avoid personal contact and breathing vapors or mists. Ventilate area. Use proper personal protective equipment as listed in section 8.
Personnel Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Other Precautions:	Pump or shovel to storage/salvage vessels.

SECTION 7 - HANDLING and STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat and incompatible materials. Keep container tightly closed when not in use. Do not store in reactive metal containers. Keep away from acids, oxidizers.
Special Handling Procedures:	Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product.
Hygiene Practices:	Wash thoroughly after handling.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION - EXPOSURE GUIDELINES

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.

EXPOSURE GUIDELINES

Carbon black:

Guideline ACGIH:	3.5 mg/m3 TLV-TWA: 3.5 mg/m3
Notes :	Only established PEL and TLV values for the ingredients are listed.

SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

Physical State Appearance:	Liquid..

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Color:	Mobile Black..
Odor:	mild ammonia like.
Boiling Point:	>450°F (232.2°C)
Melting Point:	Not determined.
Specific Gravity:	1.05
Solubility:	negligible
Vapor Density:	>1 (air = 1)
Vapor Pressure:	<1 mmHg @70°F
Percent Volatile:	0
Evaporation Rate:	<<1 (butyl acetate = 1)
pH:	7-8 @ 5 Percent Solution
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Flash Point:	>275°F (135°C)
Flash Point Method:	Tag Closed Cup (TCC)
Auto Ignition Temperature:	Not determined.
VOC Content:	0 g/L
Percent Solids by Weight	100

SECTION 10 - STABILITY and REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Hazardous Polymerization:	Not reported.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions.
Incompatible Materials:	Oxidizers, acids, and chlorinated organic compounds. Reactive metals (e.g. sodium, calcium, zinc). Sodium/calcium hypochlorite. Nitrous acid/ oxide, nitrites. Peroxides. Materials reactive with hydroxyl compounds.

SECTION 11 - TOXICOLOGICAL INFORMATION

Diethyltoluenediamine:

RTECS Number:	CZ1583125
Ingestion:	Oral - Rat LD50 : 472 mg/kg [Sense Organs and Special Senses (Eye) - Lacrimation Behavioral - Somnolence (general depressed activity) Musculoskeletal - Other changes]

Carbon black:

RTECS Number:	FF5800000
Skin:	Administration onto the skin - Rabbit : >3 gm/kg [Details of toxic effects not reported other than lethal dose value] Administration onto the skin - Rat : 11 gm/kg/4W (Intermittent) [Blood - Pigmented or nucleated red blood cells Liver - Changes in liver weight Nutritional and Gross Metabolic - Weight loss or decreased weight gain]
Ingestion:	Oral - Rat LD50: >15400 mg/kg [Behavioral - Somnolence (general depressed activity)]
Carcinogenicity:	IARC: Group 2B: Possibly carcinogenic to humans.

Epoxidized soybean oil:

RTECS Number:	LL1100000
Skin:	Administration onto the skin - Rabbit LD50 : >20 mL/kg [Details of toxic effects not reported other than lethal dose value] Administration onto the skin - Rabbit Open irritation test: 500 mg [mild]
Ingestion:	Oral - Rat LD50 : 22500 uL/kg [Details of toxic effects not reported other than lethal dose value]

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	No ecotoxicity data was found for the product.
Environmental Fate:	No environmental information found for this product.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal:	Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
RCRA Number:	None.

SECTION 14 - TRANSPORT INFORMATION

DOT Shipping Name:	Non regulated.
DOT UN Number:	N/A
DOT Hazard Class:	Not applicable.
DOT Packing Group:	Not applicable.

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SECTION 15 - REGULATORY INFORMATION

Diethyltoluenediamine :	
TSCA Inventory Status:	Listed
Canada DSL:	Listed
Carbon black :	
TSCA Inventory Status:	Listed
California PROP 65:	Listed: cancer
Massachussetts:	Listed
Pennsylvania:	Listed
Canada DSL:	Listed
Dipropylene glycol dibenzoate :	
TSCA Inventory Status:	Listed
Canada DSL:	Listed
Epoxidized soybean oil :	
TSCA Inventory Status:	Listed
Canada DSL:	Listed
Canadian Regulations.	WHMIS Hazard Class(es): D2B All components of this product are on the Canadian Domestic Substances List.

SECTION 16 - ADDITIONAL INFORMATION

HMIS Fire Hazard:	1
HMIS Health Hazard:	2*
HMIS Reactivity:	0
HMIS Personal Protection:	x
MSDS Revision Date:	1/15/2011
MSDS Author:	Actio Corporation
Disclaimer:	This Health and Safety Information is correct to the best of our knowledge and belief at the date of its publication but we cannot accept liability for any loss, injury or damage which may result from its use. The information given in the Data Sheet is designed only as a guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment.

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SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**FLEXANE HIGH PERFORMANCE PUTTY RESIN**
Manufacturer Name:	ITW Devcon
Address:	30 Endicott Street Danvers, MA 01923
General Phone Number:	(978) 777-1100
Emergency Phone Number:	(800) 424-9300
CHEMTREC:	For emergencies in the US, call CHEMTREC: 800-424-9300
Canutec:	In Canada, call CANUTEC: (613) 996-6666 (call collect)
MSDS Revision Date:	1/15/2011

HMIS

Health Hazard	**3***
Fire Hazard	**3**
Reactivity	**1**
Personal Protection	**x**

* **Chronic Health Effects**

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Ingredient Percent
Proprietary	N/A	60 - 100 by weight
Methyl ethyl ketone	78-93-3	10 - 30 by weight
2,6-Di-tertiary-butyl-para-cresol	128-37-0	1 - 5 by weight
4,4'-Diphenylmethane diisocyanate	101-68-8	1 - 5 by weight
2,4-Toluene diisocyanate	584-84-9	1 - 5 by weight

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview:	WARNING! Flammable. Suspect Carcinogen. Potential Sensitizer. Irritant.
Route of Exposure:	Eyes. Skin. Inhalation. Ingestion.
Potential Health Effects:	
Eye:	Can cause moderate irritation, burning sensation, tearing, redness, and swelling. Overexposure may cause lacrimation, conjunctivitis, corneal damage and permanent injury..
Skin:	Can cause skin irritation; itching, redness, rashes, hives, burning, and swelling. Allergic reactions are possible.

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	May cause skin sensitization, an allergic reaction, which becomes evident on reexposure to this material.
Inhalation:	Respiratory tract irritant. High concentration may cause dizziness, headache, and anesthetic effects. May cause respiratory sensitization with asthma-like symptoms in susceptible individuals.
Ingestion:	Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.
Chronic Health Effects:	Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction.
Signs/Symptoms:	Overexposure can cause headaches, dizziness, nausea, and vomiting.
Target Organs:	Eyes. Skin. Respiratory system. Digestive system. Central nervous system.
Aggravation of Pre-Existing Conditions:	Individuals with pre-existing skin disorders, asthma, allergies or known sensitization may be more susceptible to the effects of this product. Isocyanate exposure levels must be monitored. Medical supervision of all employees who handle or come in contact with isocyanates is recommended (i.e. FEV, FVC). This should include pre-employment and periodic medical examinations. Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases, recurrent skin eczema or sensitization should be excluded from working with this product. Once sensitized no further exposure can be permitted.

SECTION 4 - FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.
Skin Contact:	Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.
Note to Physicians:	Asthmatic type symptoms may develop, which may be immediate or delayed for several hours.
Other First Aid:	Due to possible aspiration into the lungs, DO NOT induce vomiting if ingested. Provide a glass of water to dilute the material in the stomach. If vomiting occurs naturally, have the person lean forward to reduce the risk of aspiration.

SECTION 5 - FIRE FIGHTING MEASURES

Flammable Properties:	Flammable. Flammable liquid Class I B.
Flash Point:	24°F (-4.4°C)
Flash Point Method:	Tag Closed Cup (TCC)
Auto Ignition Temperature:	Not determined.
Lower Flammable/Explosive Limit:	1.8%
Upper Flammable/Explosive Limit:	11.5%
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.
Extinguishing Media:	Use carbon dioxide (CO2) or dry chemical when fighting fires involving this material.
Protective Equipment:	As in any fire, wear Self-Contained Breathing Apparatus (SCBA), MSHA/NIOSH (approved or equivalent) and full protective gear.
Unusual Fire Hazards:	Do not reseal containers if contaminated with water, resin will react with water to release carbon dioxide. As a result of the water contamination, pressure will build up in the sealed container causing it to rupture.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spill Cleanup Measures:	Absorb spill with inert material (e,g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Collect spill with a non-sparking tool. Place into a suitable container for disposal. Clean up spills immediately observing precautions in the protective equipment section. Neutralize residue with appropriate neutralizer. Do not attempt to neutralize large quantities of material unless measures to control reactivity and heat generation have been taken. Absorb spill with inert material (e.g., dry sand or earth), then place in a chemical waste container. Provide ventilation. After removal, flush spill area with soap and water to remove trace residue. Flammable, eliminate ignition sources. Vapors can form an ignitable mixture with air. . Vapors can flow along surfaces to distant ignition sources and flash back. Ventilate area. Use proper personal protective equipment as listed in section 8. A blanket of protein foam may be placed over spill for temporary control of isocyanate vapor.
Personnel Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Other Precautions:	Pump large quantities into closed but not sealed metal containers. Isocyanates will react with water and generate carbon dioxide, this could result in the rupture of any closed containers. Neutralize using 10 parts neutralizer to 1 part isocyanate solution. Mix

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and allow to stand for 48 hrs in containers, letting evolved carbon dioxide to vent. Neutralizer consist of 90% water, 3-8% concentrated ammonia (or sodium carbonate), 2% detergent.

SECTION 7 - HANDLING and STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist. Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures. Do not reuse containers without proper cleaning or reconditioning.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat, combustible materials, direct sunlight, and incompatible substances. Keep container tightly closed when not in use. Do not reseal container If moisture or water contamination is suspected. Water contaminated material in a sealed container may rupture due to pressure buildup.
Special Handling Procedures:	Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product. Hazardous liquid or vapor residue may remain in emptied container. Do not reuse, heat, burn, pressurize, cut, weld, braze, solder, drill, grind, expose to sparks, flame, or ignition sources of empty containers without proper commercial cleaning or reconditioning.
Hygiene Practices:	Wash thoroughly after handling.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION - EXPOSURE GUIDELINES

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.

EXPOSURE GUIDELINES

Methyl ethyl ketone:

Guideline ACGIH:	200 ppm TLV-STEL: 300 ppm TLV-TWA: 200 ppm
Guideline OSHA:	200 ppm PEL-TWA: 200 ppm

2,6-Di-tertiary-butyl-para-cresol:

Guideline ACGIH:	2 mg/m3 TLV-TWA: 2 mg/m3 Inhalable vapor fraction (IVF)

4,4'-Diphenylmethane diisocyanate:

Guideline ACGIH:	0.005 ppm TLV-TWA: 0.005 ppm
Guideline OSHA:	PEL-Ceiling/Peak: 0.02 ppm

2,4-Toluene diisocyanate:

Guideline ACGIH:	0.005 ppm Sensitizer.: Sen Skin: yes TLV-STEL: 0.003 ppm Inhalable vapor fraction (IVF) TLV-STEL: 0.02 ppm TLV-TWA: 0.001 ppm Inhalable vapor fraction (IVF) TLV-TWA: 0.005 ppm
Guideline OSHA:	PEL-Ceiling/Peak: 0.02 ppm
Notes :	Only established PEL and TLV values for the ingredients are listed.

SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

Physical State Appearance:	Liquid..
Color:	Clear Yellow.
Odor:	Sweet.
Boiling Point:	152°F (66.6°C)
Melting Point:	Not determined.
Specific Gravity:	0.99
Solubility:	Slight; reacts
Vapor Density:	3.94 (air = 1)
Vapor Pressure:	65 mmHg @68°F
Percent Volatile:	20

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Evaporation Rate:	>1 (butyl acetate = 1)
pH:	5 @ 5 Percent Solution
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Flash Point:	24°F (-4.4°C)
Flash Point Method:	Tag Closed Cup (TCC)
Auto Ignition Temperature:	Not determined.
VOC Content:	198 g/L
Percent Solids by Weight	80

SECTION 10 - STABILITY and REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Hazardous Polymerization:	Polymerization may occur under certain conditions.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions. Moisture and extended exposure over 85 F.
Incompatible Materials:	Alcohols, amines, strong bases (alkali, ammonia), acids, metal compounds, moisture or water. Resin reacts with water to give off carbon dioxide.

SECTION 11 - TOXICOLOGICAL INFORMATION

Methyl ethyl ketone:

RTECS Number:	EL6475000
Eye:	Eye - Human Standard Draize test.: 350 ppm Eye - Rabbit Standard Draize test.: 80 mg
Skin:	Administration onto the skin - Rabbit : 6480 mg/kg [Details of toxic effects not reported other than lethal dose value] Administration onto the skin - Rabbit : 500 mg/24H Administration onto the skin - Rabbit : 402 mg/24H Administration onto the skin - Rabbit : 14 mg/24H
Inhalation:	Inhalation - Rat LC50: 23500 mg/m3/8H [Details of toxic effects not reported other than lethal dose value] Inhalation - Mouse LC50: 32 gm/m3/4H [Details of toxic effects not reported other than lethal dose value] Inhalation - Rat LC50: 23500 mg/m3 [Details of toxic effects not reported other than lethal dose value] Inhalation - Mouse LC50: 32 mg/m3 [Details of toxic effects not reported other than lethal dose value]
Ingestion:	Oral - Mouse LD50: 3000 mg/kg [Details of toxic effects not reported other than lethal dose value] Oral - Rat LD50: 2737 mg/kg [Details of toxic effects not reported other than lethal dose value]

2,6-Di-tertiary-butyl-para-cresol:

RTECS Number:	GO7875000
Eye:	Eye - Rabbit Standard Draize test.: 100 mg/24H
Skin:	Administration onto the skin - Rat : >2000 mg/kg [Details of toxic effects not reported other than lethal dose value] Administration onto the skin - Mouse : 5 gm/kg/4W (Intermittent) [Lungs, Thorax, or Respiration - Changes in lung weight Related to Chronic Data - death] Administration onto the skin - Human : 500 mg/48H Administration onto the skin - Rabbit : 500 mg/48H
Ingestion:	Oral - Mouse LD50: 650 mg/kg [Behavioral - Tremor Lungs, Thorax, or Respiration - Chronic pulmonary edema] Oral - Mouse LD50: 650 mg/kg [Behavioral - Tremor Behavioral - Ataxia Lungs, Thorax, or Respiration - Other changes] Oral - Rat LD50: 890 mg/kg [Details of toxic effects not reported other than lethal dose value] Oral - Mouse LD50: 1040 mg/kg [Details of toxic effects not reported other than lethal dose value]

4,4'-Diphenylmethane diisocyanate:

RTECS Number:	NQ9350000
Eye:	Eye - Rabbit Standard Draize test.: 100 mg
Skin:	Administration onto the skin - Mouse : 0.09 pph/2D (Intermittent) [Blood - Other changes Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure)] Administration onto the skin - Mouse : 220 mg/kg/12D (Intermittent) [Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure) Biochemical - Metabolism (Intermediary) - Other proteins Biochemical - Metabolism (Intermediary) - Effect on inflammation or mediation of inflammation] Administration onto the skin - Mouse : 2 pph/2W (Intermittent) [Immunological Including Allergic - Increase in humoral immune response] Administration onto the skin - Mouse : 2 pph/4W (Intermittent) [Immunological Including Allergic - Increase in humoral immune response] Administration onto the skin - Mouse : 280 mg/kg/14D (Intermittent) [Immunological Including Allergic - Increase in humoral immune response] Administration onto the skin - Rabbit : 500 mg/24H
Inhalation:	Inhalation - Rat LC50: 178 mg/m3 [Details of toxic effects not reported other than lethal dose value]
Ingestion:	Oral - Rat LD50: 9200 mg/kg [Behavioral - Somnolence (general depressed activity) Behavioral - Ataxia Nutritional and Gross Metabolic - Body temperature decrease] Oral - Mouse LD50: 2200 mg/kg [Details of toxic effects not reported other than lethal dose value]

2,4-Toluene diisocyanate:

RTECS Number:	CZ6300000
Eye:	Eye - Rabbit Standard Draize test.: 100 mg
Skin:	Administration onto the skin - Rabbit : >16 mL/kg [Details of toxic

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	effects not reported other than lethal dose value] Administration onto the skin - Mouse : 240 mg/kg/28D (Intermittent) [Immunological Including Allergic - Increase in humoral immune response] Administration onto the skin - Mouse : 0.03 mL/kg/3D (Intermittent) [Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure)] Administration onto the skin - Mouse : 1.8 ul/kg/3D (Intermittent) [Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure)] Administration onto the skin - Mouse : 18 ul/kg/17D (Intermittent) [Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure)] Administration onto the skin - Mouse : 18.2 ul/kg/31D (Intermittent) [Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure) Immunological Including Allergic - Increased immune response] Administration onto the skin - Mouse : 1.7 mg/kg/17D (Intermittent) [Immunological Including Allergic - Increase in cellular immune response Immunological Including Allergic - Increase in humoral immune response] Administration onto the skin - Mouse : 90 mg/kg/3D (Intermittent) [Immunological Including Allergic - Increase in humoral immune response Biochemical - Metabolism (Intermediary) - Other proteins Biochemical - Metabolism (Intermediary) - Effect on inflammation or mediation of inflammation] Administration onto the skin - Mouse : 4.8 mg/kg/8D (Intermittent) [Lungs, Thorax, or Respiration - Other changes Biochemical - Metabolism (Intermediary) - Effect on inflammation or mediation of inflammation] Administration onto the skin - Mouse : 800 mg/kg/4D (Intermittent) [Immunological Including Allergic - Increased immune response Biochemical - Metabolism (Intermediary) - Effect on inflammation or mediation of inflammation] Administration onto the skin - Mouse : 15 mg/kg/3D (Intermittent) [Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure) Biochemical - Metabolism (Intermediary) - Effect on inflammation or mediation of inflammation] Administration onto the skin - Rabbit : 500 mg Administration onto the skin - Rabbit : 500 mg/24H
Inhalation:	Inhalation - Rat LC50: 14 ppm/4H [Sense Organs and Special Senses (Eye) - Lacrimation Behavioral - Excitement Lungs, Thorax, or Respiration - Dyspnea] Inhalation - Mouse LC50: 10 ppm/4H [Lungs, Thorax, or Respiration - Structural or functional change in trachea or bronchi Lungs, Thorax, or Respiration - Changes in pulmonary vascular resistance] Inhalation - Rat LC50: 14 ppm/4H [Details of toxic effects not reported other than lethal dose value] Inhalation - Mouse LC50: 10 ppm/4H [Details of toxic effects not reported other than lethal dose value]
Ingestion:	Oral - Rat LD50: 5800 mg/kg [Gastrointestinal - Other changes]

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	No ecotoxicity data was found for the product.
Environmental Fate:	No environmental information found for this product.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal:	Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
RCRA Number:	D001, D035
Important Disposal Information:	DANGER! Rags, steel wool and waste soaked with this product may spontaneously catch fire if improperly discarded or stored. To avoid a spontaneous combustion fire, immediately after use, place rags, steel wool or waste in a sealed, water-filled, metal container.

SECTION 14 - TRANSPORT INFORMATION

DOT Shipping Name:	Resin solution
DOT UN Number:	1866
DOT Hazard Class:	3
DOT Packing Group:	II
DOT Exemption:	ORM-D Small quantity exemption

SECTION 15 - REGULATORY INFORMATION

Methyl ethyl ketone :	
TSCA Inventory Status:	Listed
SARA:	EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
New Jersey:	Listed: NJ Hazardous EHS List
Massachussetts:	Listed: Massachusetts Oil and Hazardous List
Pennsylvania:	Listed
Canada DSL:	Listed
2,6-Di-tertiary-butyl-para-cresol :	
TSCA Inventory Status:	Listed

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Massachussetts:	Listed
Pennsylvania:	Listed
Canada DSL:	Listed

4,4'-Diphenylmethane diisocyanate :

TSCA Inventory Status:	Listed
SARA:	EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
New Jersey:	Listed: NJ Hazardous List; Substance Number: 3757
Massachussetts:	Listed
Pennsylvania:	Listed
Canada DSL:	Listed

2,4-Toluene diisocyanate :

TSCA Inventory Status:	Listed
SARA:	EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
Section 302 EHS:	EPCRA (SARA Title III) Section 302 (40 CFR Part 355) Extremely Hazardous Substances (EHS) Threshold Planning Quantity (TPQ) in pounds: 500 Lbs.
Section 302 RQ:	EPCRA (SARA Title III) Section 302 Extremely Hazardous Substances (EHS) Reportable Quantities (RQ) in pounds: 100 Lbs.
New Jersey:	Listed: NJ Hazardous EHS List
Massachussetts:	Listed: Massachusetts Oil and Hazardous List
Pennsylvania:	Listed
Canada DSL:	Listed
Canadian Regulations.	WHMIS Hazard Class(es): B2; D2A; D2B All components of this product are on the Canadian Domestic Substances List.

SECTION 16 - ADDITIONAL INFORMATION

HMIS Fire Hazard:	3
HMIS Health Hazard:	3*
HMIS Reactivity:	1
HMIS Personal Protection:	x
MSDS Revision Date:	1/15/2011
MSDS Author:	Actio Corporation
Disclaimer:	This Health and Safety Information is correct to the best of our knowledge and belief at the date of its publication but we cannot accept liability for any loss, injury or damage which may result from its use. The information given in the Data Sheet is designed only as a guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment.

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KLEEN-FLO TUMBLER INDUSTRIES LIMITED **MATERIAL SAFETY DATA SHEET** **PAGE 1**

SECTION I-MATERIAL IDENTIFICATION AND USE

Material Name/Identifier:	**Lock- De-Icer**	**Stock No.**	**615**
Manufacturer's Name:	**Kleen-Flo Tumbler Industries Ltd**	**Street Address:**	**75 Advance Blvd.**
City:	**Brampton**	**Province:**	**Ontario**
Postal Code:	**L6T 4N1**	**Emergency Phone #:**	**CANUTEC:- 613-996-6666 (24HR)**
Chemical Name:	**N/A (mixture)**	**Chemical Family:**	**N/A**
Chemical Formula:	**N/A (Mixture)**	**Trade Names & Synonyms:**	**None**
Material Use:	**De-icer**	**Molecular Weight:**	**N/A (Mixture)**

SECTION II-HAZARDOUS INGREDIENTS OF MATERIAL

Hazardous Ingredients	C.A.S.	Approximate Concentration	LD50 Species & Route	LC50 Species & Route
Isopropyl Alcohol	**67-63-0**	**60-100%**	**5045 mg/kg rat-oral**	**16000 ppm (4hr) rat-inh.**
Naphthenic Oil	**64742-53-6**	**7-13%**	**5000mg/kg rat-oral**	**N/Av.**

SECTION III-PHYSICAL DATA FOR MATERIAL

Physical State:	**Liquid**	**Odour/Appearance:**	**Clear, pale,yellow liquid**
Specific Gravity:	**0.8**	**Odour Threshold(p.p.m.):**	**N/E**
Boiling Point:	**82ºC**	**Evaporation Rate:**	**N/E**
Freezing Point:	**N/E**	**Solubility in Water:**	**Partly Soluble**
% Volatile(by volume):	**N/E**	**Vapour Pressure(mm)Hg:**	**N/Av.**
Vapour Density(Air=1):	**>1**	**Coefficient of Water/Oil Distribut:**	**N/E**
pH	**N/Av.**		

SECTION IV-FIRE AND EXPLOSION HAZARD OF MATERIAL

Flammability Yes/No	**Yes**	**If yes under which conditions?:**	**Open flames and sparks, heat**
Auto Ignition Temperature:	**N/E**	**Means of Extinction:**	**Dry chemical; Carbon dioixde, Foam**
Flashpoint and Method:	**15ºC TCC**	**Hazardous Combustion Products:**	**Carbon dioxide and**
		Carbon monoxide	
Upper Flammable limit (%vol)	**12**	**Lower Flammable Limit (% by volume):**	**1**
Explosion Data:	**Sensitivity to Mechanical Impact: N/Av.**	**Sensitivity to Static Discharge:**	**N/Av.**

SECTION V-REACTIVITY DATA

Chemical Stability Yes/No:	**Yes**	**If NO under which conditions?:**	
Incompatibility to Other Substances Yes/No:	**Yes**	**If so which ones?:**	**Strong oxidizing agents, May react with alumin**
Reactivity and under what conditions?	**Normally stable, but can become unstable at elevated temperatures & pressure**		
Hazardous Decomposition Products:	**Carbon monoxide, carbon dioxide produced upon combustion.**		

N/E: not established **N.Ap.: Not applicable** **N/Av.: not available**

Material Name/Identifier:	Lock- De-Icer	Stock No. 615	PAGE 2

SECTION VI-TOXICOLOGICAL PROPERTIES OF PRODUCT

Route of Entry: ALL Routes	--SKIN CONTACT --SKIN ABSORPTION --EYE CONTACT --INHALATION --INGESTION		
Effects of Acute Exposure:	Eye, Skin irritation. May cause headache, dizziness, nausea, drowsiness and central nervous system depression.		
Effects of Chronic Exposure:	None known		
LD 50 of Product:	N/E	LC 50 of Product:	N/E
Irritancy of Product:	Eye, skin irritant	Exposure Limits of Product: IPA 400 ppm STEL (ACGIH)	
Sensitization of Product:	N/E	Toxicologically Synergistic Materials:	N/E
--CARCINOGENICITY --REPRODUCTIVE EFFECTS --TERATOGENICITY --MUTAGENICITY			none known

SECTION VII-PREVENTIVE MEASURES

Personal Protective Equipment to be used:

Gloves(specify):	Nitrile, Viton, Chemical resistant gloves	Eye(specify):	Safety Glasses
Respiratory(specify):	Not required during normal use	Clothing:	Not required
Respiratory Protection:	If used indoors or on a continuous basis, use of NIOSH approved cartridge type respirator is recommended		
Engineering Controls:	Local ventilation		
Leak and Spill Procedure:	Use non-reactive absorbent material and non sparking tools to contain spills.		
	Incase of large spill use explosion proof and grounded equipments.		
Waste Disposal:	Dispose of at an approved waste disposal facility. Or as per municipal or provincial regulation.		
Storage Requirements:	Keep in a cool well ventilated place. Keep away from heat, spark or flame		
Handling Procedures and	Handle with care. Keep away from children. Do not inhale or ingest.		
Equipment:			
DSL Listing	All components are listed in the inventory.		
TDG Classification:	Consumer Commodity		
WHMIS Classification:	Consumer Commodity	Complies with CCCR 2001	

SECTION VIII-FIRST AID MEASURES

Eye:	Flush with water for at least 15 minutes. Seek mediacl attention immediatelyif irritation persist.
Skin:	Remove contaminated clothing. Wash with soap and water. See doctor if irritation persist.
Inhalation:	Move patient to fresh air and restore breathing if required. Call a physician if discomfort persist.
Ingestion:	DO NOT INDUCE VOMITING. Seek medical help immediately.

SECTION IX-PREPARATION DATE OF M.S.D.S.

Additional Info/Comments:		Sources Used: Supplier's data	
Phone Number:	(905) 793-4311	Prepared By: Quality Control Laboratory	
Date Prepared:	January 2, 2012	Kleen-Flo Tumbler Industries Limited	

THIS SHEET SUPERSEDES ANY OTHER M.S.D.S. PREVIOUSLY PREPARED

N/E: not established N.Ap.: Not applicable N/Av.: not available

Revision Number: 002.0

Issue date: 01/12/2012

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: LOCTITE® 404™ INSTANT ADHESIVE QUICK SET™ P/N 46551
Product type: Cyanoacrylate

Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

IDH number: 135465
Item number: 46551
Region: United States

Contact information:
Telephone: 860.571.5100
Emergency telephone: 860.571.5100MEDICAL EMERGENCY
Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS:

Physical state:	Liquid	**HEALTH:**	2
Color:	Clear, Colorless	**FLAMMABILITY:**	2
Odor:	Sharp, Irritating	**PHYSICAL HAZARD:**	1
		Personal Protection:	See MSDS Section 8

WARNING: BONDS SKIN IN SECONDS.
MAY CAUSE EYE AND RESPIRATORY TRACT IRRITATION.

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects

Inhalation: Exposure to vapors above the established exposure limit results in respiratory irritation, which may lead to difficulty in breathing and tightness in the chest.

Skin contact: Bonds skin in seconds. May cause skin irritation. Cyanoacrylates have been reported to cause allergic reaction but due to rapid polymerization at the skin surface, an allergic response is rare. Cyanoacrylates generate heat on solidification. In rare circumstances a large drop will burn the skin. Cured adhesive does not present a health hazard even if bonded to the skin.

Eye contact: Irritating to eyes. Causes excessive tearing. Eyelids may bond.

Ingestion: Not expected to be harmful by ingestion. Rapidly polymerizes (solidifies) and bonds in mouth. It is almost impossible to swallow.

Existing conditions aggravated by exposure: Eye, skin, and respiratory disorders.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Ethyl 2-cyanoacrylate	7085-85-0	60 - 100
Hydroquinone	123-31-9	0.1 - 1

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If symptoms persist, seek medical advice.

Skin contact: Do not pull bonded skin apart. Soak in warm soapy water. Gently peel apart using a blunt instrument. If skin is burned due to the rapid generation of heat by a large drop, seek medical attention. If lips are bonded, apply warm water to the lips and encourage wetting and pressure from saliva in mouth. Peel or roll lips apart. Do not pull lips apart with direct opposing force.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. Get medical attention. If eyelids are bonded closed, release eyelashes with warm water by covering with a wet pad. Do not force eye open. Cyanoacrylate will bond to eye protein and will cause a lachrymatory effect which will help to debond the adhesive. Keep eye covered until debonding is complete, usually within 1-3 days. Medical attention should be sought in case solid particles of polymerized cyanoacrylate trapped behind the eyelid caused abrasive damage.

Ingestion: Ensure breathing passages are not obstructed. The product will polymerize rapidly and bond to the mouth making it almost impossible to swallow. Saliva will separate any solidified product in several hours. Prevent the patient from swallowing any separated mass.

Notes to physician: Surgery is not necessary to separate accidentally bonded tissues. Experience has shown that bonded tissues are best treated by passive, non-surgical first aid. If rapid curing has caused thermal burns they should be treated symptomatically after adhesive is removed.

5. FIRE FIGHTING MEASURES

Flash point: 80 - 93.3 °C (176°F - 199.94 °F) Tagliabue closed cup

Autoignition temperature: 485 °C (905°F)

Flammable/Explosive limits - lower: Not determined

Flammable/Explosive limits - upper: Not determined

Extinguishing media: Water spray (fog), foam, dry chemical or carbon dioxide.

Special firefighting procedures: Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA).

Unusual fire or explosion hazards: None

Hazardous combustion products: Trace amounts of toxic and/or irritating fumes may be released and the use of breathing apparatus is recommended.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Ventilate area.

Clean-up methods: Do not use cloths for mopping up. Flood with water to complete polymerization and scrape off the floor. Cured material can be disposed of as non-hazardous waste.

7. HANDLING AND STORAGE

Handling: Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling. Avoid contact with fabric or paper goods. Contact with these materials may cause rapid polymerization which can generate smoke and strong irritating vapors, and cause thermal burns.

Storage: Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

For information on product shelf life contact Henkel Customer Service at (800) 243-4874.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Ethyl 2-cyanoacrylate	0.2 ppm TWA	None	None	None
Hydroquinone	1 mg/m3 TWA (Sensitiser.)	2 mg/m3 TWA	None	None

Engineering controls: Use positive down-draft exhaust ventilation if general ventilation is insufficient to maintain vapor concentration below established exposure limits.

Respiratory protection: Use a NIOSH approved supplied air respirator with an organic cartridge if the potential to exceed established exposure limits exists.

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use nitrile gloves and aprons as necessary to prevent contact. Do not use PVC, nylon or cotton.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid
Color: Clear, Colorless
Odor: Sharp, Irritating
Odor threshold: 1 - 2 ppm
pH: Not applicable
Vapor pressure: < 0.2 mm hg
Boiling point/range: > 149 °C (> 300.2 °F)
Melting point/ range: Not determined
Specific gravity: 1.09 at 23.9 °C (75.02 °F)
Vapor density: 3 Approximately
Flash point: 80 - 93.3 °C (176°F - 199.94 °F) Tagliabue closed cup
Flammable/Explosive limits - lower: Not determined
Flammable/Explosive limits - upper: Not determined
Autoignition temperature: 485 °C (905°F)
Evaporation rate: Not available.
Solubility in water: Polymerises in presence of water.
Partition coefficient (n-octanol/water): Not determined
VOC content: < 2 %; < 20 g/l (California SCAQMD Method 316B) (Estimated)

10. STABILITY AND REACTIVITY

Stability: Stable under recommended storage conditions.

Hazardous reactions: Rapid exothermic polymerization will occur in the presence of water, amines, alkalis and alcohols.

Hazardous decomposition products: None

Incompatible materials: Water, amines, alkalis and alcohols.

Conditions to avoid: Spontaneous polymerization.

11. TOXICOLOGICAL INFORMATION

Acute oral product toxicity: LD50 (rat) > 5,000 mg/kg (Estimated)

Acute dermal product toxicity: LD50 (rabbit) > 2,000 mg/kg (Estimated)

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Ethyl 2-cyanoacrylate	No	No	No
Hydroquinone	No	No	No

Hazardous components	Health Effects/Target Organs
Ethyl 2-cyanoacrylate	Irritant, Allergen, Respiratory
Hydroquinone	Blood, Bone Marrow, Central nervous system, Developmental, Eyes, Immune system, Irritant, Liver, Mutagen, Skin, Thyroid

12. ECOLOGICAL INFORMATION

Ecological information: Not known.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: Combustible liquid, n.o.s. (Cyanoacrylate ester)
Hazard class or division: Combustible Liquid
Identification number: NA 1993
Packing group: III
DOT Reportable quantity: Hydroquinone
Exceptions: (Not more than 450 Liters), Unrestricted

International Air Transportation (ICAO/IATA)

Proper shipping name: Aviation regulated liquid, n.o.s. (Cyanoacrylate ester)
Hazard class or division: 9
Identification number: UN 3334
Packing group: None
Exceptions: (Not more than 500ml) Unrestricted

Water Transportation (IMO/IMDG)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12(b) Export Notification:	None above reporting de minimus
CERCLA/SARA Section 302 EHS:	Hydroquinone (CAS# 123-31-9).
CERCLA/SARA Section 311/312:	Immediate Health, Delayed Health, Fire, Reactive
CERCLA/SARA 313:	None above reporting de minimus
CERCLA Reportable quantity:	Hydroquinone (CAS# 123-31-9) 100 lbs. (45.4 kg)
California Proposition 65:	No California Proposition 65 listed chemicals are known to be present.

Canada Regulatory Information

CEPA DSL/NDSL Status:	All components are listed on or are exempt from listing on the Canadian Domestic Substances List.
WHMIS hazard class:	B.3, D.2.A, D.2.B

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: Updated Contact Information in Section 1., Reviewed MSDS. Reissued with new date.

Prepared by: Kyra Kozak Woods, Manager, Regulatory Affairs

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Material Safety Data Sheet

MSDS ID: SK-142D

* * * Section 1 - Chemical Product and Company Identification * * *

Product Name: STOKO® GEL FREE

Product Use: Hand Sanitizer

Company Information

Evonik Stockhausen, LLC **2401 Doyle Street** **Greensboro , NC 27406**	Non-Emergency # 800-242-2271 **Emergency # (800) 424-9300 CHEMTREC (North America)** **Emergency # (703) 527-3887 CHEMTREC (International, call collect)**

General Comments

Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving the product. All Non-emergency questions should be directed to the Toll Free, Non-Emergency number above.

* * * Section 2 - Hazards Identification * * *

Emergency Overview

Ethanol is a severe eye irritant and eye contact with the substance may result in corneal injury if not removed immediately. Prolonged inhalation may cause headache, eye, nose and throat irritation, with possible central nervous system effects: depressant. Ingestion may cause birth defects (teratogen).

Potential Health Effects: Eyes

This product is irritating to the eyes and respiratory system.

Potential Health Effects: Skin

None, normally. However, may cause rash if used in association with certain drugs given in alcohol detoxification programs. Get medical help if that happens.

Potential Health Effects: Ingestion

Seek medical attention.

Potential Health Effects: Inhalation

This product is irritating to the eyes and respiratory system.

HMIS Ratings: **Health:** 2 **Fire:** 3 **Reactivity:** 0 **Pers. Prot.:** None required.
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
64-17-5	Ethyl alcohol	60

Component Information/Information on Non-Hazardous Components

This hand sanitizer is regulated by the US Food and Drug Administration. However, it is not exempt from EPA TSCA IUR reporting criteria. Employers must inform workers of the hazards of this product and provide worker training on safe handling procedures.

See container label regarding proper handling and use of this product.

Ingredients are listed in descending order of concentration on the container label.
For OSHA workplace hazards, investigate and read and understand component MSDS's before manufacturing.
Workplace Hazardous Materials Information System (WHIMS-Canada): Exempt-cosmetic hand cleaner

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact, immediately flush eyes with large amounts of water, continuing to flush for 15 minutes. If irritation persists get medical attention.

First Aid: Skin

None.

First Aid: Ingestion

If material is swallowed, get medical attention or advice.

First Aid: Inhalation

If inhaled, immediately remove the affected person to fresh air.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

Component ethyl alcohol is highly flammable and a dangerous fire hazard when exposed to heat and/or flames. This product is a moderate fire hazard and explosion hazard when exposed to heat and/or flame.

Upper Flammable Limit (UFL): 19%
Lower Flammable Limit (LFL): 3.3%
Method Used: TCC
Flash Point: 95°F
Flammability Classification: Flammable
Auto Ignition: Not determined

Hazardous Combustion Products

On thermal decomposition: oxides of carbon.

Extinguishing Media

Dry chemical, foam, carbon dioxide, water fog.

Fire Fighting Equipment/Instructions

Fire fighters should wear full-face, self contained breathing apparatus and impervious protective clothing. Fire fighters should avoid inhaling any combustion products.

NFPA Ratings: Health: 2 **Fire:** 3 **Reactivity:** 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures

Contain and remove all sources of ignition. Wear appropriate protective gear. Collect using suitable absorbent if needed.

Clean-Up Procedures

Absorb spill with inert material. Shovel material into appropriate container for disposal. Flush small residuals to the drain for normal biological wastewater treatment.

Evacuation Procedures

Treat as moderate fire and explosion hazard.

Special Procedures

Caution: Flammable material. Store in an appropriate hazardous materials storage facility.

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Avoid eye contact and prolonged inhalation of vapors. Avoid prolonged contact with sensitive skin. Do not ingest.

Storage Procedures

Protect from freezing.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Exposure Guidelines

A: General Product Information

FDA regulated.

For OSHA workplace hazards, investigate and read and understand component MSDS's before manufacturing.

Workplace Hazardous Materials Information System (WHIMS-Canada): Exempt-cosmetic hand cleaner.

B: Component Exposure Limits

Ethyl alcohol (64-17-5)

OSHA:	1000 ppm TWA; 1900 mg/m3 TWA
ACGIH:	1000 ppm TWA

Engineering Controls

None required for intended use.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Avoid eye contact.

Personal Protective Equipment: Skin

Avoid prolonged contact with sensitive skin.

Personal Protective Equipment: Respiratory

Avoid prolonged inhalation of vapors.

Personal Protective Equipment: General

Obey reasonable safety precautions and practice good housekeeping.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Clear, colorless	**Odor:**	none
Physical State:	Gel	**pH:**	7.4 - 8.1
Vapor Pressure:	Not Established	**Vapor Density:**	Not Established
Boiling Point:	Not Established	**Melting Point:**	Not Established
Solubility (H2O):	Partially soluble	**Specific Gravity:**	0.849 (+ or - 0.015) g/cc^3
Evaporation Rate:	1.2	**Flash Point:**	37^oC (95^oF) (TCC)

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

Stable under usual application conditions.

Chemical Stability: Conditions to Avoid

None.

Incompatibility

Oxidizers, including chlorine bleach and hydrogen peroxide. Acids, platinum and silver.

Hazardous Decomposition

On thermal decomposition oxides of carbon.

Hazardous Polymerization

Hazardous polymerization will not occur.

* * * Section 11 - Toxicological Information * * *

Acute and Chronic Toxicity

A: General Product Information

Ethyl alcohol is irritating to the eyes, nose and respiratory system at very high vapor concentrations. Repeated ingestion of ethyl alcohol may result in liver damage.

B: Acute Toxicity-LD50/LC50

Ethyl alcohol (64-17-5)

LD50:	Inhalation LC50 Rat: 124.7 mg/L/4H; Oral LD50 Rat: 1501 mg/kg

Carcinogenicity

A: General Product Information

Ingestion may cause birth defects (teratogen).

B: Component Carcinogenicity

Ethyl alcohol (64-17-5)

ACGIH:	A4 - Not Classifiable as a Human Carcinogen

Other Toxicological Information

None.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Prevent concentrated product from entering surface waters without biological treatment.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Ethyl alcohol (64-17-5)

96 Hr LC50 Oncorhynchus mykiss: 12900 mg/L [flow-through] (30 days old); 96 Hr LC50 Pimephales promelas: 14.2 mg/L

Environmental Fate

No information available for the product.

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Number & Descriptions

A: General Product Information

This material is a hazardous waste by the EPA definition of flammability.

B: Component Waste Numbers

No EPA Waste Numbers are applicable for this product's components.

Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

* * * Section 14 - Transportation Information * * *

Department of Transportation (DOT)

Shipping Name: "Consumer Commodity", ORM-D

Additional Information:

This product is transport regulated as "Consumer Commodity", ORM-D" with a package size limitation maximum of 30 liters (7.9 gallons).

Product is in compliance with the Department of Transportation 49 CFR 173.121, b, Packing Group III nomenclature.

IATA (US and International)

Via air, this product is limited as a "Consumer Commodity", ORM-D to 0.5 liters. Otherwise the product must be classified as a hazardous material: **UN1170, Ethanol Solution, 3, PG III**

IMDG

UN1170, ETHANOL SOLUTION, 3, PG III

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

A: General Product Information

Not subject to TSCA regulation. Regulated as a personal use cosmetic by FDA.

B: Clean Air Act

No information is available.

C: Component Analysis

No information is available.

State Regulations

A: General Product Information

None identified.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Ethyl alcohol	64-17-5	Yes	No	Yes	Yes	Yes	Yes
Triethanolamine (< 0.2%)	102-71-6	No	No	Yes	Yes	No	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Ethyl alcohol	64-17-5	0.1 %

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Ethyl alcohol	64-17-5	Yes	DSL	EINECS
Triethanolamine (< 0.2%)	102-71-6	Yes	DSL	EINECS

* * * Section 16 - Other Information * * *

Other Information

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.

MSDS History

This is a revised MSDS. Section's 2 & 3 have been revised to reflect proposed 2004 ANSI Standards format recommendations for 2007 implementation.
1-26-09 Reviewed with no changes.
2-25-09 Updated IMDG information - Section 14

Contact: Product Compliance Officer

Contact Phone: (800) 242-2271

This is the end of MSDS #: SK-142D

MATERIAL SAFETY DATA SHEET
LPS® 2 (Aerosol)

Revision Date: May 15, 2012 **Supersedes:** May 29, 2009

Section 1 • Product and Company Identification

Product Name: LPS® 2 (Aerosol)

Part Number(s): 00216 (aerosol), C30216 (aerosol)

Chemical Name: Petroleum Distillates

Product Use: An industrial lubricant designed to displace moisture from equipment, provide heavy-duty lubrication and rust prevention.

Manufacturer Information: LPS Laboratories, 4647 Hugh Howell Road, Tucker, GA, USA 30084
TEL: USA & Canada: 1 800 241-8334
Outside USA and Canada: +1 770 243-8800
FAX: USA & Canada: 1 800 543-1563
Outside USA and Canada: +1 770 243-8899

Emergency Telephone Number: Chemtrec: USA & Canada: 1 800 424-9300
Outside USA and Canada: +1 703 527-3887

Website: http://www.lpslabs.com

Section 2 • Hazards Identification

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Emergency Overview:

Aerosol: DANGER: Flammable. Contents under pressure. Harmful or fatal if swallowed.

Bulk: Not applicable

Primary route(s) of entry: Skin and eye contact. Inhalation.

Potential Acute Health Effects:

Eyes: Irritating to eyes.

Skin: Repeated exposure may cause skin dryness or cracking.

Inhalation: Excessive inhalation of vapors can cause irritation of the respiratory tract, nausea, dizziness or headache.

Ingestion: Product has a low order of acute oral toxicity, but ingestion of large quantities may cause nausea, vomiting, and gastrointestinal irritation. May cause injury if aspirated into lungs.

Potential Chronic Health Effects:

Carcinogenic Effects: **NTP:** No **IARC:** No **OSHA:** No **ACGIH:** No

Mutagenic Effects: None

Teratogenic Effects: None

Target Organs: None

Medical conditions aggravated by exposure:
Persons with pre-existing central nervous system (CNS) disease, neurological conditions, skin disorders, chronic respiratory diseases, or impaired liver or kidney function should avoid exposure.

Signs and Symptoms
Stinging in eyes. Repeated or prolonged skin contact can cause redness, irritation, and scaling of the skin (dermatitis). Breathing of high vapor concentrations may cause headaches, stupor, irritation of throat and eyes, and kidney effects.

Section 3 • Composition / Information on Ingredients

Component	CASRN	Weight Percent
Distillates (Petroleum), Hydrotreated Light	64742-47-8	70 - 80%
Mineral Seal (Petroleum) Oil	64742-47-8 / 64742-52-5	20 - 30%
Carbon Dioxide	124-38-9	1 - 5%

Section 4 • First Aid Measures

Eyes: Check for and remove contact lenses. If irritation or redness develops, flush eyes with cool, clean, low pressure water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of the eye and eyelid tissue. DO NOT use eye ointment. Seek medical attention immediately.

Skin: Remove contaminated shoes and clothing. Clean affected area thoroughly with mild soap and water. DO NOT use ointments. Seek medical attention if irritation persists.

Inhalation: Immediately move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). If breathing is difficult, seek medical attention immediately.

Ingestion: DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. DO NOT leave victim unattended. Seek medical attention immediately.

Notes to Physician: This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity (See Section 2 - Ingestion) when deciding whether to induce vomiting. Inhalation of high concentrations of this material, as could occur in enclosed spaces or during deliberate abuse, may be associated with cardiac arrhythmias.

Section 5 • Fire Fighting Measures

Products of Combustion: Carbon monoxide and carbon dioxide.

General Fire Hazards: High heat will cause product to boil, evolving vapor that could cause explosive rupture of closed containers.

Firefighting media: SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use CO2, water spray, fog or foam. Cool containing vessels with water jet in order to prevent pressure build-up, auto-ignition or explosions.

Sensitivity to Impact: None **Sensitivity to Static Discharge:** None

Protection Clothing (Fire): Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles.

Special Remarks on Explosion Hazards:
High heat will cause product to boil, evolving vapor that could cause explosive rupture of closed containers. Aerosols may explode upon heating, spread fire and overcome sprinkler systems.

Section 6 • Accidental Release Measures

Containment Procedures:

Small Spill and Leak: Absorb with an inert material and dispose of properly.

Large Spill and Leak: Secure the area and control access. Dike far ahead of a liquid spill to ensure complete collection. Pick up free liquid for disposal using absorbent pads, sand, or other inert non-combustible absorbent materials. Place into appropriate waste containers for later disposal.

Clean-Up Procedures: Contain and recover spilled material when possible.

Evacuation Procedures: Ventilate area of leak or spill. Keep unnecessary and unprotected people away.

Special Procedures: Remove all sources of ignition. Ventilate area. Wear personal protective equipment during cleanup.

Section 7 • Handling and Storage

Handling: DO NOT spray into or around ignition sources. DO NOT allow material to come in contact with eyes or skin. Wear appropriate protective equipment during handling. Keep container closed. Avoid breathing vapors or mists. Use only with adequate ventilation. Wash thoroughly after handling.

Storage: Keep container in a cool, well-ventilated area. Avoid all sources of ignition (spark or flame). Store between 40°F and 120°F (4.4°C and 49°C).

Precautions to be taken in handling and storage:
Store aerosols as Level 3 Aerosol (NFPA 30B). Store all materials in a dry, well-ventilated area. Avoid breathing vapors.

Section 8 • Exposure Controls / Personal Protection

Exposure Guidelines:

Component	CASRN	OSHA	ACGIH	NIOSH	Supplier
Distillates (Petroleum), Hydrotreated Light	64742-47-8	5 mg/m3 (oil mist) PEL	5 mg/m3 (oil mist) TLV 10 mg/m3 (oil mist) STEL	5 mg/m3 (oil mist) TWA 10 mg/m3 (oil mist) STEL	100 ppm TWA 525 mg/m3 TWA
Mineral Seal (Petroleum) Oil	64742-47-8 / 64742-52-5	5 mg/m3 PEL	5 mg/m3 (oil mist) 10 mg/m3 (oil mist)	5 mg/m3 (oil mist) TWA 10 mg/m3 (oil mist) STEL	None reported
Carbon Dioxide	124-38-9	5000 ppm PEL	5000 ppm TLV 30000 ppm STEL	5000 ppm TWA 30000 ppm STEL	None reported

Engineering Controls: Provide general and/or local exhaust ventilation to keep exposures below the exposure guidelines listed above.

Personal protective equipment

Eye protection: Safety glasses with side shields conforming to appropriate regulations. Eye wash fountain and emergency shower facilities are recommended.

Hand protection: Normally no hand protection is required; however, if product will be sprayed for an extended period, "overspray" onto skin may occur. If so, wear chemical resistant gloves conforming to appropriate regulations. Please observe the instructions regarding permeability and breakthrough time that are provided by the supplier of the gloves.

Respiratory protection: Typical use of this product under normal conditions does not require the use of respiratory protection. If airborne concentrations are above the applicable exposure limits (listed above), use NIOSH approved respiratory protection (i.e. organic vapor cartridge).

General Hygiene Considerations: Wash thoroughly after handling. Have eye-wash facilities immediately available.

Section 9 • Physical and Chemical Properties

Appearance:	Liquid	**Color:**	Brown
Odor:	Petroleum / Cherry	**Evaporation Rate:**	< 0.1 (BuAc = 1)
Solubility Description:	< 3% in water	**Flash Point:**	79°C (175°F) - dispensed liquid
Boiling Point:	195°C (383°F)	**Flash Point Method:**	Tag-Closed Cup
Specific Gravity (H2O=1):	0.82 - 0.86 @ 20°C	**Decomposition Temperature:**	Not established
Vapor Density (air = 1):	4.7	**Auto ignition temperature:**	> 228°C (442ºF)
Vapor Pressure:	< 0.05 mm Hg @ 20ºC	**Flammable limits (estimated):**	LOWER: 0.6% UPPER: 7.0%
Rule 1171 PPc:	Not applicable	**Partition Coefficient (octanol/water):**	< 1
V.O.C. Content:	Aerosol: 0% per State & Federal Consumer Product Regulations Bulk: Not applicable	**Odor Threshold:**	Not established
Melting Point:	< -50ºC (-58ºF)	**Viscosity:**	< 7 cSt @ 25ºC
pH:	Not applicable	**Volatiles:**	92 - 95%
Heat of combustion:	Aerosol: > 30 kJ/g Bulk: Not applicable		

Section 10 • Stability and Reactivity

Chemical Stability: Product is stable under recommended storage conditions.

Conditions to Avoid: Keep away from heat and ignition sources.

Incompatibility: Reactive or incompatible with oxidizing agents.

Hazardous Decomposition: Combustion will generate smoke, possibly thick and choking, resulting in zero visibility and combustion products include carbon monoxide and carbon dioxide.

Hazardous Polymerization: Will not occur.

Section 11 • Toxicological Information

Acute and Chronic Toxicity

A: General Product Information
An acute toxicity study of this product has not been conducted. Information given in this section relates only to individual constituents contained in this preparation.

B: Component Analysis

Component	CASRN	LC-50	LD-50
Distillates (Petroleum), Hydrotreated Light	64742-47-8	> 6.8 mg/L*	> 5 g/kg*
Mineral Seal (Petroleum) Oil	64742-47-8 / 64742-52-5	Not established	Not established
Carbon Dioxide	124-38-9	470000 ppm / rat / 30 minutes	Not appropriate

* Supplier Data

Section 12 • Ecological Information

Mobility: Semi-volatile. Readily absorbed into soil. **Persistence / Degradability:** Only slightly biodegradable

Bioaccumulative potential: No bioaccumulation potential **Other adverse effects:** See below

Ecological studies have not been conducted for this product. The following information is available for component(s) of this product.

Ecotoxicity

Effects on Organisms	Component	CASRN	Test	Species	Results
Acute Toxicity on Fishes	Distillates (Petroleum), Hydrotreated Light	64742-47-8	96-hr LC50	Oncorhynchus Mykiss	3,200 µg/L*
Acute Toxicity on Daphnia	No data available				
Bacterial Inhibition					
Growth inhibition of algae					
Bioaccumulation in fish					

* Supplier Data

For the 64742-47-8 component, no toxicity has been observed in water due to extremely low water solubility. However, hydrocarbon and petroleum distillates are potentially toxic to freshwater and saltwater ecosystems. If material is spilled on soil, some potential toxic effects could occur before biodegradation could remove material.

If spilled, the 64742-46-7 constituent may kill grasses and small plants by interfering with transpiration. Spilled material may coat gill structures of fish resulting in suffocation if spilled in shallow, running water. This product may be toxic to amphibians by preventing dermal respiration. This product may also cause gastrointestinal distress to birds and mammals through ingestion. Biodegradation of this product is possible within 90 to 120 days in aerobic environments at temperatures above 21°C.

Section 13 • Disposal Considerations

Waste Status: Aerosol cans, if depressurized and emptied to less than 1 inch (2.54 cm) of fluid contents, are classified as non-hazardous waste under 40 CFR 261.7 (U.S.). If disposed of in its received form, the aerosol product carries the waste code D003 (U.S.).

Disposal: Waste must be disposed of in accordance with any and all applicable environmental control rules and/or regulations.

Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information inaccurate, incomplete, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive than federal laws and regulations.

Section 14 • Transport Information

D.O.T. Ground	**Shipping Name:**	Consumer Commodity	**UN No.:**	NA
	Hazard Class:	ORM-D	**Technical Name:**	NA
	Subclass:	NA	**Hazard Label:**	ORM-D Already on box
	Packing Group:	NA		
Road/Rail - ADR/RID	**UN No.:**	1950	**ADR Class:**	2
	Packing Group:	NA	**Classification Code:**	5F
	Name and description:	AEROSOLS, flammable	**Hazard ID No.:**	NA
	Labeling:	2.1	**Technical Name:**	NA
IMDG-IMO	**UN No.:**	1950	**Class:**	2
	Shipping Name:	Aerosols	**Subsidiary Risk:**	2.1
	Labeling:	NA	**Packing Group:**	NA
	Packing Instructions:	P003, LP02	**EmS:**	F-D, S-U
	Marine pollutant:	No	**Technical Name:**	NA
IATA - ICAO:	**UN No.:**	1950	**Class:**	2.1
	Shipping Name:	Aerosols, flammable	**Subclass:**	NA
	Packing Instructions:	203, Y203 (Ltd. Qty.)	**Packing Group:**	NA
	Labeling:	Flammable Gas	**Technical Name:**	NA

The preceding information is subject to change and must be verified prior to shipment. It is the responsibility of anyone offering hazardous materials for shipment to ensure compliance with all applicable regulations.

Section 15 • Regulatory Information

U.S. Federal Regulations

RCRA Hazardous Waste No.: D003

Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA):
None

Toxic Substances Control Act (TSCA):
All components of this product are TSCA inventory listed and/or are exempt.

Superfund Amendments and Reauthorization Act (SARA) Title III SARA Section 311/312 (40 CFR 370) Hazard Categories:
Sudden Release of Pressure, Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard

This product contains the following toxic chemical(s) subject to reporting requirements of SARA Section 313 (40 CFR 372):
No individual section 313 component is present at or above 1%.

Section 112 Hazardous Air Pollutants (HAPs): None

State Regulations

California: This product does not contain chemical(s) known to the State of California to cause cancer, birth defects or other reproductive harm.

California and OTC States: This product conforms to consumer product regulations.

New Jersey Right to Know:
Aerosol: Distillates (Petroleum), Hydrotreated Light 64742-47-8 ● Mineral Seal (Petroleum) Oil 64742-46-7 / 64742-52-5 ● Proprietary NJ TS RN 800959-5152P ● Proprietary NJ TS RN 800959-5153P ● Carbon Dioxide 124-38-9 ● Alkyd Acid Phosphate 68307-94-8
Bulk: Not applicable

International Regulations

Canadian Environmental Protection Act (CEPA):
All of the components of this product are included on the Canadian Domestic Substances list (DSL).

Canadian Workplace Hazardous Materials Information System WHMIS:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

WHMIS Classification:
Aerosol: Class A, Class B5, Class D2B



Other Regulations:

Montreal Protocol listed ingredients:	None
Stockholm Convention listed ingredients:	None
Rotterdam Convention listed engredients:	None
RoHS Compliant:	Yes

MATERIAL SAFETY DATA SHEET
LPS® 2 (Aerosol)

Revision Date: **May 15, 2012** **Supersedes:** **May 29, 2009**

Section 16 • Other Information

MSDS#: 10216 MSDS Preparation Responsible Name: Elena Badiuzzi Compliance Manager Telephone: +1 770 243-8800	**HMIS 1996**		**HMIS III**		**NFPA** Flammability Health  Reactivity Special
	Health:	1	Health:	[/] 1	
	Flammability:	2	Flammability Aerosol: Flammability Bulk:	4 NA	
	Reactivity:	0	Physical Hazard Aerosol: Physical Hazard Bulk:	2 NA	

Notice to Reader:
To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Elena Badiuzzi, Compliance Manager
LPS Laboratories, a division of Illinois Tool Works

Revision Number: 006.0

Issue date: 12/06/2012

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Loctite(R) 567 Thread Sealant L/Japan
Product use: Sealant

IDH number: 232048
Item number: 23372
Region: Canada

Company address:
Henkel Canada Corporation
2515 Meadowpine Boulevard
Mississauga, Ontario L5N 6C3

Contact information:
Telephone: 905.814.6511
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical state: Paste
Color: White
Odor: Mild

WHMIS hazard class: D.2.A, D.2.B

WARNING: CAUSES EYE IRRITATION.
MAY CAUSE ALLERGIC SKIN REACTION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects

Inhalation: May cause respiratory tract irritation.
Skin contact: May cause skin irritation. May cause allergic skin reaction.
Eye contact: Contact with eyes will cause irritation.
Ingestion: Not expected to be harmful by ingestion.

Existing conditions aggravated by exposure: Eye, skin, and respiratory disorders.

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Bisphenol A fumarate resin	39382-25-7	30 - 60
Polyglycol dimethacrylate	25852-47-5	10 - 30
Polyglycol laurate	9004-81-3	10 - 30
Polyethylene glycol monococoate	61791-29-5	10 - 30
Ethene, tetrafluoro-, homopolymer	9002-84-0	5 - 10
Titanium dioxide	13463-67-7	1 - 5
Silica, amorphous, fumed, crystal-free	112945-52-5	1 - 5
Saccharin	81-07-2	1 - 5
Epichlorohydrin-4,4'-isopropylidene diphenol resin	25068-38-6	1 - 5
Ethylene glycol	107-21-1	0.1 - 1
Cumene	98-82-8	0.1 - 1

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If symptoms develop and persist, get medical attention.

Skin contact: Remove contaminated clothing and footwear. Wash with soap and water. Wash clothing before reuse. If symptoms develop and persist, get medical attention.

Eye contact: Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time. Get medical attention.

Ingestion: Do not induce vomiting. Keep individual calm. Get medical attention.

5. FIRE FIGHTING MEASURES

Flash point: > 93.3 °C (> 199.94 °F)

Autoignition temperature: Not available.

Flammable/Explosive limits - lower: Not available.

Flammable/Explosive limits - upper: Not available.

Extinguishing media: Foam, dry chemical or carbon dioxide.

Special firefighting procedures: Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

Unusual fire or explosion hazards: None

Hazardous combustion products: Oxides of carbon. Oxides of nitrogen. Oxides of sulfur. Toxic fluorine compounds. Irritating organic vapours.

Sensitivity to Mechanical Impact: Not available.

Sensitivity to static discharge: Not available.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Do not allow product to enter sewer or waterways.

Clean-up methods: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Store in a partly filled, closed container until disposal.

7. HANDLING AND STORAGE

Handling: Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling.

Storage: For safe storage, store at or below 38 °C (100.4 °F)
Keep in a cool, well ventilated area away from heat, sparks and open flame.
Keep container tightly closed until ready for use.

For information on product shelf life contact Henkel Canada Customer Service at 800-263-5043.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Bisphenol A fumarate resin	None	None	None	None
Polyglycol dimethacrylate	None	None	None	None
Polyglycol laurate	None	None	None	None
Polyethylene glycol monococoate	None	None	None	None
Ethene, tetrafluoro-, homopolymer	None	None	None	10 mg/m3 TWA Total dust. 5 mg/m3 TWA Respirable fraction.
Titanium dioxide	10 mg/m3 TWA	15 mg/m3 TWA Total dust.	None	None
Silica, amorphous, fumed, crystal-free	10 mg/m3 TWA Inhalable dust. 3 mg/m3 TWA Respirable fraction.	20 MPPCF TWA 0.8 mg/m3 TWA	None	None
Saccharin	None	None	None	None
Epichlorohydrin-4,4'-isopropylidene diphenol resin	None	None	None	None
Ethylene glycol	100 mg/m3 Ceiling Aerosol.	None	None	None
Cumene	50 ppm TWA	50 ppm (245 mg/m3) TWA (SKIN)	None	None

Engineering controls: No specific ventilation requirements noted, but forced ventilation may still be required if concentrations exceed occupational exposure limits.

Respiratory protection: Use a NIOSH approved supplied air respirator with an organic cartridge if the potential to exceed established exposure limits exists.

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Neoprene, Butyl-rubber, or nitrile-rubber gloves. Use impermeable gloves and protective clothing as necessary to prevent skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Paste
Color: White
Odor: Mild
Odor threshold: Not available.
pH: Not applicable
Vapor pressure: < 5 mm hg (27 °C (80.6 °F))
Boiling point/range: Not available.
Melting point/ range: Not available.
Specific gravity: 1.14
Vapor density: Not available.
Flash point: > 93.3 °C (> 199.94 °F)
Flammable/Explosive limits - lower: Not available.
Flammable/Explosive limits - upper: Not available.
Autoignition temperature: Not available.
Evaporation rate: Not available.
Solubility in water: Slight
Partition coefficient (n-octanol/water): Not available.
VOC content: 0.13 %; 1.38 g/l

10. STABILITY AND REACTIVITY

Stability: Stable

Hazardous reactions: Will not occur.

Hazardous decomposition products: Oxides of nitrogen. Oxides of carbon. Oxides of sulfur. Toxic fluorine compounds. Phenolics. Irritating organic vapours.

Incompatible materials: Free radical initiators. Amines. Aldehydes. Alkalis. copper Aluminum. Rust. Bases. Acids. Strong oxidizing agents. Peroxides. Iron. Reducing agents. Zinc.

Conditions to avoid: Heat, flames, sparks and other sources of ignition. See "Handling and Storage" (Section 7) and "Incompatibility" (Section 10). Exposure to sunlight.

11. TOXICOLOGICAL INFORMATION

Acute oral product toxicity: LD50 (rat) > 10,000 mg/kg

Acute dermal product toxicity: LD50 (rabbit) > 2,000 mg/kg

Toxicologically synergistic products: Not available.

Refer to the following for Irritancy of Product, Sensitization to Product, Carcinogenicity, Reproductive Toxicity, Teratogenicity, and Mutagenicity.

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)	ACGIH Carcinogen
Bisphenol A fumarate resin	No	No	No	No
Polyglycol dimethacrylate	No	No	No	No
Polyglycol laurate	No	No	No	No
Polyethylene glycol monococoate	No	No	No	No
Ethene, tetrafluoro-, homopolymer	No	No	No	No
Titanium dioxide	No	Group 2B	No	Group A4
Silica, amorphous, fumed, crystal-free	No	No	No	No
Saccharin	No	No	No	No
Epichlorohydrin-4,4'-isopropylidene diphenol resin	No	No	No	No
Ethylene glycol	No	No	No	Group A4
Cumene	No	Group 2B	No	No

Hazardous components	LD50s and LC50s	Health Effects/Target Organs
Bisphenol A fumarate resin	None	No Target Organs
Polyglycol dimethacrylate	None	Irritant, Allergen
Polyglycol laurate	None	Allergen, Irritant
Polyethylene glycol monococoate	None	No Target Organs
Ethene, tetrafluoro-, homopolymer	None	No Target Organs
Titanium dioxide	None	Irritant, Respiratory, Some evidence of carcinogenicity
Silica, amorphous, fumed, crystal-free	None	Nuisance dust
Saccharin	None	No Target Organs
Epichlorohydrin-4,4'-isopropylidene diphenol resin	None	Allergen, Irritant
Ethylene glycol	Oral LD50 (RAT) = 5.89 g/kg Dermal LD50 (rabbit) = 9,530 mg/kg	Blood, Bone Marrow, Central nervous system, Developmental, Eyes, Irritant, Kidney, Liver, Metabolic
Cumene	Oral LD50 (RAT) = 1,400 mg/kg Oral LD50 (RAT) = 2.91 g/kg Inhalation LC50 (RAT, 4 h) = 8,000 mg/l	Central nervous system, Irritant, Lung

12. ECOLOGICAL INFORMATION

Ecological information: Do not empty into drains / surface water / ground water.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

14. TRANSPORT INFORMATION

The shipping classifications in this sections are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

Canada Transportation of Dangerous Goods - Ground

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

International Air Transportation (ICAO/IATA)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

Water Transportation (IMO/IMDG)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

15. REGULATORY INFORMATION

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: 3

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR), and the MSDS contains all the information required by the CPR.

Prepared by: Kyra Kozak Woods, Manager, Regulatory Affairs

DISCLAIMER: The data contained herein are furnished for information only and are believed to be reliable. However, Henkel Corporation and its affiliates ("Henkel") does not assume responsibility for any results obtained by persons over whose methods Henkel has no control. It is the user's responsibility to determine the suitability of Henkel's products or any production methods mentioned herein for a particular purpose, and to adopt such precautions as may be advisable for the protection of property and persons against any hazards that may be involved in the handling and use of any Henkel's products. In light of the foregoing, Henkel specifically disclaims all warranties, express or implied, including warranties of merchantability and fitness for a particular purpose, arising from sale or use of Henkel's products. Henkel further disclaims any liability for consequential or incidental damages of any kind, including lost profits.

Revision Number: 005.0

Issue date: 04/16/2012

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Loctite(R) 660 Quick Metal(R) Press Fit Repair Retaining Compound

IDH number: 209765

Product use: Adhesive

Item number: 66010

Region: Canada

Company address:
Henkel Canada Corporation
2515 Meadowpine Boulevard
Mississauga, Ontario L5N 6C3

Contact information:
Telephone: 905.814.6511
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical state: Paste
Color: Silver
Odor: Mild

WHMIS hazard class: D.2.A, D.2.B

WARNING: CAUSES EYE AND SKIN IRRITATION.
MAY CAUSE ALLERGIC SKIN REACTION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.
MAY BE HARMFUL IF SWALLOWED.

Relevant routes of exposure: Skin, Inhalation, Eyes, Ingestion

Potential Health Effects

Inhalation: May cause respiratory tract irritation.
Skin contact: Causes skin irritation. May cause allergic skin reaction.
Eye contact: Contact with eyes will cause irritation.
Ingestion: May be harmful if swallowed.

Existing conditions aggravated by exposure: Eye, skin, and respiratory disorders.

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
2-Propenoic acid, 2-methyl-, (1-methylethylidene)	24448-20-2	30 - 60
Hydroxyalkyl methacrylate	27813-02-1	30 - 60
Bisphenol A fumarate resin	39382-25-7	5 - 10
Silica, amorphous, fumed, crystal-free	112945-52-5	5 - 10
Cumene hydroperoxide	80-15-9	1 - 5
Cumene	98-82-8	0.1 - 1
1-Acetyl-2-phenylhydrazine	114-83-0	0.1 - 1
Titanium dioxide	13463-67-7	0.1 - 1

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If symptoms develop and persist, get medical attention.

Skin contact:	Wash with soap and water. Wash clothing before reuse. Remove contaminated clothing and footwear. If symptoms develop and persist, get medical attention.
Eye contact:	Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time. Get medical attention.
Ingestion:	Do not induce vomiting. Keep individual calm. Get medical attention.

5. FIRE FIGHTING MEASURES

Flash point:	> 93 °C (> 199.4 °F) Tagliabue closed cup
Autoignition temperature:	Not available.
Flammable/Explosive limits - lower:	Not available.
Flammable/Explosive limits - upper:	Not available.
Extinguishing media:	Foam, dry chemical or carbon dioxide.
Special firefighting procedures:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.
Unusual fire or explosion hazards:	None
Hazardous combustion products:	Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Irritating organic vapours.
Sensitivity to Mechanical Impact:	Not available.
Sensitivity to static discharge:	Not available.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:	Do not allow product to enter sewer or waterways.
Clean-up methods:	Ensure adequate ventilation. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Store in a partly filled, closed container until disposal.

7. HANDLING AND STORAGE

Handling:	Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling. Use only with adequate ventilation.
Storage:	For safe storage, store at or below 38 °C (100.4 °F) Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

For information on product shelf life contact Henkel Canada Customer Service at (905) 814-6511.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
2-Propenoic acid, 2-methyl-, (1-methylethylidene)	None	None	None	None
Hydroxyalkyl methacrylate	None	None	None	1 ppm TWA 3 ppm STEL
Bisphenol A fumarate resin	None	None	None	None
Silica, amorphous, fumed, crystal-free	10 mg/m3 TWA Inhalable dust. 3 mg/m3 TWA Respirable fraction.	20 MPPCF TWA 0.8 mg/m3 TWA	None	None
Cumene hydroperoxide	None	None	1 ppm (6 mg/m3) TWA (SKIN)	None
Cumene	50 ppm TWA	50 ppm (245 mg/m3) TWA (SKIN)	None	None
1-Acetyl-2-phenylhydrazine	None	None	None	None
Titanium dioxide	10 mg/m3 TWA	15 mg/m3 TWA Total dust.	None	None

Engineering controls: Local exhaust ventilation is recommended when general ventilation is not sufficient to control airborne contamination below occupational exposure limits.

Respiratory protection: Use an organic vapor respirator for concentrations exceeding the Occupational Exposure Limit.

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use impermeable gloves and protective clothing as necessary to prevent skin contact. Butyl rubber gloves. Neoprene gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Paste
Color: Silver
Odor: Mild
Odor threshold: Not available.
pH: Not applicable
Vapor pressure: < 5 mm hg (27 °C (80.6 °F))
Boiling point/range: > 149 °C (> 300.2 °F)
Melting point/ range: Not available.
Specific gravity: 1.1
Vapor density: Not available.
Flash point: > 93 °C (> 199.4 °F) Tagliabue closed cup
Flammable/Explosive limits - lower: Not available.
Flammable/Explosive limits - upper: Not available.
Autoignition temperature: Not available.
Evaporation rate: Not available.
Solubility in water: Slight
Solubility in water: Not miscible
Partition coefficient (n-octanol/water): Not available.
VOC content: 3.02 %; 30.15 g/l

10. STABILITY AND REACTIVITY

Stability: Stable

Hazardous reactions: Will not occur.

Hazardous decomposition products: Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Irritating organic vapours.

Incompatible materials: Strong oxidizing agents.

Conditions to avoid: See "Handling and Storage" (Section 7) and "Incompatibility" (Section 10).

11. TOXICOLOGICAL INFORMATION

Acute oral product toxicity: LD50 (rat) > 5,000 mg/kg (Estimated)

Acute dermal product toxicity: LD50 (rabbit) > 2,000 mg/kg (Estimated)

Toxicologically synergistic products: Not available.

Refer to the following for Irritancy of Product, Sensitization to Product, Carcinogenicity, Reproductive Toxicity, Teratogenicity, and Mutagenicity.

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)	ACGIH Carcinogen
2-Propenoic acid, 2-methyl-, (1-methylethylidene)	No	No	No	No
Hydroxyalkyl methacrylate	No	No	No	No
Bisphenol A fumarate resin	No	No	No	No
Silica, amorphous, fumed, crystal-free	No	No	No	No
Cumene hydroperoxide	No	No	No	No
Cumene	No	Group 2B	No	No
1-Acetyl-2-phenylhydrazine	No	No	No	No
Titanium dioxide	No	Group 2B	No	Group A4

Hazardous components	LD50s and LC50s	Health Effects/Target Organs
2-Propenoic acid, 2-methyl-, (1-methylethylidene)	None	Irritant, Allergen
Hydroxyalkyl methacrylate	None	Irritant, Allergen
Bisphenol A fumarate resin	None	No Target Organs
Silica, amorphous, fumed, crystal-free	None	Nuisance dust
Cumene hydroperoxide	None	Allergen, Central nervous system, Corrosive, Irritant, Mutagen
Cumene	Oral LD50 (RAT) = 1,400 mg/kg Oral LD50 (RAT) = 2.91 g/kg Inhalation LC50 (RAT, 4 h) = 8,000 mg/l	Central nervous system, Irritant, Lung
1-Acetyl-2-phenylhydrazine	None	Allergen, Blood, Kidney, Mutagen, Some evidence of carcinogenicity
Titanium dioxide	None	Irritant, Respiratory, Some evidence of carcinogenicity

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

14. TRANSPORT INFORMATION

The shipping classification in this section are for bulk packaging only. Shipping classification may be different for non-bulk packaging as exceptions may apply. Refer to shipping documents for package specific transportation classification.

Canada Transportation of Dangerous Goods - Ground

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

International Air Transportation (ICAO/IATA)

Proper shipping name:	Environmentally hazardous substance, liquid, n.o.s.
Hazard class or division:	9
Identification number:	UN 3082
Packing group:	III

Water Transportation (IMO/IMDG)

Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Hazard class or division:	9
Identification number:	UN 3082
Packing group:	III

15. REGULATORY INFORMATION

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: New information added in Section(s): 1, 3, 8, 11

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR), and the MSDS contains all the information required by the CPR.

Prepared by: Kyra Kozak Woods, Manager, Regulatory Affairs

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Revision Number: 002.1

Issue date: 01/31/2012

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Loctite® Threadlocker Blue 242 Removable
Product use: Sealant

IDH number: 209728
Item number: 24200
Region: Canada

Company address:
Henkel Corporation
2225 Meadowpine Boulevard
Mississauga, Ontario L5N 7P2

Contact information:
Telephone: 905.814.6511
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical state: Liquid
Color: Blue
Odor: Mild

WHMIS hazard class: D.2.A, D.2.B

WARNING: CAUSES EYE IRRITATION.
MAY CAUSE SKIN IRRITATION.
MAY CAUSE ALLERGIC SKIN REACTION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects

Inhalation: May cause respiratory tract irritation.
Skin contact: May cause allergic skin reaction. May cause skin irritation.
Eye contact: Contact with eyes will cause irritation.
Ingestion: Not expected to be harmful by ingestion.

Existing conditions aggravated by exposure: Eye, skin, and respiratory disorders.

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Polyglycol dimethacrylate	25852-47-5	60 - 100
Oleic acid 5.5EO	9004-96-0	10 - 30
Saccharin	81-07-2	1 - 5
Silica, amorphous, fumed, crystal-free	112945-52-5	1 - 5
Cumene hydroperoxide	80-15-9	1 - 5
Propanediol-1,2	57-55-6	1 - 5
Titanium dioxide	13463-67-7	0.1 - 1

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Keep warm and quiet. Get medical attention.

Skin contact:	Wash with soap and water. Remove contaminated clothing and footwear. Wash clothing before reuse. If symptoms develop and persist, get medical attention.
Eye contact:	Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time. Get medical attention.
Ingestion:	Do not induce vomiting. Keep individual calm. Get medical attention.

5. FIRE FIGHTING MEASURES

Flash point:	> 93.3 °C (> 199.94 °F) Tagliabue closed cup
Flame projection:	Not applicable
Autoignition temperature:	Not determined
Flammable/Explosive limits - lower:	2.6 % (propylene glycol) 2.6 % (propylene glycol)
Flammable/Explosive limits - upper:	12.5 % (propylene glycol) 12.5 % (propylene glycol)
Extinguishing media:	Foam, dry chemical or carbon dioxide.
Special firefighting procedures:	None
Unusual fire or explosion hazards:	None
Hazardous combustion products:	Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Irritating organic vapours.
Sensitivity to Mechanical Impact:	Not sensitive to mechanical impact.
Sensitivity to static discharge:	Electrostatic charge may build-up during handling. Grounding of equipment is recommended.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:	Do not allow product to enter sewer or waterways.
Clean-up methods:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Store in a partly filled, closed container until disposal.

7. HANDLING AND STORAGE

Handling:	Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling.
Storage:	For safe storage, store at or below 38 °C (100.4 °F) Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

For information on product shelf life contact Henkel Canada Customer Service at (905) 814-6511.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Polyglycol dimethacrylate	None	None	None	None
Oleic acid 5.5EO	None	None	None	None
Saccharin	None	None	None	None
Silica, amorphous, fumed, crystal-free	10 mg/m3 TWA Inhalable dust. 3 mg/m3 TWA Respirable fraction.	20 MPPCF TWA 0.8 mg/m3 TWA	None	None
Cumene hydroperoxide	None	None	1 ppm (6 mg/m3) TWA (SKIN)	None
Propanediol-1,2	None	None	10 mg/m3 TWA Aerosol.	None
Titanium dioxide	10 mg/m3 TWA	15 mg/m3 TWA Total dust.	None	None

Engineering controls: No specific ventilation requirements noted, but forced ventilation may still be required if concentrations exceed occupational exposure limits.

Respiratory protection: Use NIOSH approved respirator if there is potential to exceed exposure limit(s).

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use impermeable gloves and protective clothing as necessary to prevent skin contact. Neoprene gloves. Butyl rubber gloves. Natural rubber gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid
Color: Blue
Odor: Mild
Odor threshold: Not available.
pH: Not applicable
Vapor pressure: < 5 mm hg (27 °C (80.6 °F)) < 5 mm hg (27 °C (80.6 °F))
Boiling point/range: > 149 °C (> 300.2 °F) > 149 °C (> 300.2 °F)
Melting point/ range: Not available.
Specific gravity: 1.1 at 23.9 °C (75.02 °F)
Vapor density: Not available.
Vapor density: Not available.
Flash point: > 93.3 °C (> 199.94 °F) Tagliabue closed cup
Flame projection: Not applicable
Flammable/Explosive limits - lower: 2.6 % (propylene glycol) 2.6 % (propylene glycol)
Flammable/Explosive limits - upper: 12.5 % (propylene glycol) 12.5 % (propylene glycol)
Autoignition temperature: Not determined
Evaporation rate: Not available.
Solubility in water: Slight
Partition coefficient (n-octanol/water): Not available.
VOC content: 4.48 %; 49.3 g/l EPA Method 24

10. STABILITY AND REACTIVITY

Stability: Stable

Hazardous reactions: Will not occur.

Hazardous decomposition products: Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Irritating organic vapours.

Incompatible materials: Strong oxidizing agents. Free radical initiators. Strong reducing agents. Alkalis. Oxygen scavengers. Other polymerization initiators. Copper. Iron. Zinc. Aluminum. Rust.

Conditions to avoid: See "Handling and Storage" (Section 7) and "Incompatibility" (Section 10).

11. TOXICOLOGICAL INFORMATION

Acute oral product toxicity: LD50 (rat) > 10,000 mg/kg

Acute dermal product toxicity: LD50 (rabbit) > 5,000 mg/kg

Toxicologically synergistic products: Not available.

Refer to the following for Irritancy of Product, Sensitization to Product, Carcinogenicity, Reproductive Toxicity, Teratogenicity, and Mutagenicity.

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)	ACGIH Carcinogen
Polyglycol dimethacrylate	No	No	No	No
Oleic acid 5.5EO	No	No	No	No
Saccharin	No	No	No	No
Silica, amorphous, fumed, crystal-free	No	No	No	No
Cumene hydroperoxide	No	No	No	No
Propanediol-1,2	No	No	No	No
Titanium dioxide	No	Group 2B	No	Group A4

Hazardous components	LD50s and LC50s	Health Effects/Target Organs
Polyglycol dimethacrylate	None	Irritant, Allergen
Oleic acid 5.5EO	None	Irritant
Saccharin	None	No Target Organs
Silica, amorphous, fumed, crystal-free	None	Nuisance dust
Cumene hydroperoxide	None	Allergen, Central nervous system, Corrosive, Irritant, Mutagen
Propanediol-1,2	Oral LD50 (rabbit) = 18 g/kg Oral LD50 (RAT) = 30 g/kg	Irritant
Titanium dioxide	None	Irritant, Respiratory, Some evidence of carcinogenicity

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

14. TRANSPORT INFORMATION

The shipping classifications in this sections are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

Canada Transportation of Dangerous Goods - Ground

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

International Air Transportation (ICAO/IATA)

Proper shipping name: Environmentally hazardous substance, liquid, n.o.s.
Hazard class or division: 9
Identification number: UN 3082
Packing group: III

Water Transportation (IMO/IMDG)

Proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
Hazard class or division:	9
Identification number:	UN 3082
Packing group:	III

15. REGULATORY INFORMATION

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: 3, 8, 11

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR), and the MSDS contains all the information required by the CPR.

Prepared by: Karim Nasr, Regulatory Affairs Specialist

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Revision Number: 008.0

Issue date: 01/04/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Loctite(R) High Strength Threadlocker 262
IDH number: 492141
Product use: Anaerobic Sealant
Item number: 37478
Region: Canada

Company address:
Henkel Canada Corporation
2225 Meadowpine Boulevard
Mississauga, Ontario L5N 7P2

Contact information:
Telephone: 905.814.6511

Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical state: Liquid
Color: Red
Odor: Mild
WHMIS hazard class: D.2.B

WARNING: CAUSES EYE IRRITATION.
MAY CAUSE ALLERGIC SKIN REACTION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.
MAY CAUSE SKIN IRRITATION.

Relevant routes of exposure: Skin, Inhalation, Eyes, Respiratory system

Potential Health Effects

Inhalation: May cause respiratory tract irritation.
Skin contact: May cause allergic skin reaction. May cause skin irritation with discomfort or rash.
Eye contact: Contact with eyes will cause irritation.
Ingestion: May be harmful if swallowed.

Existing conditions aggravated by exposure: Eye, skin, and respiratory disorders.

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Polyglycol dimethacrylate	25852-47-5	60 - 100
Bisphenol A fumarate resin	39382-25-7	10 - 30
Saccharin	81-07-2	1 - 5
Cumene hydroperoxide	80-15-9	1 - 5
N,N-Diethyl-p-toluidine	613-48-9	1 - 5

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If symptoms develop and persist, get medical attention.

Skin contact: Wash with soap and water. Remove contaminated clothing and footwear. Wash clothing before reuse. If symptoms develop and persist, get medical attention.

Eye contact:	Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time. Get medical attention.
Ingestion:	Do not induce vomiting. Keep individual calm. Get medical attention.

5. FIRE FIGHTING MEASURES

Flash point:	> 93.3 °C (> 199.94 °F) Tagliabue closed cup
Autoignition temperature:	Not available
Flammable/Explosive limits - lower:	Not available
Flammable/Explosive limits - upper:	Not available
Extinguishing media:	If product is involved in fire extinguish with dry powder, foam or carbon dioxide.
Special firefighting procedures:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.
Unusual fire or explosion hazards:	None
Hazardous combustion products:	Thermal decomposition can lead to release of irritating gases and vapors. Oxides of carbon. Oxides of nitrogen.
Sensitivity to Mechanical Impact:	Not available
Sensitivity to static discharge:	Not available

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:	Do not allow product to enter sewer or waterways. Do not allow product to enter sewer or waterways.
Clean-up methods:	Ensure adequate ventilation. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Scrape up spilled material and place in a closed container for disposal. Ensure adequate ventilation. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Scrape up spilled material and place in a closed container for disposal.

7. HANDLING AND STORAGE

Handling:	Avoid contact with eyes, skin and clothing. Avoid breathing vapors or mists of this product. Wash thoroughly after handling.
Storage:	For safe storage, store at or below 38 °C (100.4 °F) Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

For information on product shelf life contact Henkel Canada Customer Service at (905) 814-6511.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Polyglycol dimethacrylate	None	None	None	None
Bisphenol A fumarate resin	None	None	None	None
Saccharin	None	None	None	None
Cumene hydroperoxide	None	None	1 ppm (6 mg/m3) TWA (SKIN)	None
N,N-Diethyl-p-toluidine	None	None	None	None

Engineering controls: No specific ventilation requirements noted, but forced ventilation may still be required if concentrations exceed occupational exposure limits.

Respiratory protection: Use a NIOSH approved supplied air respirator with an organic cartridge if the potential to exceed established exposure limits exists.

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use impermeable gloves and protective clothing as necessary to prevent skin contact. Natural rubber gloves. Neoprene gloves. Butyl rubber gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid
Color: Red
Odor: Mild
Odor threshold: Not available
pH: Not applicable
Vapor pressure: < 5 mm hg (27 °C (80.6 °F))
Boiling point/range: > 149 °C (> 300.2 °F)
Melting point/ range: Not available
Specific gravity: 1.05
Vapor density: Not available
Flash point: > 93.3 °C (> 199.94 °F) Tagliabue closed cup
Flammable/Explosive limits - lower: Not available
Flammable/Explosive limits - upper: Not available
Autoignition temperature: Not available
Evaporation rate: Not available
Solubility in water: Slight
Partition coefficient (n-octanol/water): Not available
VOC content: 0 %; 0 g/l

10. STABILITY AND REACTIVITY

Stability: Stable

Hazardous reactions: Will not occur.

Hazardous decomposition products: Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Phenolics. Irritating organic vapours.

Incompatible materials: Iron. Copper. Rust. Aluminum. Zinc. Reducing agents. Strong acids and oxidizing agents. Oxygen scavengers. Strong alkalis.

Conditions to avoid: See "Handling and Storage" (Section 7) and "Incompatibility" (Section 10).

11. TOXICOLOGICAL INFORMATION

Acute oral product toxicity: LD50 (rat) > 10,000 mg/kg

Acute dermal product toxicity: LD50 (rabbit) > 5,000 mg/kg

Toxicologically synergistic products: Not available

Refer to the following for Irritancy of Product, Sensitization to Product, Carcinogenicity, Reproductive Toxicity, Teratogenicity, and Mutagenicity.

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)	ACGIH Carcinogen
Polyglycol dimethacrylate	No	No	No	No
Bisphenol A fumarate resin	No	No	No	No
Saccharin	No	No	No	No
Cumene hydroperoxide	No	No	No	No
N,N-Diethyl-p-toluidine	No	No	No	No

Hazardous components	LD50s and LC50s	Health Effects/Target Organs
Polyglycol dimethacrylate	None	Irritant, Allergen
Bisphenol A fumarate resin	None	No Target Organs
Saccharin	None	No Target Organs
Cumene hydroperoxide	None	Allergen, Central nervous system, Corrosive, Irritant, Mutagen
N,N-Diethyl-p-toluidine	None	No Target Organs

12. ECOLOGICAL INFORMATION

Ecological information: Not available

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

14. TRANSPORT INFORMATION

The shipping classifications in this sections are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

Canada Transportation of Dangerous Goods - Ground

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

International Air Transportation (ICAO/IATA)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

Water Transportation (IMO/IMDG)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

15. REGULATORY INFORMATION

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: New Material Safety Data Sheet format. 2, 8, 11

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR), and the MSDS contains all the information required by the CPR.

Prepared by: Kyra Kozak Woods, Manager, Regulatory Affairs

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SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**CLEANER BLEND 300**
Stock No.:	19510
Manufacturer Name:	ITW Devcon
Address:	30 Endicott Street Danvers, MA 01923
General Phone Number:	(978) 777-1100
Emergency Phone Number:	(800) 424-9300
CHEMTREC:	For emergencies in the US, call CHEMTREC: 800-424-9300
Canutec:	In Canada, call CANUTEC: (613) 996-6666 (call collect)
MSDS Revision Date:	January 30, 2012
MSDS Format:	According to ANSI Z400.1-2004

HMIS

Health Hazard	2*
Fire Hazard	2
Reactivity	1
Personal Protection	X

* Chronic Health Effects

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Ingredient Percent
1-methoxy-2-propanol acetate	108-65-6	10 - 30 by weight
2-methoxy-1-propanol	1589-47-5	1 - 5 by weight
d-Limonene	5989-27-5	5 - 10 by weight
Non-hazardous ingredients.	N/A	10 - 30 by weight
Propylene glycol monomethyl ether	107-98-2	30 - 60 by weight

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview:	WARNING! Flammable. Irritant.
Route of Exposure:	Eyes. Skin. Inhalation. Ingestion.
Potential Health Effects:	
Eye:	Can cause moderate irritation, burning sensation, tearing, redness, and swelling. Overexposure may cause lacrimation, conjunctivitis, corneal damage and permanent injury.
Skin:	Can cause skin irritation; itching, redness, rashes, hives, burning, and swelling.
Inhalation:	Respiratory tract irritant. High concentration may cause dizziness, headache, and anesthetic effects.
Ingestion:	Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.
Chronic Health Effects:	Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction.
Signs/Symptoms:	Overexposure can cause headaches, dizziness, nausea, and vomiting.
Target Organs:	Eyes. Skin. Respiratory system. Digestive system.
Aggravation of Pre-Existing Conditions:	Individuals with pre-existing skin disorders, asthma, allergies or known sensitization may be more susceptible to the effects of this product.

SECTION 4 - FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.
Skin Contact:	Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.
Other First Aid:	Due to possible aspiration into the lungs, DO NOT induce vomiting if ingested. Provide a glass of water to dilute the material in the

stomach. If vomiting occurs naturally, have the person lean forward to reduce the risk of aspiration.

SECTION 5 - FIRE FIGHTING MEASURES

Flammable Properties:	Flammable.
Flash Point:	104°F (40°C)
Flash Point Method:	Tag closed cup (TCC)
Auto Ignition Temperature:	Not determined.
Lower Flammable/Explosive Limit:	3.0%
Upper Flammable/Explosive Limit:	12%
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.
Extinguishing Media:	Use carbon dioxide (CO2) or dry chemical when fighting fires involving this material.
Protective Equipment:	As in any fire, wear Self-Contained Breathing Apparatus (SCBA), MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personnel Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Spill Cleanup Measures:	Absorb spill with inert material (e,g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Collect spill with a non-sparking tool. Place into a suitable container for disposal. Clean up spills immediately observing precautions in the protective equipment section. After removal, flush spill area with soap and water to remove trace residue. Flammable, eliminate ignition sources. Vapors can form an ignitable mixture with air. . Vapors can flow along surfaces to distant ignition sources and flash back. Ventilate area. Use proper personal protective equipment as listed in section 8.
Other Precautions:	Pump or shovel to storage/salvage vessels.

SECTION 7 - HANDLING and STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist. Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures. Do not reuse containers without proper cleaning or reconditioning.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat, combustible materials, direct sunlight, and incompatible substances. Keep container tightly closed when not in use.
Special Handling Procedures:	Hazardous liquid or vapor residue may remain in emptied container. Do not reuse, heat, burn, pressurize, cut, weld, braze, solder, drill, grind, expose to sparks, flame, or ignition sources of empty containers without proper commercial cleaning or reconditioning.
Hygiene Practices:	Wash thoroughly after handling.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION - EXPOSURE GUIDELINES

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.

EXPOSURE GUIDELINES

Propylene glycol monomethyl ether :

Guideline ACGIH:	100 ppm TLV-STEL: 150 ppm TLV-TWA: 100 ppm
Notes :	Only established PEL and TLV values for the ingredients are listed.

SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

Physical State Appearance:	Liquid.
Color:	Pale Amber.
Odor:	Ethereal.
Boiling Point:	212°F (100°C) initial
Melting Point:	Not determined.
Specific Gravity:	0.95
Solubility:	Appreciable.
Vapor Density:	>1 (air = 1)
Vapor Pressure:	12 mmHg @68°F
Percent Volatile:	100
Evaporation Rate:	<1 (butyl acetate = 1)
pH:	Not determined.
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Flash Point:	104°F (40°C)
Flash Point Method:	Tag closed cup (TCC)
Auto Ignition Temperature:	Not determined.
VOC Content:	840 g/L
Percent Solids by Weight	0

SECTION 10 - STABILITY and REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Hazardous Polymerization:	Not reported.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions.
Incompatible Materials:	Oxidizing agents. Strong acids and alkalis.

SECTION 11 - TOXICOLOGICAL INFORMATION

1-methoxy-2-propanol acetate :

RTECS Number:	AI8925000
Skin:	Administration onto the skin - Rabbit : >5 gm/kg [Details of toxic effects not reported other than lethal dose value]
Ingestion:	Oral - Rat LD50: 8532 mg/kg [Details of toxic effects not reported other than lethal dose value]

2-methoxy-1-propanol :

RTECS Number:	UB7645000

d-Limonene :

RTECS Number:	GW6360000
Skin:	Administration onto the skin - : >5 gm/kg [Details of toxic effects not reported other than lethal dose value] Administration onto the skin - Rabbit : >5000 mg/kg [Details of toxic effects not reported other than lethal dose value] Administration onto the skin - Rabbit : 10 %/24H Administration onto the skin - Rat : 100 %/1H
Ingestion:	Oral - Rat LD50: 4400 mg/kg [Behavioral - Changes in motor activity (specific assay) Lungs, Thorax, or Respiration - Respiratory depression Skin and Appendages - Hair] Oral - Mouse LD50: 5600 mg/kg [Behavioral - Changes in motor activity (specific assay) Lungs, Thorax, or Respiration - Respiratory depression Skin and Appendages - Hair]

Propylene glycol monomethyl ether :

RTECS Number:	UB7700000
Eye:	Eye - Rabbit Standard Draize test.: 500 mg/24H
Skin:	Administration onto the skin - Rabbit : 13 gm/kg [Details of toxic effects not reported other than lethal dose value] Administration onto the skin - Rabbit : 455 mL/kg/13W (Intermittent) [Behavioral - General anesthetic Nutritional and Gross Metabolic - Weight loss or decreased weight gain Related to Chronic Data - death] Administration onto the skin - Rabbit : 900 mL/kg/90D (Intermittent) [Related to Chronic Data - death] Administration onto the skin - Rabbit : 500 mg
Inhalation:	Inhalation - Rat LC50: 10000 ppm/5H [Details of toxic effects not reported other than lethal dose value]
Ingestion:	Oral - Mouse LD50: 11700 mg/kg [Behavioral - Convulsions or effect on seizure threshold Behavioral - Ataxia Lungs, Thorax, or Respiration - Dyspnea] Oral - Rat LD50: 6600 mg/kg [Brain and Coverings - Other degenerative changes Behavioral - General anesthetic Lungs, Thorax, or Respiration - Dyspnea]

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	No ecotoxicity data was found for the product.
Environmental Fate:	No environmental information found for this product.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal:	Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
RCRA Number:	D001
Important Disposal Information:	DANGER! Rags, steel wool and waste soaked with this product may spontaneously catch fire if improperly discarded or stored. To avoid a spontaneous combustion fire, immediately after use, place rags, steel wool or waste in a sealed, water-filled, metal container.

SECTION 14 - TRANSPORT INFORMATION

DOT Shipping Name:	Flammable liquids, n.o.s.
DOT UN Number:	1993
DOT Hazard Class:	3
DOT Packing Group:	III
IATA Shipping Name:	Flammable liquid, n.o.s. (Propylene Glycol Monomethyl Ether), 3, UN 1993, PG III, ERG 128

SECTION 15 - REGULATORY INFORMATION

1-methoxy-2-propanol acetate :

TSCA Inventory Status:	Listed
Canada DSL:	Listed

2-methoxy-1-propanol :

TSCA Inventory Status:	Listed
Canada DSL:	Listed

d-Limonene :

TSCA Inventory Status:	Listed
Canada DSL:	Listed

Propylene glycol monomethyl ether :

TSCA Inventory Status:	Listed
Massachussetts:	Listed: Massachusetts Oil and Hazardous List
Pennsylvania:	Listed
Canada DSL:	Listed
Canadian Regulations.	WHMIS Hazard Class(es): B3; D2B All components of this product are on the Canadian Domestic Substances List.

SECTION 16 - ADDITIONAL INFORMATION

HMIS Health Hazard:	2*
HMIS Fire Hazard:	2
HMIS Reactivity:	1
HMIS Personal Protection:	X
MSDS Revision Date:	January 30, 2012
MSDS Author:	Actio Corporation
Disclaimer:	This Health and Safety Information is correct to the best of our knowledge and belief at the date of its publication but we cannot accept liability for any loss, injury or damage which may result from its use. The information given in the Data Sheet is designed only as a guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment.

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SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**FL-20 PRIMER**
Stock No.:	15985
Manufacturer Name:	ITW Devcon
Address:	30 Endicott Street Danvers, MA 01923
General Phone Number:	(978) 777-1100
Emergency Phone Number:	(800) 424-9300
CHEMTREC:	For emergencies in the US, call CHEMTREC: 800-424-9300
MSDS Revision Date:	January 30, 2012
MSDS Format:	According to ANSI Z400.1-2004

HMIS

Health Hazard	3*
Fire Hazard	3
Reactivity	1
Personal Protection	X

* Chronic Health Effects

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Ingredient Percent
4,4'-Diphenylmethane diisocyanate	101-68-8	1 - 5 by weight
Ethyl acetate	141-78-6	60 - 100 by weight
Higher oligimers of methane diisocyanate (MDI)	9016-87-9	1 - 5 by weight

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview:	WARNING! Flammable. Potential Sensitizer Irritant.
Route of Exposure:	Eyes. Skin. Inhalation. Ingestion.
Potential Health Effects:	
Eye:	Can cause moderate irritation, burning sensation, tearing, redness, and swelling. Overexposure may cause lacrimation, conjunctivitis, corneal damage and permanent injury.
Skin:	Can cause skin irritation; itching, redness, rashes, hives, burning, and swelling. Allergic reactions are possible. May cause skin sensitization, an allergic reaction, which becomes evident on reexposure to this material.
Inhalation:	Respiratory tract irritant. High concentration may cause dizziness, headache, and anesthetic effects. May cause respiratory sensitization with asthma-like symptoms in susceptible individuals.
Ingestion:	Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.
Chronic Health Effects:	Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction.
Signs/Symptoms:	Overexposure can cause headaches, dizziness, nausea, and vomiting.
Target Organs:	Eyes. Skin. Respiratory system. Digestive system.
Aggravation of Pre-Existing Conditions:	Individuals with pre-existing skin disorders, asthma, allergies or known sensitization may be more susceptible to the effects of this product. Isocyanate exposure levels must be monitored. Medical supervision of all employees who handle or come in contact with isocyanates is recommended (i.e. FEV, FVC). This should include pre-employment and periodic medical examinations. Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases, recurrent skin eczema or sensitization should be excluded from working with this product. Once sensitized no further exposure can be permitted.

SECTION 4 - FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.
Skin Contact:	Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control

	center immediately. Never give anything by mouth to an unconscious person.
Note to Physicians:	Asthmatic type symptoms may develop, which may be immediate or delayed for several hours.
Other First Aid:	Due to possible aspiration into the lungs, DO NOT induce vomiting if ingested. Provide a glass of water to dilute the material in the stomach. If vomiting occurs naturally, have the person lean forward to reduce the risk of aspiration.

SECTION 5 - FIRE FIGHTING MEASURES

Flammable Properties:	Flammable. Flammable liquid. Class I B.
Flash Point:	24°F (-4.4°C)
Flash Point Method:	Tag closed cup (TCC)
Auto Ignition Temperature:	Not determined.
Lower Flammable/Explosive Limit:	2%
Upper Flammable/Explosive Limit:	11%
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.
Extinguishing Media:	Use carbon dioxide (CO2) or dry chemical when fighting fires involving this material.
Unsuitable Media:	Water may cause frothing.
Protective Equipment:	As in any fire, wear Self-Contained Breathing Apparatus (SCBA), MSHA/NIOSH (approved or equivalent) and full protective gear.
Unusual Fire Hazards:	Do not reseal containers if contaminated with water, resin will react with water to release carbon dioxide. As a result of the water contamination, pressure will build up in the sealed container causing it to rupture.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personnel Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Spill Cleanup Measures:	Absorb spill with inert material (e,g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Collect spill with a non-sparking tool. Place into a suitable container for disposal. Clean up spills immediately observing precautions in the protective equipment section. Neutralize residue with appropriate neutralizer. Do not attempt to neutralize large quantities of material unless measures to control reactivity and heat generation have been taken. After removal, flush spill area with soap and water to remove trace residue. Flammable, eliminate ignition sources. Vapors can form an ignitable mixture with air. . Vapors can flow along surfaces to distant ignition sources and flash back. Ventilate area. Use proper personal protective equipment as listed in section 8. A blanket of protein foam may be placed over spill for temporary control of isocyanate vapor.
Other Precautions:	Pump large quantities into closed but not sealed metal containers. Isocyanates will react with water and generate carbon dioxide, this could result in the rupture of any closed containers. Neutralize using 10 parts neutralizer to 1 part isocyanate solution. Mix and allow to stand for 48 hrs in containers, letting evolved carbon dioxide to vent. Neutralizer consist of 90% water, 3-8% concentrated ammonia (or sodium carbonate), 2% detergent.

SECTION 7 - HANDLING and STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist. Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures. Do not reuse containers without proper cleaning or reconditioning.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat, combustible materials, direct sunlight, and incompatible substances. Keep container tightly closed when not in use. Do not reseal container If moisture or water contamination is suspected. Water contaminated material in a sealed container may rupture due to pressure buildup.
Special Handling Procedures:	Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product. Hazardous liquid or vapor residue may remain in emptied container. Do not reuse, heat, burn, pressurize, cut, weld, braze, solder, drill, grind, expose to sparks, flame, or ignition sources of empty containers without proper commercial cleaning or reconditioning.
Hygiene Practices:	Wash thoroughly after handling.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION - EXPOSURE GUIDELINES

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.

EXPOSURE GUIDELINES

4,4'-Diphenylmethane diisocyanate :

Guideline ACGIH:	0.005 ppm TLV-TWA: 0.005 ppm
Guideline OSHA:	PEL-Ceiling/Peak: 0.02 ppm

Ethyl acetate :

Guideline ACGIH:	400 ppm TLV-TWA: 400 ppm
Guideline OSHA:	400 ppm PEL-TWA: 400 ppm
Notes :	Only established PEL and TLV values for the ingredients are listed.

SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

Physical State Appearance:	Liquid.
Color:	Mobile Orange.
Odor:	Solvent.
Boiling Point:	172°F (77.7°C)
Melting Point:	Not determined.
Specific Gravity:	0.91
Solubility:	moderately soluble.
Vapor Density:	3.0 (air = 1)
Vapor Pressure:	86 mmHg @68°F
Percent Volatile:	95
Evaporation Rate:	4.1 (butyl acetate = 1)
pH:	7 @ 5 Percent Solution
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Flash Point:	24°F (-4.4°C)
Flash Point Method:	Tag closed cup (TCC)
Auto Ignition Temperature:	Not determined.
VOC Content:	860 g/L
Percent Solids by Weight	5

SECTION 10 - STABILITY and REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Hazardous Polymerization:	Polymerization may occur under certain conditions.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions. Moisture and extended exposure over 85 F.
Incompatible Materials:	Alcohols, amines, strong bases (alkali, ammonia), acids, metal compounds, moisture or water. Resin reacts with water to give off carbon dioxide.

SECTION 11 - TOXICOLOGICAL INFORMATION

4,4'-Diphenylmethane diisocyanate :

RTECS Number:	NQ9350000
Eye:	Eye - Rabbit Standard Draize test.: 100 mg
Skin:	Administration onto the skin - Mouse : 0.09 pph/2D (Intermittent) [Blood - Other changes Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure)] Administration onto the skin - Mouse : 220 mg/kg/12D (Intermittent) [Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure) Biochemical - Metabolism (Intermediary) - Other proteins Biochemical - Metabolism (Intermediary) - Effect on inflammation or mediation of inflammation] Administration onto the skin - Mouse : 2 pph/2W (Intermittent) [Immunological Including Allergic - Increase in humoral immune response] Administration onto the skin - Mouse : 2 pph/4W (Intermittent) [Immunological Including Allergic - Increase in humoral immune response] Administration onto the skin - Mouse : 280 mg/kg/14D (Intermittent) [Immunological Including Allergic - Increase in humoral immune response] Administration onto the skin - Rabbit : 500 mg/24H
Inhalation:	Inhalation - Rat LC50: 178 mg/m3 [Details of toxic effects not reported other than lethal dose value]
Ingestion:	Oral - Rat LD50: 9200 mg/kg [Behavioral - Somnolence (general depressed activity) Behavioral - Ataxia Nutritional and Gross Metabolic - Body temperature decrease] Oral - Mouse LD50: 2200 mg/kg [Details of toxic effects not reported other than lethal dose value]

Ethyl acetate :

RTECS Number:	AH5425000
Eye:	Eye - Human Standard Draize test.: 400 ppm
Skin:	Administration onto the skin - Rabbit : >20 mL/kg [Details of toxic effects not reported other than lethal dose value]
Inhalation:	Inhalation - Mouse LC50: 45 gm/m3/2H [Details of toxic effects not reported other than lethal dose value] Inhalation - Rat LC50: 1600 ppm/8H [Details of toxic effects not reported other than lethal dose value] Inhalation - Rat LC50: >6000 ppm/6H [Details of toxic effects not reported other than lethal dose value] Inhalation - Rat LC50: 200 gm/m3 [Behavioral - Somnolence (general depressed activity) Lungs, Thorax, or Respiration - Acute pulmonary edema Gastrointestinal - Changes in structure or function of salivary glands]
Ingestion:	Oral - Mouse LD50: 4100 mg/kg [Behavioral - Somnolence (general depressed activity) Behavioral - Changes in motor activity (specific assay) Behavioral - Coma] Oral - Mouse LD50: 4.1 gm/kg [Details of toxic effects not reported other than lethal dose value] Oral - Rat LD50: 5620 mg/kg [Details of toxic effects not reported other than lethal dose value]

Higher oligimers of methane diisocyanate (MDI) :

RTECS Number:	TR0350000
Eye:	Eye - Rabbit Standard Draize test.: 100 mg [mild]
Skin:	Administration onto the skin - Rabbit LD50 : >9400 mg/kg [Details of toxic effects not reported other than lethal dose value]
Inhalation:	Inhalation - Rat LC50 : 490 mg/m3/4H [Sense Organs and Special Senses (Eye) - effect, not otherwise specified Lungs, Thorax, or Respiration - Respiratory depression Blood - Hemorrhage]
Ingestion:	Oral - Rat LD50 : 49 gm/kg [Behavioral - Somnolence (general depressed activity) Gastrointestinal - Hypermotility, diarrhea Nutritional and Gross Metabolic - Body temperature decrease]

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:	No ecotoxicity data was found for the product.
Environmental Fate:	No environmental information found for this product.

SECTION 13 - DISPOSAL CONSIDERATIONS

Waste Disposal:	Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
RCRA Number:	D001, D009
Important Disposal Information:	DANGER! Rags, steel wool and waste soaked with this product may spontaneously catch fire if improperly discarded or stored. To avoid a spontaneous combustion fire, immediately after use, place rags, steel wool or waste in a sealed, water-filled, metal container.

SECTION 14 - TRANSPORT INFORMATION

DOT Shipping Name:	Ethyl acetate solution
DOT UN Number:	1173
DOT Hazard Class:	3
DOT Packing Group:	II
DOT Exemption:	ORM-D Small quantity exemption

SECTION 15 - REGULATORY INFORMATION

4,4'-Diphenylmethane diisocyanate :

TSCA Inventory Status:	Listed
SARA:	EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
New Jersey:	Listed: NJ Hazardous List; Substance Number: 3757
Massachusetts:	Listed
Pennsylvania:	Listed
Canada DSL:	Listed

Ethyl acetate :

TSCA Inventory Status:	Listed
Massachusetts:	Listed: Massachusetts Oil and Hazardous List
Pennsylvania:	Listed
Canada DSL:	Listed

Higher oligimers of methane diisocyanate (MDI) :

TSCA Inventory Status:	Listed
SARA:	EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
New Jersey:	Listed: NJ Hazardous List; Substance Number: 3757
Canada DSL:	Listed
Canadian Regulations.	WHMIS Hazard Class(es): B2; D2B; D2A All components of this product are on the Canadian Domestic Substances List.

SECTION 16 - ADDITIONAL INFORMATION

HMIS Health Hazard:	3*
HMIS Fire Hazard:	3
HMIS Reactivity:	1
HMIS Personal Protection:	X
MSDS Revision Date:	January 30, 2012
MSDS Author:	Actio Corporation
Disclaimer:	This Health and Safety Information is correct to the best of our knowledge and belief at the date of its publication but we cannot accept liability for any loss, injury or damage which may result from its use. The information given in the Data Sheet is designed only as a guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment.

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NORCHEM (DIVISION DE AVMOR)
950 MICHELIN
LAVAL QC H7L 5C1

Section I. Product Identification and Uses

HMIS (HFRP)	
Health Hazard	1
Fire Hazard	0
Reactivity	0
Personal Protection	b

Common / Trade name	CITRANET LEMON LAUND.POWD.DET.	**TDG**	Not regulated material under TDG (Canada).
WHMIS	D2B	**PIN**	Not applicable.
Code	1982	**PG**	Not applicable.
Material uses	Laundry detergent.		

Section II. Hazardous Ingredients

Name	CAS #	% by weight	TLV/PEL	LC50/LD50
Sodium carbonate	497-19-8	10 - 30	Not available.	Not available
Sodium alkyllbenzene sulfonate.	68081-81-2	1 - 5	Not available.	Not available.
Docecyl poly(oxyethylene) ether	9002-92-0	1 - 5	Not available.	Not available.

Section III. First Aid Measures

Eye contact Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin contact In case of contact, immediately flush skin with plenty of water. If irritation persists, get medical attention.

Inhalation Allow the victim to rest in a well ventilated area. Seek medical attention if discomfort persists.

Ingestion Have conscious person drink several glasses of water. Get medical attention immediately.

Section IV. Physical Data

Physical state and apperance	Granular solid.	**Colour**	White with blue crystals
pH (1% soln/water)	10 to 11 (Conc. (% w/w): 1) [Basic.]	**Odour**	Lemon.
pH (concentrate)	Not applicable.	**Volatility**	< 10
Boiling point	Not applicable	**Vapour density**	Not available.
Specific gravity	Not available.	**Vapour pressure**	Not available.
Solubility	Soluble in cold water, hot water.		

Section V. Fire and Explosion Data

The product is	Non-flammable.
Auto-ignition temperature	Not available.
Flash points	Not applicable.
Degradation products	Not applicable.
Extinguising media	Not applicable.

Section VI. Reactivity data

Stability	The product is stable.
Decomp. products	Not available.
Reactivity	Slightly reactive to reactive with acids.

Section VII. Toxicological properties

Route of entry Inhalation.Ingestion. Eye contact. Skin contact

Toxicity for animals Not available.

Acute effects If ingested might cause disconfort, diarrhea and nausea. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing.This product may irritate eyes and skin upon contact.

Chronic effects CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available.

Section VIII. Preventive measure

Waste disposal	Recycle, if possible. Consult your local or regional authorities.
Storage	Keep container tightly closed. Keep container in a cool, well-ventilated area.
Precautions	Do not breathe dust. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as acids.
Spill and leak	Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Section IX. Personal protective equipment

Gloves	Gloves (impervious) are recommanded for prolonged contact with bulk quantities.
Respiratory	A respirator is not needed under normal and intended conditions of product use.
Eyes	Safety glasses.
Other	Coveralls Boots. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Eng. controls	Good general ventilation should be sufficient to control airborne levels.

Section X. Preparation and other Information

Validated by the Regulatory Affairs Department on July 15th 2011

Printed 21 July 2011

EMERGENCY: EMERGENCY:CANUTEC 613-996-6666

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy of completeness of the information contained herein. Final determination of suitability of any material is the sole responsability of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Annex A. Legend

HMIS	Hazardous Materials Identification System
WHMIS	WHMIS Workplace Hazardous Materials Information System
TDG	Transport Dangerous Goods
PIN	Product Identification Number
PG	Packaging Group

Material Safety Data Sheet

24 Hour Assistance:
1-847-367-7700
Rust-Oleum Corp.
www.rustoleum.com

Section 1 - Chemical Product / Company Information

Product Name:	Rust Oleum High Performance Industrial Enamel Speedy Dry Red	Revision Date:	11/01/2011
Identification Number:	04_L_34		
Product Use/Class:	Topcoat/Speedy Dry		
Supplier:	Rust-Oleum Corporation 11 Hawthorn Parkway Vernon Hills, IL 60061 USA	Manufacturer:	Rust-Oleum Corporation 11 Hawthorn Parkway Vernon Hills, IL 60061 USA
Preparer:	Regulatory Department		

Section 2 - Composition / Information On Ingredients

Chemical Name	CAS Number	Weight % Less Than	ACGIH TLV-TWA	ACGIH TLV-STEL	OSHA PEL-TWA	OSHA PEL CEILING
Xylene	1330-20-7	45.0	100 ppm	150 ppm	100 ppm	N.E.
Ethylbenzene	100-41-4	15.0	100 ppm	125 ppm	100 ppm	N.E.
Propylene Glycol Monomethyl Ether Acetate	108-65-6	5.0	N.E.	N.E.	30 ppm	N.E.

Section 3 - Hazards Identification

*** Emergency Overview ***: High vapor concentrations can irritate eyes, nose and respiratory passages. Causes nose and throat irritation. Harmful if inhaled. May affect the brain or nervous system causing dizziness, headache or nausea. Harmful if swallowed. Causes eye irritation. Flammable liquid and vapor.

Effects Of Overexposure - Eye Contact: Causes eye irritation.

Effects Of Overexposure - Skin Contact: Prolonged or repeated skin contact may cause irritation.

Effects Of Overexposure - Inhalation: High vapor concentrations are irritating to the eyes, nose, throat and lungs. May cause headaches and dizziness. Avoid breathing vapors or mists. Harmful if inhaled.

Effects Of Overexposure - Ingestion: Aspiration hazard if swallowed; can enter lungs and cause damage. Harmful if swallowed.

Effects Of Overexposure - Chronic Hazards: IARC lists Ethylbenzene as a possible human carcinogen (group 2B). Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Overexposure to xylene in laboratory animals has been associated with liver abnormalities, kidney, lung, spleen, eye and blood damage as well as reproductive disorders. Effects in humans, due to chronic overexposure, have included liver, cardiac abnormalities and nervous system damage.

Primary Route(s) Of Entry: Skin Contact, Skin Absorption, Inhalation, Ingestion, Eye Contact

Section 4 - First Aid Measures

First Aid - Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes holding eyelids open. Get medical attention. Do NOT allow rubbing of eyes or keeping eyes closed.

First Aid - Skin Contact: Wash with soap and water. Get medical attention if irritation develops or persists.

First Aid - Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention. Do NOT use mouth-to-mouth resuscitation.

First Aid - Ingestion: Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. Get immediate medical attention.

Section 5 - Fire Fighting Measures

Flash Point: 81 F (Setaflash)

Extinguishing Media: Film Forming Foam, Carbon Dioxide, Dry Chemical, Dry Sand, Water Fog

Unusual Fire And Explosion Hazards: Isolate from heat, electrical equipment, sparks and open flame. Vapors can travel to a source of ignition and flash back. Vapors may form explosive mixtures with air.

Special Firefighting Procedures: Evacuate area and fight fire from a safe distance. Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion.

Section 6 - Accidental Release Measures

Steps To Be Taken If Material Is Released Or Spilled: Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Eliminate all ignition sources; use explosion-proof equipment. Place material in a container and dispose of according to local, provincial, state and federal regulations.

Section 7 - Handling And Storage

Handling: Wash thoroughly after handling. Wash hands before eating. Follow all MSDS/label precautions even after container is emptied because it may retain product residues. Use with adequate ventilation.

Storage: Keep container closed when not in use. Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame. Keep away from heat, sparks, flame and sources of ignition.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Prevent build-up of vapors by opening all doors and windows to achieve cross-ventilation.

Respiratory Protection: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. A NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits.

Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or in any other circumstances where air

purifying respirators may not provide adequate protection.

Skin Protection: Nitrile or Neoprene gloves may afford adequate skin protection. Use impervious gloves to prevent skin contact and absorption of this material through the skin.

Eye Protection: Use safety eyewear designed to protect against splash of liquids.

Other protective equipment: Refer to safety supervisor or industrial hygienist for further information regarding personal protective equipment and its application.

Hygienic Practices: Wash thoroughly with soap and water before eating, drinking or smoking.

Section 9 - Physical And Chemical Properties

Vapor Density:	Heavier Than Air	Odor:	Solvent Like
Appearance:	Liquid	Evaporation Rate:	Slower Than Ether
Solubility in H2O:	Slight	Freeze Point:	N.D.
Specific Gravity:	0.973	pH:	N.A.
Physical State:	Liquid		

(See section 16 for abbreviation legend)

Section 10 - Stability And Reactivity

Conditions To Avoid: Avoid all possible sources of ignition.

Incompatibility: Incompatible with strong oxidizing agents, strong acids and strong alkalies.

Hazardous Decomposition: When heated to decomposition, it emits acrid smoke and irritating fumes. By open flame, carbon monoxide and carbon dioxide.

Hazardous Polymerization: Will not occur under normal conditions.

Stability: This product is stable under normal storage conditions.

Section 11 - Toxicological Information

Chemical Name	LD50	LC50
Xylene	4300 mg/kg (Rat, Oral)	5000 ppm (Rat, Inhalation, 4Hr)
Ethylbenzene	3500 mg/kg (Rat, Oral)	N.E.
Propylene Glycol Monomethyl Ether Acetate	>10000 mg/kg (Rat, Oral)	N.E.

Section 12 - Ecological Information

Ecological Information: Product is a mixture of listed components.

Section 13 - Disposal Information

Disposal Information: Dispose of material in accordance to local, state and federal regulations and ordinances. Do not allow to enter storm drains or sewer systems.

Section 14 - Transportation Information

	Domestic (USDOT)	International (IMDG)	Air (IATA)
Proper Shipping Name:	Consumer Commodity	Paint	Paint
Hazard Class:	ORM-D	3	3
UN Number:	N.A.	UN1263	UN1263
Packing Group:	N.A.	III	III
Limited Quantity:	No	Yes	Yes

Section 15 - Regulatory Information

CERCLA - SARA Hazard Category

This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

IMMEDIATE HEALTH HAZARD, CHRONIC HEALTH HAZARD, FIRE HAZARD

SARA Section 313:

Listed below are the substances (if any) contained in this product that are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

Chemical Name	CAS Number
Xylene	1330-20-7
Ethylbenzene	100-41-4

Toxic Substances Control Act:

Listed below are the substances (if any) contained in this product that are subject to the reporting requirements of TSCA 12(B) if exported from the United States:

U.S. State Regulations: As follows -

New Jersey Right-to-Know:

The following materials are non-hazardous, but are among the top five components in this product.

Chemical Name	CAS Number
Alkyd Resin	PROPRIETARY
Quinacridone Violet Acrylic Pigment Dispersion	MIXTURE

Pennsylvania Right-to-Know:

The following non-hazardous ingredients are present in the product at greater than 3%.

Chemical Name	CAS Number
Alkyd Resin	PROPRIETARY

International Regulations: As follows -

CANADIAN WHMIS:

This MSDS has been prepared in compliance with Controlled Product Regulations except for the use of the 16 headings.

CANADIAN WHMIS CLASS: B2 D2B

Section 16 - Other Information

HMIS Ratings:

Health: 2*	Flammability: 3	Physical Hazard: 0	Personal Protection: X

NFPA Ratings:

Health: 2	Flammability: 3	Instability: 0

VOLATILE ORGANIC COMPOUNDS, g/L: 567

REASON FOR REVISION: Regulatory Update

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

Rust-Oleum Corporation believes, to the best of its knowledge, information and belief, the information contained herein to be accurate and reliable as of the date of this material safety data sheet. However, because the conditions of handling, use, and storage of these materials are beyond our control, we assume no responsibility or liability for personal injury or property damage incurred by the use of these materials. Rust-Oleum Corporation makes no warranty, expressed or implied, regarding the accuracy or reliability of the data or results obtained from their use. All materials may present unknown hazards and should be used with caution. The information and recommendations in this material safety data sheet are offered for the users' consideration and examination. It is the responsibility of the user to determine the final suitability of this information and to comply with all applicable international, federal, state, and local laws and regulations.

Revision Number: 007.0

Issue date: 09/27/2012

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: LOCTITE® 565™ THREAD SEALANT PST® PIPE SEALANT
Product use: Sealant

IDH number: 381409
Item number: 35531
Region: Canada

Company address:
Henkel Electronic Materials LLC
14000 Jamboree Road
Irvine, CA 92606

Contact information:
Telephone: 1.888.9.HENKEL (1.888.943.6535)
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical state: Paste
Color: White
Odor: Mild

WHMIS hazard class: D.2.A, D.2.B

WARNING: CAUSES EYE IRRITATION.
MAY CAUSE ALLERGIC SKIN REACTION.
MAY CAUSE SKIN IRRITATION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects

Inhalation: May cause respiratory tract irritation.
Skin contact: May cause allergic skin reaction. May cause skin irritation.
Eye contact: Contact with eyes will cause irritation.
Ingestion: Not expected to be harmful by ingestion.

Existing conditions aggravated by exposure: Eye, skin, and respiratory disorders.

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Polyglycol dimethacrylate	25852-47-5	30 - 60
Hexanedioic acid, polymer with 1,4-butanediol and 1,2-propanediol, dodecanoate	68186-73-2	10 - 30
Cellulose ester	9004-36-8	10 - 30
Ethene, tetrafluoro-, homopolymer	9002-84-0	1 - 5
Titanium dioxide	13463-67-7	1 - 5
Treated fumed silica	67762-90-7	1 - 5
Saccharin	81-07-2	1 - 5
Cumene hydroperoxide	80-15-9	1 - 5
Ethylene glycol	107-21-1	0.1 - 1
Cumene	98-82-8	0.1 - 1

4. FIRST AID MEASURES

Inhalation:	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. If symptoms develop and persist, get medical attention.
Skin contact:	Remove contaminated clothing and footwear. Wash clothing before reuse. Wash with soap and water. If symptoms develop and persist, get medical attention.
Eye contact:	Get medical attention. Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time.
Ingestion:	Keep individual calm. Do not induce vomiting. Get medical attention.

5. FIRE FIGHTING MEASURES

Flash point:	> 93.3 °C (> 199.94 °F)
Autoignition temperature:	Not available.
Flammable/Explosive limits - lower:	Not available.
Flammable/Explosive limits - upper:	Not available.
Extinguishing media:	Foam, dry chemical or carbon dioxide.
Special firefighting procedures:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.
Unusual fire or explosion hazards:	None
Hazardous combustion products:	Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Toxic fluorine compounds. Irritating organic vapours.
Sensitivity to Mechanical Impact:	Not available.
Sensitivity to static discharge:	Not available.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:	Do not allow product to enter sewer or waterways.
Clean-up methods:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Store in a partly filled, closed container until disposal.

7. HANDLING AND STORAGE

Handling:	Avoid contact with eyes, skin and clothing.
Storage:	For safe storage, store at or below 38 °C (100.4 °F) Keep in a cool, well ventilated area.

For information on product shelf life contact Henkel Canada Customer Service at 800-263-5043.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Polyglycol dimethacrylate	None	None	None	None
Hexanedioic acid, polymer with 1,4-butanediol and 1,2-propanediol, dodecanoate	None	None	None	None
Cellulose ester	None	None	None	None
Ethene, tetrafluoro-, homopolymer	None	None	None	10 mg/m3 TWA Total dust. 5 mg/m3 TWA Respirable fraction.
Titanium dioxide	10 mg/m3 TWA	15 mg/m3 TWA Total dust.	None	None
Treated fumed silica	10 mg/m3 TWA Inhalable dust. 3 mg/m3 TWA Respirable fraction.	15 mg/m3 TWA Total dust. 5 mg/m3 TWA Respirable fraction.	None	None
Saccharin	None	None	None	None
Cumene hydroperoxide	None	None	(SKIN) 1 ppm (6 mg/m3) TWA	None
Ethylene glycol	100 mg/m3 Ceiling Aerosol.	None	None	None
Cumene	50 ppm TWA	50 ppm (245 mg/m3) TWA (SKIN)	None	None

Engineering controls: No specific ventilation requirements noted, but forced ventilation may still be required if concentrations exceed occupational exposure limits.

Respiratory protection: Use a NIOSH approved supplied air respirator with an organic cartridge if the potential to exceed established exposure limits exists.

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use impermeable gloves and protective clothing as necessary to prevent skin contact. Neoprene, Butyl-rubber, or nitrile-rubber gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Paste
Color: White
Odor: Mild
Odor threshold: Not available.
pH: Not applicable
Vapor pressure: < 5 mm hg (27 °C (80.6 °F))
Boiling point/range: > 149 °C (> 300.2 °F)
Melting point/ range: Not available.
Specific gravity: 1.1
Vapor density: Not available.
Flash point: > 93.3 °C (> 199.94 °F)
Flammable/Explosive limits - lower: Not available.
Flammable/Explosive limits - upper: Not available.
Autoignition temperature: Not available.
Evaporation rate: Not available.
Solubility in water: Slight
Partition coefficient (n-octanol/water): Not available.
VOC content: 0.11 %; 1.06 g/l

10. STABILITY AND REACTIVITY

Stability: Stable

Hazardous reactions: Will not occur.

Hazardous decomposition products: Oxides of carbon. Toxic fluorine compounds. Oxides of nitrogen. Oxides of sulfur. Irritating organic vapours.

Incompatible materials: Strong oxidizing agents.

Conditions to avoid: See "Handling and Storage" (Section 7) and "Incompatibility" (Section 10).

11. TOXICOLOGICAL INFORMATION

Acute oral product toxicity: LD50 (rat) > 5,000 mg/kg (Estimated)

Acute dermal product toxicity: LD50 (rabbit) > 2,000 mg/kg (Estimated)

Toxicologically synergistic products: Not available.

Refer to the following for Irritancy of Product, Sensitization to Product, Carcinogenicity, Reproductive Toxicity, Teratogenicity, and Mutagenicity.

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)	ACGIH Carcinogen
Polyglycol dimethacrylate	No	No	No	No
Hexanedioic acid, polymer with 1,4-butanediol and 1,2-propanediol, dodecanoate	No	No	No	No
Cellulose ester	No	No	No	No
Ethene, tetrafluoro-, homopolymer	No	No	No	No
Titanium dioxide	No	Group 2B	No	Group A4
Treated fumed silica	No	No	No	No
Saccharin	No	No	No	No
Cumene hydroperoxide	No	No	No	No
Ethylene glycol	No	No	No	Group A4
Cumene	No	Group 2B	No	No

Hazardous components	LD50s and LC50s	Health Effects/Target Organs
Polyglycol dimethacrylate	None	Irritant, Allergen
Hexanedioic acid, polymer with 1,4-butanediol and 1,2-propanediol, dodecanoate	None	No Records
Cellulose ester	None	No Target Organs
Ethene, tetrafluoro-, homopolymer	None	No Target Organs
Titanium dioxide	None	Irritant, Respiratory, Some evidence of carcinogenicity
Treated fumed silica	None	Irritant
Saccharin	None	No Target Organs
Cumene hydroperoxide	None	Allergen, Central nervous system, Corrosive, Irritant, Mutagen
Ethylene glycol	Oral LD50 (RAT) = 5.89 g/kg Dermal LD50 (rabbit) = 9,530 mg/kg	Blood, Bone Marrow, Central nervous system, Developmental, Eyes, Irritant, Kidney, Liver, Metabolic
Cumene	Oral LD50 (RAT) = 1,400 mg/kg Oral LD50 (RAT) = 2.91 g/kg Inhalation LC50 (RAT, 4 h) = 8,000 mg/l	Central nervous system, Irritant, Lung

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

14. TRANSPORT INFORMATION

The shipping classifications in this sections are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

Canada Transportation of Dangerous Goods - Ground

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

International Air Transportation (ICAO/IATA)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

Water Transportation (IMO/IMDG)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

15. REGULATORY INFORMATION

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: 1, 3, 8, 11, 15

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR), and the MSDS contains all the information required by the CPR.

Prepared by: Kyra Kozak Woods, Manager, Regulatory Affairs

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Material Safety Data Sheet

following EU-guideline 91/155/EU

Printing Date: 27.01.2012

Updated on: 01.01.2012

1. NAME OF SUBSTANCE / PREPARATION AND COMPANY

Trade Name: pr88 - the wash-off hand protection -
(water-soluble skin protection cream)

Company Name: Ursula Rath GmbH & Co.KG
Messingweg 11
D-48308 Senden
Phone: +49 / 2597 / 96 24-0
Fax : +49 / 2597 / 63 70

Imported by: **Pan Tec** (Div. of Thomas Machinery)
5 - 31 Arrow Rd.
Guelph, ON.
N1K 1S8
Phone/Fax: (519) 824-5617

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical characterisation: Cosmetic O/W-emulsion

Contains no dangerous substance according to the German Dangerous Substances Ordinance
Does not contain silicones or preservatives

Ingredients:
(declaration acc. to the European Cosmetics Directive acc. to INCI)

INCI-Name
Aqua (water)
Glycerine
Sodium Silicate
Sodium Tallowate
Ceteareth-5
Sodium Palmcernelate
Paraffin
Parfum (fragrance)

3. HAZARDS IDENTIFICATION

Harmless product as far as can be ascertained, when used - as intended - as a cosmetic product for skin protection.

4. FIRST AID MEASURES

Eye contact: rinse with plenty of water, if necessary consult a doctor
Ingestion: drink plenty of water, if necessary consult a doctor

5. FIRE FIGHTING MEASURES

Suitable extinguishing media: all standard extinguishing media
Particular threat: none

6. ACCIDENTAL RELEASE MEASURES

Cleansing / Wiping up procedure: Dispose of in a suitable container or rinse with water, remainders to be cleaned away by means of cleansing agents to avoid eventual danger of slipping.

7. HANDLING AND STORAGE

Handling: Skin protection cream to be rubbed into the skin before work and washed-off with water after work

Storage: Keep containers tightly closed, temperature -15°C to a max. of +35°C
Storage stability at room temperature (25°C) > 3 years

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Skin protection preparation can be used on the skin without any time limit.
The product is personal protection itself acc. to EU-directive 89/656/EU.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	foamy/creamy
Colour:	white
Odour:	almond-like
pH-value:	upon application: neutral Acidic or alcaline reactions are as an effect of appropriate ions only possible in aqueous solutions. Therefore, the dry pr88 skin protection film is neutral. During the process of hand washing, for a short period of time, a pH-value of approx. 9,5 is effective, i.e. as washing soap would be used for hand washing.
Change in physical state:	approx. 40 °C
Ignition temperature:	after evaporation of water > 370 °C
Flash point:	after evaporation of water > 190 °C
Explosion limits:	unknown
Density:	(20 °C) abt. 0,5 g/cm^3
Vapour pressure:	(20 °C) abt.. 20 mbar
Viscosity:	(20 °C) structural viscous
Solubility in water:	(20 °C) > 90%

10. STABILITY AND REACTIVITY

Stability:	The product is stable from -15 °C to a max. of +40°C.
Reactivity:	Even at extreme working conditions, no reactions with working media or working substances are to be expected.

11. INFORMATION ON TOXICITY

All ingredients are raw materials defined for the production of cosmetics and subject to an appropriate quality control.
In the case of many years of application, no toxical or allergic reactions have been ascertained.

12. INFORMATION ON ECOLOGY

Biological Degradability:	acc. to OECD testing very good (> 97%) BSB_5 (523.700 mg O_2/l) 83,5%
Water danger class:	Water danger class 0 (self-classification)

13. DISPOSAL

Product:	pr88 can be burnt together with domestic garbage with local regulations or, piped into the sewer system after dissolving in water, waste key: 070 699.
Packaging:	Disposal according to governmental regulations. If not officially regulated, packagings can be treated like domestic garbage or be lead into a recycling system.

14. INFORMATION ON TRANSPORT

No dangerous goods according to transport regulations

15. REGULATIONS

The product is subject to the Cosmetics Directive

Symbols:	none
R-phrases:	none
S-phrases:	none

16. OTHER INFORMATION

This information is based on our knowledge data at this time and refers to the product in condition of delivery. It describes our product in regard to safety requirements and therefore does not represent a guarantee of particular qualities.

www.pr88.com

SECTION I-MATERIAL IDENTIFICATION AND USE

Material Name/Identifier:	**Ice Melter/Quick Melt**	**Stock No. 781/784**	
Manufacturer's Name:	**Kleen-Flo Tumbler Industries Ltd**	**Street Address:**	**75 Advance Blvd.**
City:	**Brampton**	**Province:**	**Ontario**
Postal Code:	**L6T 4N1**	**Emergency Phone #:**	**CANUTEC:- 613-996-6666 (24HR)**
Chemical Name:	**Magnesium chloride hexahydrate**	**Chemical Family:**	**Magnesium salt**
Chemical Formula:	**MgCl2 . 6H2O**	**Trade Names & Synonyms:**	**N/Av.**
Material Use:	**De-Icer & Dust Control**	**Molecular Weight:**	**167**

SECTION II-HAZARDOUS INGREDIENTS OF MATERIAL

Hazardous Ingredients	C.A.S.	Approximate Concentration	LD50 Species & Route	LC50 Species & Route
Magnesium chloride	**7786-30-3**	**60 - 100%**	**8100 mg/kg**	**N/Av.**

This material is not known to contain any chemical listed as a carcinogen or suspected carcinogen by th US OSHA, IRAC or the US National Toxicology Program at a concentration greater than 0.1%.

SECTION III-PHYSICAL DATA FOR MATERIAL

Physical State:	**granular chips**	**Odour/Appearance:**	**Odourless, translucent, off white flakes.**
Bulk density;	**1.085 g/ml**	**Odour Threshold(p.p.m.):**	**N/Av.**
Boiling Point (dehydration):	**N/Av.**	**Evaporation Rate:**	**N/E**
Freezing Point:	**N/Av.**	**Solubility in Water:**	**Solunble**
% Volatile(by volume):	**N/Av.**	**Vapour Pressure(mm)Hg:**	**N/Av.**
Vapour Density(Air=1):	**N/Av.**	**Coefficient of Water/Oil Distribut:**	**N/Av.**
pH	**neutral to slightly alkaline**		

SECTION IV-FIRE AND EXPLOSION HAZARD OF MATERIAL

Flammability Yes/No	**No**	**If yes under which conditions?:**	**N.Ap.**
Auto Ignition Temperature:	**N/E**	**Means of Extinction: N/Av.**	
Flashpoint and Method:	**N/Ap.**	**Hazardous Combustion Products:**	**None**
Upper Flammable limit (%vol)	**N/E**	**Lower Flammable Limit(% by vol):**	**N/E**
Explosion Data:	**Sensitivity to Mechanical Impact: N/Av.**	**Sensitivity to Static Discharge:**	**N/Av.**

SECTION V-REACTIVITY DATA

Chemical Stability Yes/No	**Yes**	**If No, under which conditions?**
Incompatibility to Other Substances Yes/No:	**Yes**	**If so which ones? Concentrated Acids, Sulfuric, Nitric etc.**
Reactivity and under what conditions?	**N/E**	
Hazardous Decomposition Products:	**Release hydrogen chloride vapors if heated ove 300 oF**	

N/E: not established **N/Av.: not available** **N.Ap.: not applicable**

SECTION VI-TOXICOLOGICAL PROPERTIES OF PRODUCT

Route of Entry: All Routes	**--SKIN CONTACT --SKIN ABSORPTION --EYE CONTACT --INHALATION --INGESTION**		
Effects of Acute Exposure:	**Very low toxicity. may cause slight irritation to eyes and skin.**		
Effects of Chronic Exposure:	**None Known.**		
Irritancy of Product:	**eye and skin irritant**	**Exposure Limits of Product:**	**N/E**
Sensitization of Product:	**N/Av.**	**Toxicologically Synergistic Materials:**	**N/Av.**
--CARCINOGENICITY --REPRODUCTIVE EFFECTS --TERATOGENICITY --MUTAGENICITY			**None known**

SECTION VII-PREVENTIVE MEASURES

Personal Protective Equipment to be used:

Gloves(specify):	**Impervious gloves**	**Eye(specify):**	**Safety Glasses**
Respiratory(specify):	**Dust respirator**	**Clothing:**	**Not required**
Respiratory Protection:	**For dusty or misty condition wear NIOSH approved dust or mist respirator.**		
Engineering Controls:	**Local and mechanical ventilation.**		
Leak and Spill Procedure:	**Sweep up all dry material and place in a suitable container.Flush area with water.**		
Waste Disposal:	**Standard methods approved in your area by governing bodies.**		
	Reclaim or disposed of at a licensed wasted disposal facility		
Storage Requirements:	**Store at room temperature. Keep lid on when not in use.**		
Handling Procedures and	**Avoid prolonged or repeated contact with skin.**		
Equipment:	**Handle all chemicals with care. Keep away from children. Do not inhale or ingest.**		
TDG Classification:	**Not Regulated**		
WHMIS Classification:	**Not controlled**		

SECTION VIII-FIRST AID MEASURES

Eye:	**Flush with plenty of water for 15 minutes. Consult a physician if irritation persist.**
Skin:	**Wash with soap and water for 5 - 10 minutes. See doctor if irritation, rashes persist.**
Inhalation:	**Move patient to fresh air and restore breathing if required. See doctor if discomfort persist.**
Ingestion:	**INDUCE VOMITING. Seek medical attention immediately.**

SECTION IX-PREPARATION DATE OF M.S.D.S.

Additional Info/Comments:		**Source used: Supplier's data**	
Phone Number:	**(905) 793-4311**	**Prepared By: Quality Control Laboratory**	
Date Prepared:	**January 16 2012.**	**Kleen-Flo Tumbler Industries Limited**	

THIS SHEET SUPERSEDES ANY OTHER M.S.D.S. PREVIOUSLY PREPARED

N/E: not established **N/Av.: not available** **N.Ap.: not applicable**

MATERIAL SAFETY DATA SHEET (MSDS)

Modular 2
Super Concentrate Deodorizer

Specialty Cleaners

SECTION I ▶ PRODUCT IDENTIFICATION

Product Name	Product Type	WHMIS Classification
Modular 2 Super Concentrate Deodorizer	Liquid odour eliminator	Not Applicable

SECTION II ▶ HAZARDOUS INGREDIENTS

Chemical Name	Cas Registry No.	%	Toxicity
Not applicable			

SECTION III ▶ PHYSICAL DATA

Appearance	Odour	pH	Boiling Point	Specific Gravity	Solubility in Water
Clear colourless liquid	Scented	5.5	100 °C	1.0	100 %

SECTION IV ▶ FIRE AND EXPLOSION HAZARD DATA

Flash Point (°C): None **Extinguising media:** Not Applicable

Special fire fighting procedures: None

Unusual fire and explosion hazards: None

SECTION V ▶ TOXICOLOGICAL PROPERTIES

HAZARD RATING: Health = 1 Flammability = 0 Reactivity = 0

Swallowing: Slightly toxic

Inhalation: Not applicable

Skin Absortion: Not Applicable

Skin Contact: Slight irritant

Eye Contact: Slight irritant

Special Warning: None

Rating System
0 = Insignificant
1 = Slight
2 = Moderate
3 = High
4 = Extreme

SECTION VI ▶ FIRST AID MEASURES

Ingestion: Drink 3-4 glasses of milk or water.

Inhalation: Not Applicable

Skin: Flush with water.

Eyes: Flush with water. If irritation persists, call a physician.

SECTION VII ▶ REACTIVITY DATA

Stable: Yes

Conditions to avoid: None

Incompatibility with other materials: None

Hazardous decomposition products: None

Hazardous polymerization: Will not occur.

SECTION VIII ▶ PREVENTIVE MEASURES

Hand protection: None

Eye protection: None

Ventilation: General

Respiratory protection: None

Other protective equipment: None

Steps to be taken in case material is released or spilled: Mop up spillage. Rinse spill area with water and allow to dry.

Waste disposal method: Flush with water into waste systems in accordance with municipal, provincial and federal regulations.

Precautions to be taken in handling and storage: Normal handling processes. Inside storage at 4-40°C recommended.

Other precautions: Follow label use instructions.

UN: Not Applicable **TDG Class:** None **Packing Group:** Not Applicable

TDG Emergency Telephone Number: 613-996-6666 (COLLECT)

SECTION IX ▶ PREPERATION DATA

Prepared by: D.R. Dunlop **Last updated:** August 1, 2012

Location: Dustbane Products Limited, 25 Pickering Place, Ottawa, Ontario, K1G 5P4 – 613-745-6861

Modular 2

Super Concentrate Deodorizer

"A highly concentrated odour neutralizer, not a bactericide or a masking agent."

FEATURES AND BENEFITS

Environmentally friendly: A.P.E. free.

Concentrated: Use with Dustbane's Taskmizer proportioning system for maximum economy.

Versatile: Use wherever malodours are a problem.

Anti-soiling: Helps prevent redoposition of soils on treated fabrics including carpets and draperies.

Not a masking agent or bactericide: Chemically changes and neutralizes malodours.

WHERE TO USE

Use wherever malodours are a problem such as carpet, upholstery, clothing, kitchens, garbage containers, washrooms, locker-rooms, nursing homes, medical establishments, kennels, meeting rooms, vehicles, RV's, etc.

HOW TO USE

Recommended Dilution Rates:

Light Duty	1:30
Regular Duty	1:10
Heavy Duty	1:5

Note: Adjust rates to suit your needs.

Apply using a trigger sprayer or similar applicator.

SPECIFICATIONS

Appearance: Clear colourless liquid

Fragrance: Floral

pH (conc.): 5.5

Solvent: None

Phosphate: None

WHMIS: No

TDG: No

MATERIAL SAFETY DATA SHEET

HMIS RATINGS: HEALTH:1, FLAMMABITY:0, REACTIVITY:0

Identity: Uvex Clear Lens Cleaner - # S461, S463, S464, S467

Section I

Manufacturer: Uvex Safety, Inc.	**Emergency Telephone:** 401-232-1200
Address: 900 Douglas Pike Smithfield, RI 02917	**Information Telephone:** 800-343-3411
	Date Prepared: 04/23/12

Section II - Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL 1	ACGIH TLV 1	Other limits recommended	% (optional)
Ethylene Glycol Mono Butyl Ether #111-76-2	25 PPM TWA (SKIN)	25 PPM TWA (SKIN)	N/A	<6%

Section III - Physical/Chemical Characteristics

Boiling Point: 212° F (100° C)	**Specific Gravity (H2O=1):** 0.98 at 77° F (25° C)
Vapor Pressure (mm Hg.): 22 mm Hg at 70° F (20° C)	**Melting Point:** N/A
Vapor Density (Air = 1) : NOT DETERMINED	**Evaporation Rate (Butyl Acetate = 1):** < 1

Solubility in Water: 100%

Appearance and Odor: CLEAR TINTED LIQUID WITH A SLIGHT ODOR.

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used): >212°F	**Flammable Limits:** NOT FLAMMABLE UNDER NORMAL CONDITIONS OF STORAGE & USE.	**LEL:** N/A	**UEL:** N/A

Extinguishing Media: 1. WATER FOG OR SPRAY, 2. CARBON DIOXIDE (CO_2), 3. DRY CHEMICAL, 4. CLASS B EXTINGUISHERS

Special Fire Fighting Procedures: KEEP FIRE EXPOSED CONTAINERS COOL. WEAR SELF-CONTAINED BREATHING APPARATUS (SCBA) AND FULL PROTECTIVE EQUIPMENT.

Unusual Fire and Explosion Hazards: N/A

Section V - Reactivity Data

Stability	**Unstable:** NO **Stable:** YES	**Conditions to Avoid:** DO NOT FREEZE, STORE IN COOL AREA. AVOID IGNITION SOURCES.

Incompatibility (Materials to Avoid): STRONG ACIDS, ALKALIES, AND OXIDIZERS.

Hazardous Decomposition or Byproducts: NONE

Hazardous Polymerization	**May Occur:** NO **Will Not Occur:** YES	**Conditions to Avoid:** NONE

Section VI - Health Hazard Data

Route(s) of Entry: **Inhalation?** YES **Skin?** NO **Ingestion?** YES

Health Hazards (Acute and Chronic): EYE CONTACT: IN SOME CASES EYE IRRITATION MAY OCCUR. IMMEDIATELY FLUSH WITH A WATER OR EYEWASH SOLUTION AND CONSULT A PHYSICIAN. IN SOME CASES SKIN CONTACT MAY CAUSE IRRITATION, IMMEDIATELY FLUSH WITH SOAP AND WATER, REMOVE CONTAMINATED CLOTHING AND CONSULT A PHYSICIAN. **INGESTION:** GASTRIC IRRITATION AND VOMITING. DO NOT INDUCE VOMITING, GIVE PLENTY OF WATER AND CONSULT A PHYSICIAN. PREVENT ASPIRATION OF VOMITED MATERIAL INDUCED BY INGESTION OF PRODUCT.

Carcinogenicity: **NTP?** NO **IARC Monographs?** NO **OSHA Regulated?** NO

Signs and Symptoms of Exposure: EYE, SKIN OR GASTRIC IRRITATION, NAUSEA, DIZZINESS, HEADACHE.

Medical Conditions Generally Aggravated by Exposure: NONE KNOWN

Emergency First Aid Procedures: SEEK MEDICAL ATTENTION IF LARGE QUANTITIES ARE SWALLOWED. WASH EXPOSED SKIN THOROUGHLY WITH SOAP & WATER. FLUSH EXPOSED EYES WITH WATER OR EYEWASH SOLUTION FOR AT LEAST 15 MINUTES. SEEK MEDICAL ATTENTION IN ALL CASES.

Section VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled: IN CASE OF LARGE SPILLS WEAR PROTECTIVE CLOTHING, NEOPRENE GLOVES AND CHEMICAL SPLASH GOGGLES.

Waste Disposal Method: ABSORB WITH SAND OR INERT MATERIAL. THEN REMOVE AND A DISPOSE OF ABSORBED MATERIAL IN AN APPROPRIATE MANNER.

Precautions to Be Taken in Handling and Storing: AVOID SKIN & EYE CONTACT. AVOID INHALATION AND INGESTION. WEAR PROTECTIVE CLOTHING, GLOVES AND SAFETY GLASSES WHEN A LARGE SPILL OR SPLASH HAZARD EXISTS. HANDLE AND STORE IN A WELL-VENTILATED AND COOL AREA.

Other Precautions: DO NOT FREEZE. STORE IN A COOL, WELL-VENTILATED AREA.

Section VIII - Control Measures

Ventilation	**Local Exhaust:** GENERAL AIR CIRCULATION SUFFICIENT FOR NORMAL PRODUCT USE.	**Special:** N/A
	Mechanical: ADEQUATE VENTILATION	**Other:** N/A

Protective Gloves: NONE REQUIRED FOR NORMAL PRODUCT USE.	**Eye Protection:** NONE REQUIRED FOR NORMAL PRODUCT USE.

Other Protective Clothing: NONE REQUIRED FOR NORMAL PRODUCT USE.

Work Hygienic Practices: ALWAYS FOLLOW SAFE WORK PRACTICES.

MATERIAL SAFETY DATA SHEET (MSDS)

Friendly Air

Room Deodorizer

Specialty Cleaners

SECTION I ▶ PRODUCT IDENTIFICATION

Product Name	Product Type	WHMIS Classification
Friendly Air	Room Deodorizer	Not applicable

SECTION II ▶ HAZARDOUS INGREDIENTS

Chemical Name	Cas Registry No.	%	Toxicity
Not Applicable			

SECTION III ▶ PHYSICAL DATA

Appearance	Odour	pH	Boiling Point	Specific Gravity	Solubility in Water
Clear green liquid	Scented	9.5	100 °C	1.0	100 %

SECTION IV ▶ FIRE AND EXPLOSION HAZARD DATA

Flash Point (°C): None **Extinguising media:** Not Applicable

Special fire fighting procedures: None

Unusual fire and explosion hazards: None

SECTION V ▶ TOXICOLOGICAL PROPERTIES

HAZARD RATING: Health = 1 Flammability = 0 Reactivity = 0

Swallowing: Slightly Toxic

Inhalation: Not applicable

Skin Absortion: Not Applicable

Skin Contact: Slight Irritant

Eye Contact: Slight Irritant

Special Warning: None

Rating System
0 = Insignificant
1 = Slight
2 = Moderate
3 = High
4 = Extreme

SECTION VI ▶ FIRST AID MEASURES

Ingestion: Drink 3-4 glasses of milk or water. Call a physician.

Inhalation: Not Applicable

Skin: Flush with water.

Eyes: Flush with water. If irritation persists, call a physician.

SECTION VII ▶ REACTIVITY DATA

Stable: Yes

Conditions to avoid: None

Incompatibility with other materials: None

Hazardous decomposition products: None

Hazardous polymerization: Will not occur.

SECTION VIII ▶ PREVENTIVE MEASURES

Hand protection: None

Eye protection: None

Ventilation: General

Respiratory protection: None

Other protective equipment: None

Steps to be taken in case material is released or spilled: Mop up spillage. Rinse spill area with water and allow to dry.

Waste disposal method: Flush with water into waste systems in accordance with municipal, provincial and federal regulations.

Precautions to be taken in handling and storage: Normal handling processes. Inside storage at 4-40 °C recommended.

Other precautions: Follow label use instructions.

UN: Not Applicable **TDG Class:** None **Packing Group:** Not Applicable

TDG Emergency Telephone Number: 613-996-6666 (COLLECT)

SECTION IX ▶ PREPERATION DATA

Prepared by: D.R. Dunlop **Last updated:** August 1, 2012

Location: Dustbane Products Limited, 25 Pickering Place, Ottawa, Ontario, K1G 5P4 – 613-745-6861

Friendly Air

Room Deodorizer

"Advanced concept in malodour removal that eliminates disagreeable and lingering odours."

FEATURES AND BENEFITS
Environmentally friendly: A.P.E. free.
Water soluble: Will not stain carpets or draperies.
Does not just mask odours: Area continues to be odour free long after fragrance has disappeared.
Ready-to-use: No time spent diluting product.
Versatile: Works effectively when added to most detergent solutions.
Seabreeze fragrance: Leaves a pleasant scent.

WHERE TO USE
Designed for use in meeting rooms, hotel and motel rooms, kitchens, bathrooms and other areas where odour control is desired.

HOW TO USE
READY-TO-USE, no mixing required. Spray upward into the centre of the room with a slow sweeping motion. Spray areas obviously producing the disagreeable odours for longer periods of time.

SPECIFICATIONS
Appearance: Clear green liquid
Fragrance: Floral
Viscosity: As water
PH (conc.): 9.5
PH (1%): N/A
Phosphate: None
WHMIS: No
TDG: No

Newell Rubbermaid Brands That Matter | Office Products Group

MATERIAL SAFETY DATA SHEET MSDS # 3000

Section One: Identification

Newell Rubbermaid, Inc. (Sanford L.P.)
2707 Butterfield Road
Oak Brook, IL 60523 USA
800-323-0749 or 630-481-2000

EMERGENCY MEDICAL NUMBER:
888-786-0972

Product Name: Sharpie Fine Point Marker, Sharpie Ultra Fine Point Marker, Sharpie Extra Fine Marker, Sharpie Chisel Tip Marker, Sharpie Twin Tip Marker, Super Sharpie Marker, Super Sharpie Twin Tip Marker, Sharpie Mini Fine Point Marker, Sharpie Micro Marker, Sharpie Grip Marker, Sharpie Retractable Fine Point Marker, Sharpie Magnum Marker, Sharpie King Size Marker, Sharpie Liquid Tip Marker. Sharpie Premium, Sharpie CD Marker, Sharpie Pro, Sharpie Pro King Size, Sharpie Pro Magnum, Sharpie Aluminum Barrel, Sharpie Brush Tip Marker, Esterbrook by Sharpie.

Colors: All Colors

NewellRubbermaid, Inc (Sanford L.P.) is a member of The Art and Creative Materials Institute, Inc. This product is certified by the Institute to be labeled in accordance with the voluntary chronic hazard labeling standard ASTM D-4236 and is labeled with the AP Non Toxic Seal. Products bearing the AP Approved Product Seal of The Art and Creative Materials Institute, Inc. are certified in a program of toxicological evaluation by a medical expert, subject to review by the Institute Toxicology Advisory Board, to contain no materials in sufficient quantities to be toxic or injurious to humans, or to cause acute toxicity or chronic health problems.

Section Two: Hazard Identification

Not Hazardous under normal use conditions. Not for use on skin. Do not ingest. Contact with eyes may cause irritation.

Section Three: Composition

: Butanol (71-36-3), Propanol (71-23-8), Diacetone Alcohol (123-42-2), Ethanol (64-17-5), pigments, dyes, additives

Section Four: First Aid Measures

Inhalation: Remove source of irritation. If symptoms persist seek medical attention

Skin Contact: Wash with soap and water. If irritation persists seek medical attention.

Eye Contact: Rinse eyes with water, if irritation persists seek medical attention.

Ingestion: If symptoms occur seek medical attention.

Section Five: Fire Fighting Measures

Flash Point: N/A

Extinguishing Media: As appropriate for surrounding area.

Special Fire Fighting Measures: N/A

Hazardous combustion products: N/A

Section Six: Accidental Release Measures

In Case of Spill or Accidental Release: Wipe up with absorbent material.

Section Seven: Handling and Storage

Handling: Do not shake marker.

Storage: Keep cap on marker when not in use.

Section Eight: Exposure Controls and Personal Protection

Eye Protection: None under normal use conditions.

Clothing: None under normal use conditions.

Respirator: None under normal use conditions.

Section Nine: Physical and Chemical Properties

Boiling Point:	N/A
Specific Gravity:	N/A
Vapor Pressure:	N/A
Solubility in Water:	N/A
Evaporation Rate:	N/A
Appearance/Odor:	Marker/Alcohol (ink)

Section Ten: Stability and Reactivity

Stability:	N/A
Conditions to Avoid:	Avoid exposure to heat, flame or other sources of ignition.
Chemical Incompatibility:	N/A
Hazardous Polymerization:	N/A.

Section Eleven: Toxicological Information

See Section Two: Hazard Identification for any hazards

Section Twelve: Ecological Information

Not available

Section Thirteen: Disposal Considerations

Dispose of in accordance with all Federal, State, and Local Regulations.

Section Fourteen: Transport Information

DOT:	Not available
IATA:	Not available
IMO:	Not available

Section Fifteen: Regulatory Information

United States:	All components in this product are listed on or exempt from reporting under the Federal Toxic Substances Control Act (TSCA).

Section Sixteen: Other Information

HMIS Code	
Health	N/A
Flammability	N/A
Reactivity	N/A
Personal Protection	N/A

0=Minimal / 4 = Severe

NewellRubbermaid, Inc has been advised by Counsel that the OSHA Hazard Communication Standard and the Health Canada Workplace Hazardous Materials Information Standard do not apply to the Sanford Product described in this Material Safety Data Sheet. The reasons for the exemptions are contained in 29 CFR 1910.1200(b)(6)(ix) as amended Sept 14, 2009 per the Code of Federal Regulations and also Canadian Hazardous Products Act part 12 section (f) as amended June 1, 2009. The information contained in this MSDS is forwarded to you for your information, but is not meant to imply that the product is covered by nor is this MSDS meant to comply with all requirements of the hazard communication standards.

DOW CORNING

DOW CORNING CORPORATION
Material Safety Data Sheet

MOLYKOTE(R) 55 O-RING GREASE

1. PRODUCT AND COMPANY IDENTIFICATION

MSDS No.: 01889826

SUPPLIER:
Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

Prepared by Product Safety: (800) 248-2481
NEWALTA: (800) 567-7455
Revision Date: 2012/08/17

MANUFACTURER:
Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

24 Hour Emergency Telephone: (989) 496-5900

WHMIS CLASSIFICATION: Not Controlled.

Material Usage: Lubricant

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Generic Description: Silicone grease.
Physical Form: Grease
Colour: White
Odour: Slight

There are no components with workplace exposure limits.

++

POTENTIAL HEALTH EFFECTS

Acute Effects

Eye: Direct contact may cause mild irritation.

Skin: No significant irritation expected from a single short-term exposure.

Inhalation: No significant effects expected from a single short-term exposure.

Oral: Low ingestion hazard in normal use.

Prolonged/Repeated Exposure Effects

Skin: Repeated or prolonged exposure may cause irritation.

Inhalation**:**	No known applicable information.
Oral:	No known applicable information.

Signs and Symptoms of Overexposure

No known applicable information.

Medical Conditions Aggravated by Exposure

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

None present. This material does not contain any controlled products as defined by CPR. am . SOR/88-555.

4. FIRST AID MEASURES

Eye:	Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes while holding the eyelid(s) open. Obtain medical attention.
Skin:	No health effects expected. If irritation does occur flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice.
Inhalation:	If symptoms are experienced remove source of contamination or move victim to fresh air. If irritation persists, obtain medical advice.
Oral:	If irritation or discomfort occur, obtain medical advice.
Notes to Physician:	Treat according to person's condition and specifics of exposure.

5. FIRE-FIGHTING MEASURES

Flash Point:	> 214 °F / > 101.1 °C (Closed Cup)
Autoignition Temperature:	Not available.
Flammability Limits in Air:	Not available.
Extinguishing Media:	On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO2), dry chemical or water spray. Water can be used to cool fire exposed containers.

Fire Fighting Measures:	Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.
Unusual Fire Hazards:	None.

6. ACCIDENTAL RELEASE MEASURES

Containment/Clean up:	Observe all personal protection equipment recommendations described in Sections 5 and 8. Wipe up or scrape up and contain for salvage or disposal. Clean area as appropriate since spilled materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, provincial, federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases.

Note: See Section 8 for Personal Protective Equipment for Spills. Refer to Section 1 to obtain telephone numbers, if additional information is required.

7. HANDLING AND STORAGE

Use with adequate ventilation. Traces of benzene (carcinogen) may form if heated in air above 300°F (149°C). Provide ventilation to control vapor exposure within inhalation guidelines when handling at elevated temperatures. Avoid eye contact. Avoid skin contact.

Use reasonable care and store away from oxidizing materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

There are no components with workplace exposure limits.

Engineering Controls

Local Ventilation:	None should be needed.
General Ventilation:	Recommended.

Personal Protective Equipment for Routine Handling

Eyes:	Use proper protection - safety glasses as a minimum.
Skin:	Washing at mealtime and end of shift is adequate.

Suitable Gloves:	Avoid skin contact by implementing good industrial hygiene practices and procedures. Select and use gloves and/or protective clothing to further minimize the potential for skin contact. Consult with your glove and/or personnel protective equipment manufacturer for selection of appropriate compatible materials.
Inhalation:	No respiratory protection should be needed.
Suitable Respirator:	None should be needed.

Personal Protective Equipment for Spills

Eyes:	Use proper protection - safety glasses as a minimum.
Skin:	Washing at mealtime and end of shift is adequate.
Inhalation/Suitable Respirator:	No respiratory protection should be needed.
Precautionary Measures:	Avoid eye contact. Avoid skin contact. Use reasonable care.
Comments:	Traces of benzene (carcinogen) may form if heated in air above 300°F (149°C). Provide ventilation to control vapor exposure within inhalation guidelines when handling at elevated temperatures.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Grease
Color:	White
Odor:	Slight
Odor Threshold:	Not available.
Specific Gravity @ 25°C:	1.1
Viscosity:	Not available.
Freezing/Melting Point:	Not available.
Boiling Point:	Not available.
Vapor Pressure @ 25°C:	Not available.
Vapor Density:	Not available.
Evaporation Rate:	Not available.
Solubility in Water:	Not available.
Coefficient of Water/Oil Distribution:	Not available.
pH:	Not available.
Volatile Content:	Not available.
Flash Point:	> 214 °F / > 101.1 °C (Closed Cup)
Autoignition Temperature:	Not available.
Flammability Limits in Air:	Not available.

Note: The above information is not intended for use in preparing product specifications. Contact Dow Corning before writing specifications.

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable.
Hazardous Polymerization:	Hazardous polymerization will not occur.
Conditions to Avoid:	None.
Materials to Avoid:	Oxidizing material can cause a reaction.

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Metal oxides. Formaldehyde.

11. TOXICOLOGICAL INFORMATION

Special Hazard Information on Components

No known applicable information.

12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

Complete information is not yet available.

Environmental Effects

Complete information is not yet available.

Fate and Effects in Waste Water Treatment Plants

Complete information is not yet available.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the

section concerning the overall ecological safety of this material.

13. DISPOSAL CONSIDERATIONS

Can be incinerated in accordance with local regulations.

Call local hazardous waste disposal company or provincial waste authorities for more information. Refer to Section 1 to obtain telephone numbers, if additional information is required.

14. TRANSPORT INFORMATION

Canada Road (Based on IMDG Regulations)

Not subject to local road regulations.

Ocean Shipment (IMDG)

Not subject to IMDG code.

Air Shipment (IATA)

Not subject to IATA regulations.

Refer to Section 1 to obtain telephone numbers, if additional information is required.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

WHMIS CLASSIFICATION:	Not Controlled.
DSL Status:	All chemical substances in this material are included on or exempted from the DSL.
TSCA Status:	All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

MOLYKOTE(R) 55 O-RING GREASE

16. OTHER INFORMATION

Prepared by: Dow Corning Corporation

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

(R) indicates Registered Trademark

WINDEX® GLASS & SURFACE WIPES

Version *1*.0
Revision Date 08/13/2012

Print Date 03/21/2013
MSDS Number 350000021010
SITE_FORM Number
300000000000000015488.001

1. PRODUCT AND COMPANY IDENTIFICATION

Product information

Trade name	:	WINDEX® GLASS & SURFACE WIPES
Use of the Substance/Mixture	:	Hard Surface Cleaner
Company	:	S.C. Johnson and Son, Limited 1 Webster Street Brantford ON N3T 5R1
Emergency telephone number	:	24 Hour Transport & Medical Emergency Phone (866) 231-5406 24 Hour International Emergency Phone (952) 852-4647 24 Hour Canadian Transport Emergency Phone (CANUTEC) (613) 996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance / Odor	:	white / Liquid absorbed by inert carrier material / pleasant
Immediate Concerns	:	Avoid contact with skin, eyes and clothing.

Potential Health Effects

Exposure routes	:	Eye, Skin, Inhalation, Ingestion.
Eyes	:	May cause: Mild eye irritation
Skin	:	None known.
Inhalation	:	No adverse effects expected when used as directed.
Ingestion	:	May cause abdominal discomfort.
Aggravated Medical Condition	:	None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous chemicals present at or above reportable levels as defined by OSHA 29 CFR 1910.1200 or the Canadian Controlled Products Regulations are listed in this table:

Chemical Name	CAS-No.	Weight percent

WINDEX® GLASS & SURFACE WIPES

Version *1*.0

Revision Date 08/13/2012

Print Date 03/21/2013

MSDS Number 350000021010
SITE_FORM Number
300000000000000015488.001

Cellulose	9004-34-6	10.00 - 30.00

For additional information on product ingredients, see www.whatsinsidescjohnson.com.

4. FIRST AID MEASURES

Eye contact	:	Rinse with plenty of water. Get medical attention if irritation develops and persists.
Skin contact	:	Rinse with plenty of water.
Inhalation	:	No special requirements
Ingestion	:	Rinse mouth with water.

5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Further information	:	Fight fire with normal precautions from a reasonable distance. Standard procedure for chemical fires. Wear full protective clothing and positive pressure self-contained breathing apparatus.
Flash point	:	> 93 °C > 199.4 °F
Lower explosion limit	:	Note: no data available
Upper explosion limit	:	Note: no data available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	No special precautions required.
Environmental precautions	:	Outside of normal use, avoid release to the environment.
Methods for cleaning up	:	Sweep up and shovel into suitable containers for disposal. Clean residue from spill site.

WINDEX® GLASS & SURFACE WIPES

Version *1*.0
Revision Date 08/13/2012

Print Date 03/21/2013
MSDS Number 350000021010
SITE_FORM Number
300000000000000015488.001

7. HANDLING AND STORAGE

Handling

Advice on safe handling : Use only as directed.
KEEP OUT OF REACH OF CHILDREN AND PETS.

Advice on protection against fire and explosion : Normal measures for preventive fire protection.

Storage

Requirements for storage areas and containers : Keep in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Components	CAS-No.	mg/m3	ppm	Non-standard units	Basis
Cellulose	9004-34-6	10 mg/m3	-	-	ACGIH TWA

Personal protective equipment

Respiratory protection No personal respiratory protective equipment normally required.

Hand protection : No special requirements.

Eye protection No special requirements.

Skin and body protection : No special requirements.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form : Liquid absorbed by inert carrier material

Color : white

Odor : pleasant

WINDEX® GLASS & SURFACE WIPES

Version *1*.0
Revision Date 08/13/2012

Print Date 03/21/2013
MSDS Number 350000021010
SITE_FORM Number
300000000000000015488.001

pH	:	8.5 - 10.5
Melting point	:	no data available
Boiling point	:	no data available
Freezing point	:	0 C
Flash point	:	> 93 °C > 199.4 °F
Evaporation rate	:	no data available
Flammability (solid, gas)	:	no data available
Auto-ignition temperature	:	no data available
Lower explosion limit	:	no data available
Upper explosion limit	:	no data available
Vapour pressure	:	no data available
Density	:	no data available
Water solubility	:	negligible
Partition coefficient: n-octanol/water	:	no data available
Relative vapor density	:	no data available
Volatile Organic Compounds Total VOC (wt. %)*	:	0 % - additional exemptions may apply *as defined by US Federal and State Consumer Product Regulations

10. STABILITY AND REACTIVITY

Conditions to avoid	:	Direct sources of heat.
Materials to avoid	:	Strong acids
Hazardous decomposition products	:	Thermal decomposition can lead to release of irritating gases and vapours.

Thermal decomposition	:	Note: no data available
Hazardous reactions	:	Stable under recommended storage conditions.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity	:	LD50 Measured > 5,050 mg/kg
Acute inhalation toxicity	:	LC50 Measured 2.58 mg/l
Acute dermal toxicity	:	LD50 Measured > 5,050 mg/kg

Chronic effects

Carcinogenicity	:	no data available
Mutagenicity	:	no data available
Reproductive effects	:	no data available
Teratogenicity	:	no data available
Sensitisation	:	Substances is not a sensitizer.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects	:	no data available

WINDEX® GLASS & SURFACE WIPES

Version *1*.0
Revision Date 08/13/2012

Print Date 03/21/2013
MSDS Number 350000021010
SITE_FORM Number
300000000000000015488.001

13. DISPOSAL CONSIDERATIONS

Observe all applicable Federal, Provincial and State regulations and Local/Municipal ordinances regarding disposal.
Consumer may discard empty container in trash, or recycle where facilities exist.

14. TRANSPORT INFORMATION

Please refer to the Bill of Lading/receiving documents for up-to-date shipping information.
Land transport

- **U.S. DOT and Canadian TDG Surface Transportation:**

Proper shipping name	not regulated
Class:	None.
UN/ID No.:	None.
Packaging group	None.

Sea transport

- *IMDG:*

Proper shipping name	not regulated
Class:	None.
UN/ID No.:	None.
Packaging group	None.

Air transport

- *ICAO/IATA:*

Proper shipping name	not regulated
Class:	None.
UN/ID No.:	None.
Packaging group	None.

15. REGULATORY INFORMATION

Notification status	:	All ingredients of this product are listed or are excluded from listing on the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.
Notification status	:	All ingredients of this product comply with the New Substances Notification requirements under the Canadian Environmental Protection Act (CEPA).
California Prop. 65	:	This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

WINDEX® GLASS & SURFACE WIPES

Version *1*.0
Revision Date 08/13/2012

Print Date 03/21/2013
MSDS Number 350000021010
SITE_FORM Number
300000000000000015488.001

Canada Regulations : This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION

HMIS Ratings

Health	1
Flammability	1
Reactivity	0

NFPA Ratings

Health	1
Fire	1
Reactivity	0
Special	-

Further information
This document has been prepared using data from sources considered to be technically reliable. It does not constitute a warranty, expressed or implied, as to the accuracy of the information contained herein. Actual conditions of use are beyond the seller's control. User is responsible to evaluate all available information when using product for any particular use and to comply with all Federal, State, Provincial and Local laws and regulations.

Prepared by:	SC Johnson Global Safety Assessment & Regulatory Affairs (GSARA)

MATERIAL SAFETY DATA SHEET

Version: 1.2
07/05/2012

SCS1201
Silicone sealant (adhesive)

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Manufacturer Name:	**Momentive performance material** **260 Hudson River Rd** **Waterford NY 12188**
Revised:	07/05/2012
Prepared by	Product Regulatory Compliance
CHEMTREC	1-800-424-9300
MSDS Contact Information	4information@momentive.com
Chemical Family/Use:	Sealant
Formula:	MixtureSilicone sealant

HMIS

Flammability:	1	Reactivity:	0	Health:	2

NFPA

Flammability:	1	Reactivity:	0	Health:	2

2. HAZARDS IDENTIFICATION

WHMIS CLASSIFICATION



Very Toxic Material Causing Other Toxic Effects
Toxic Material Causing Other Toxic Effects

EMERGENCY OVERVIEW

WARNING! Irritating to eyes, respiratory system and skin. Adverse liver and reproductive effects reported in animals.

Form: Solid Color: Colorless Odor: Acetic acid.

Potential Health Effects

INGESTION

May be harmful if swallowed.

SKIN

Causes mild skin irritation.

INHALATION
None known.

EYES
May cause eye irritation.

MEDICAL CONDITIONS AGGRAVATED
None known.

SUBCHRONIC (TARGET ORGAN)
Liver injury.; Reproductive hazard.

CHRONIC EFFECTS / CARCINOGENICITY
This product or one of its ingredients present at 0.1% or more is NOT listed as a carcinogen or suspected carcinogen by NTP, IARC, or OSHA.

ROUTES OF EXPOSURE
Dermal; Eye

3. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENT(S)

PRODUCT COMPOSITION	CAS-NO.	*WGT. %*
Octamethylcyclotetrasiloxane	556-67-2	1 - 5 %
Methyltriacetoxysilane	4253-34-3	1 - 5 %

Note(s): See Section 15 for HMIRC information.

4. FIRST AID MEASURES

INGESTION
DO NOT induce vomiting. Get medical attention immediately.

SKIN
None

INHALATION
If inhaled, remove to fresh air. If not breathing give artificial respiration using a barrier device. If breathing

is difficult give oxygen. Get medical attention.

EYES

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

NOTE TO PHYSICIAN

None known.

5. FIRE-FIGHTING MEASURES

FLASH POINT:	> 93.3 °C; 200 °F
METHOD	Estimated
IGNITION TEMPERATURE:	Not applicable
Autoignition Temperature:	None
FLAMMABLE LIMITS LEL:	Not applicable
FLAMMABLE LIMITS UEL:	Not applicable

SENSITIVITY TO MECHANICAL IMPACT: No

SENSITIVITY TO STATIC DISCHARGE

Sensitivity to static discharge is not expected.

EXTINGUISHING MEDIA

All standard extinguishing agents are suitable.

SPECIAL FIRE FIGHTING PROCEDURES

Firefighters must wear NIOSH/MSHA approved positive pressure self-contained breathing apparatus with full face mask and full protective clothing.

6. ACCIDENTAL RELEASE MEASURES

ACTION TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

Wipe, scrape or soak up in an inert material and put in a container for disposal. Wash walking surfaces with detergent and water to reduce slipping hazard. Wear proper protective equipment as specified in the protective equipment section.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Avoid contact with eyes, skin, and clothing. Wash hands before eating, drinking, or smoking. Use only in well-ventilated areas. Remove contact lenses before using sealant. Do not handle lenses until all sealant has been cleaned from the finger and hands. Keep out of reach of children. Keep container closed.

STORAGE

Keep container tightly closed in a cool, well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS

Provide adequate general and local exhaust ventilation.; Eye washes and showers for emergency use.

RESPIRATORY PROTECTION

If exposure limits are exceeded or respiratory irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Supplied air respirators may be required for non-routine or emergency situations. Respiratory protection must be provided in accordance with OSHA regulations (see 29CFR 1910.134).

PROTECTIVE GLOVES

Butyl rubber gloves are recommended.

EYE AND FACE PROTECTION

Monogoggles; Face shield

OTHER PROTECTIVE EQUIPMENT

Wear suitable protective clothing and eye/face protection.

Exposure Guidelines

Component	CAS-No.	Source	Value
Octamethylcyclotetrasiloxane	556-67-2	Z_INTL_OEL, REL	5 ppm

Consult local authorities for acceptable provincial values.

Absence of values indicates none found

PEL - OSHA Permissible Exposure Limit; TLV - ACGIH Threshold Limit Value; TWA - Time Weighted Average

OSHA revoked the Final Rule Limits of January 19, 1989 in response to the 11th Circuit Court of Appeals decision (AFL-CIO v. OSHA) effective June 30, 1993. See 29 CFR 1910.1000 (58 FR 35338).

9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT (°C):	No data available.
VAPOR PRESSURE (20 C) (MM HG):	No data available.
VAPOR DENSITY (AIR=1):	Not applicable
FREEZING POINT:	No data available.
MELTING POINT:	No data available.
PHYSICAL STATE:	Solid
ODOR:	Acetic acid.
ODOR THRESHOLD:	No data available.
COLOR:	Colorless
EVAPORATION RATE (BUTYL ACETATE=1):	< 1
SPECIFIC GRAVITY:	ca. 1.06
DENSITY:	ca. 1.06 g/cm3
ACID / ALKALINITY (MEQ/G):	Not applicable
pH:	Not applicable
VOLATILE ORGANIC CONTENT:	2.1 %(m)
SOLUBILITY IN WATER (20 C):	Insoluble
SOLUBILITY IN ORGANIC SOLVENT (STATE SOLVENT):	Toluene
Partition Coefficient: n-octanol/water:	No data available.

10. STABILITY AND REACTIVITY

Stability

Stable

HAZARDOUS POLYMERIZATION.

Hazardous polymerisation does not occur.

HAZARDOUS THERMAL DECOMPOSITION / COMBUSTION PRODUCTS

Carbon dioxide; Acetic acid.; Silicon dioxide.; Formaldehyde.; This product contains methylpolysiloxanes which can generate formaldehyde at approximately 300 degrees Fahrenheit (150'C) and above, in atmospheres which contain oxygen. Formaldehyde is a skin and respiratory sensitizer, eye and throat irritant, acute toxicant, and potential cancer hazard. A MSDS for formaldehyde is available from Momentive.

INCOMPATIBLE MATERIALS

None known.

CONDITIONS TO AVOID
None known.

11. TOXICOLOGICAL INFORMATION

ACUTE ORAL
Remarks: No data available.

Repeated dose toxicity
None
ACUTE DERMAL
Remarks: No data available.

ACUTE INHALATION
Remarks: No data available.

OTHER
Octamethylcyclotetrasiloxane
Ingestion: Rodents given large doses via oral gavages of Octamethylcyclotetrasiloxane (1600 mg/kg day, 14 days) developed increased liver weights relative to unexposed control animals due to hepatocellular hyperplasia (increased number of liver cells which appear normal) as well as hypertrophy (increased cell size).

Inhalation: In inhalation studies, laboratory rodents exposed to Octamethylcyclotetrasiloxane (300 ppm five days week, 90 days) developed increased liver weights in female animals relative to unexposed control animals. When the exposure was stopped, liver weights returned to normal. Microscopic examination of the liver cells did not show any evidence of pathology. Inhalation studies utilizing laboratory rabbits and guinea pigs showed no effects on liver weights. Inhalation exposures typical of industrial usage (5-10 ppm) showed no toxic effects in rodents.

Range finding reproductive studies were conducted (whole body inhalation, 70 days prior to mating, through mating, gestation and lactation) with Octamethylcyclotetrasiloxane (D4). Rats were exposed to 70 and 700 ppm. In the 700 ppm group, there was a statistically significant reduction in mean litter size and in implantation sites. No D4 related clinical signs were observed in the pups and no exposure related pathological findings were found.

Interim results from a two generation reproductive study in rats exposed to 500 and 700 ppm D4 (whole body inhalation, 70 days prior to mating, through mating, gestation and lactation) resulted in a statistically significant decrease in live mean litter size as well as extended periods of off-spring delivery (dystocia). These results were not observed at the 70 and 300ppm dosing levels.

Preliminary results from an ongoing 24-month combined chronic/oncogenicity study in rats exposed to 10, 30, 150, or700 ppm D4 showed test-article related effects in the kidney (male and female) and uterus of rats exposed for 12 to 24 months. These effects include increased kidney weight and severity of chronic nephropathy, increased uterine weight, increased incidence of endometrial cell hyperplasia, and

an increased incidence of endometrial adenomas. All of these effects are limited to the 700 ppm exposure group.

These results have been shown to be rat-specific. Further studies are ongoing.

In developmental toxicity studies, rats and rabbits were exposed to Octamethylcyclotetrasiloxane at concentrations up to 700 ppm and 500 ppm respectively. No teratogenic effects (birth defects) were observed in either study.

GENETIC TOXICITY IN VITRO
None
GENETIC TOXICITY IN VIVO
None
SENSITIZATION
No data available.

SKIN IRRITATION.
No data available.

EYE IRRITATION
No data available.

MUTAGENICITY
No data available.

OTHER EFFECTS OF OVEREXPOSURE
This product contains methylpolysiloxanes which can generate formaldehyde at approximately 300 degrees Fahrenheit (150'C) and above, in atmospheres which contain oxygen. Formaldehyde is a skin and respiratory sensitizer, eye and throat irritant, acute toxicant, and potential cancer hazard. A MSDS for formaldehyde is available from Momentive.
,Acetic acid released during curing.

12. ECOLOGICAL INFORMATION

ECOTOXICITY

Ecotoxicological data for this product is not available.

DISTRIBUTION
No data available.

CHEMICAL FATE
No data available.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHODS

Disposal should be made in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

Further Information: This product is not regarded as dangerous goods according to the national and international regulations on the transport of dangerous goods.

15. REGULATORY INFORMATION

Inventories

Australia Inventory of Chemical Substances (AICS)	y (positive listing)	
EU list of existing chemical substances	y (positive listing)	
Japan Inventory of Existing & New Chemical Substances (ENCS)	y (positive listing)	
China Inventory of Existing Chemical Substances	y (positive listing)	
Korea Existing Chemicals Inventory (KECI)	y (positive listing)	
Canada DSL Inventory	y (positive listing)	
Canada NDSL Inventory	n (Negative listing)	
Philippines Inventory of Chemicals and Chemical Substances (PICCS)	y (positive listing)	
TSCA list	y (positive listing)	On TSCA Inventory

For inventories that are marked as quantity restricted or special cases, please contact Momentive.

Canadian Regulatory Information

WHMIS CLASSIFICATION

Very Toxic Material Causing Other Toxic Effects, Toxic Material Causing Other Toxic Effects

CPR Compliance

SCS1201
Silicone sealant (adhesive)

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR.

US Regulatory Information

SARA (311,312) HAZARD CLASS

Acute Health Hazard

16. OTHER INFORMATION

OTHER

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

,C = ceiling limit NEGL = negligible
EST = estimated NF = none found
NA = not applicable UNKN = unknown
NE = none established REC = recommended
ND = none determined V = recommended by vendor
SKN = skin TS = trade secret
R = recommended MST = mist
NT = not tested STEL = short term exposure limit
ppm = parts per million ppb = parts per billion
By-product= reaction by-product, TSCA inventory status not required under 40 CFR part 720.30(h-2).

OFF!® DEEP WOODS® PUMP SPRAY INSECT REPELLENT (REG NO 22258 P.C.P. ACT)

Version *2*.0
Revision Date 03/12/2012

Print Date 03/12/2012
MSDS Number 350000012371
SITE_FORM Number
30000000000000009857.001

1. PRODUCT AND COMPANY IDENTIFICATION

Product information

Trade name	:	OFF!® DEEP WOODS® PUMP SPRAY INSECT REPELLENT (REG NO 22258 P.C.P. ACT)
Use of the Substance/Mixture	:	Insect Repellent
Company	:	S.C. Johnson and Son, Limited 1 Webster Street Brantford ON N3T 5R1
Emergency telephone number	:	24 Hour Transport & Medical Emergency Phone (866) 231-5406 24 Hour International Emergency Phone (952) 852-4647 24 Hour Canadian Transport Emergency Phone (CANUTEC) (613) 996-6666

2. HAZARDS IDENTIFICATION

Emergency Overview

Appearance / Odor	:	yellow / liquid / pleasant
Immediate Concerns	:	Caution FLAMMABLE: CAUSES EYE IRRITATION. Keep away from heat, sparks and flame. Avoid contact with eyes and lips.

Potential Health Effects

Exposure routes	:	Eye, Skin, Inhalation, Ingestion.
Eyes	:	Causes: Moderate eye irritation
Skin	:	May cause skin reactions in rare cases. Prolonged or repeated contact may dry skin and cause irritation.
Inhalation	:	May cause nose, throat, and lung irritation. Inhalation may cause central nervous system effects.
Ingestion	:	May cause irritation to mouth, throat and stomach. May cause abdominal discomfort. Causes headache, drowsiness or other effects to the central

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nervous system.

Aggravated Medical Condition : Persons with pre-existing skin disorders may be more susceptible to irritating effects.
Individuals with chronic respiratory disorders such as asthma, chronic bronchitis, emphysema, etc. may be more susceptible to irritating effects
Do not apply to cuts or irritated skin.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous chemicals present at or above reportable levels as defined by OSHA 29 CFR 1910.1200 or the Canadian Controlled Products Regulations are listed in this table:

Chemical Name	CAS-No.	Weight percent
Ethyl alcohol	64-17-5	30.00 - 60.00
N,N-Diethyl-m-toluamide	134-62-3	10.00 - 30.00

For additional information on product ingredients, see www.whatsinsidescjohnson.com.

4. FIRST AID MEASURES

Eye contact : Remove contact lenses. Flush immediately with plenty of water for at least 15 to 20 minutes. Get medical attention if irritation develops and persists.

Skin contact : Wash off immediately with plenty of water. Get medical attention if irritation develops and persists. If you suspect a reaction to this product, discontinue use and remove contaminated clothing.

Inhalation : Remove to fresh air.

Ingestion : If swallowed, DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

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Specific hazards during firefighting	:	Flammable liquid. Vapors are heavier than air and may travel to a source of ignition and flash back. Liquid run-off to sewers may create fire/explosion hazard. Burns with colourless flame. Container may melt and leak in heat of fire. Do not allow run-off from fire fighting to enter drains or water courses.
Further information	:	Fight fire from maximum distance or protected area. Cool and use caution when approaching or handling fire-exposed containers. For large quantities of flammable liquids, consider containment to prevent the spread of fire. Wear full protective clothing and positive pressure self-contained breathing apparatus. In case of fire and/or explosion do not breathe fumes.
Flash point	:	25 °C 77 °F Method: Tag Closed Cup (TCC)
Lower explosion limit	:	Note: no data available
Upper explosion limit	:	Note: no data available

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. Wear personal protective equipment.
Environmental precautions	:	Do not flush into surface water or sanitary sewer system. Use appropriate containment to avoid environmental contamination. Outside of normal use, avoid release to the environment.
Methods for cleaning up	:	Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13). Use only non-sparking equipment. Dike large spills. Clean residue from spill site.

7. HANDLING AND STORAGE

Handling

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Advice on safe handling	:	Avoid contact with eyes and lips. Avoid breathing vapors, mist or gas. For personal protection see section 8. Use only as directed. KEEP OUT OF REACH OF CHILDREN AND PETS.
Advice on protection against fire and explosion	:	Keep away from heat and sources of ignition. Take measures to prevent the build up of electrostatic charge.

Storage

Requirements for storage areas and containers	:	Keep away from food, drink and animal feedingstuffs. Keep container closed when not in use. Keep in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

Components	CAS-No.	mg/m3	ppm	Non-standard units	Basis
Ethyl alcohol	64-17-5	-	1,000 ppm	-	ACGIH STEL

Personal protective equipment

Respiratory protection		Use only with adequate ventilation. Do not spray in enclosed areas.
Hand protection	:	No special requirements.
Eye protection		Safety glasses with side-shields
Skin and body protection	:	No special requirements.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form	:	liquid

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Color	:	yellow
Odor	:	pleasant
pH	:	7.5
Boiling point	:	75 °C
Boiling point	:	167 °F
Freezing point	:	no data available
Flash point	:	25 °C 77 °F Method: Tag Closed Cup (TCC)
Evaporation rate	:	no data available
Autoignition temperature	:	no data available
Lower explosion limit	:	no data available
Upper explosion limit	:	no data available
Vapour pressure	:	no data available
Density	:	0.930 g/cm3 at 21 °C
Water solubility	:	dispersible
Partition coefficient: n-octanol/water	:	no data available

10. STABILITY AND REACTIVITY

Conditions to avoid	:	Heat, flames and sparks.
Materials to avoid	:	Do not mix with oxidizing agents. Avoid contact with: Oxidizing agents Natural Rubber Plastic Aluminium
Hazardous decomposition products	:	Thermal decomposition can lead to release of irritating gases and vapours.

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Hazardous reactions : Stable under recommended storage conditions.

11. TOXICOLOGICAL INFORMATION

Acute oral toxicity : LD50
estimated
> 2,000 mg/kg

Acute inhalation toxicity : LC50
estimated
> 2.07 mg/l

Acute dermal toxicity : LD50
estimated
> 5,000 mg/kg

Chronic effects
Carcinogenicity : no data available

Mutagenicity : no data available

Reproductive effects : no data available

Teratogenicity : no data available

Sensitisation : Substances is not a sensitizer.

12. ECOLOGICAL INFORMATION

Ecotoxicity effects : no data available

OFF!® DEEP WOODS® PUMP SPRAY INSECT REPELLENT (REG NO 22258 P.C.P. ACT)

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13. DISPOSAL CONSIDERATIONS

PESTICIDAL WASTE:
Observe all applicable Federal, Provincial and State regulations and Local/Municipal ordinances regarding disposal.
Consumer may discard empty container in trash, or recycle where facilities exist.

RCRA waste class : D001 (Ignitable Waste)

14. TRANSPORT INFORMATION

Land transport

- **U.S. DOT and Canadian TDG Surface Transportation:**

Proper shipping name	UN 1993 Flammable liquids, n.o.s.
Class:	3
UN number	1993
Packaging group:	II
Note:	Limited quantities derogation may be applicable to this product, please check transport documents.

Sea transport

- *IMDG:*

Proper shipping name	UN 1993 Flammable liquids, n.o.s.
Class:	3
UN number:	1993
Packaging group:	II
EmS:	F-E, S-E
Note:	Limited quantities derogation may be applicable to this product, please check transport documents.

Air transport

- *ICAO/IATA:*

Proper shipping name	UN 1993 Flammable liquids, n.o.s.
Class:	3
UN/ID No.:	UN 1993
Packaging group:	II
Note:	SC Johnson typically does not ship products via air. Refer to IATA/ICAO Dangerous Goods Regulations for detailed instructions when shipping this item by air.

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15. REGULATORY INFORMATION

Notification status	:	All ingredients of this product comply with the New Substances Notification requirements under the Canadian Environmental Protection Act (CEPA).
California Prop. 65	:	This product is not subject to the reporting requirements under California's Proposition 65.
Canada Regulations	:	This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

16. OTHER INFORMATION

HMIS Ratings

Health	2
Flammability	3
Reactivity	0

NFPA Ratings

Health	2
Fire	3
Reactivity	0
Special	-

Further information
This document has been prepared using data from sources considered to be technically reliable. It does not constitute a warranty, expressed or implied, as to the accuracy of the information contained herein. Actual conditions of use are beyond the seller's control. User is responsible to evaluate all available information when using product for any particular use and to comply with all Federal, State, Provincial and Local laws and regulations.

Prepared by:	SC Johnson Global Safety Assessment & Regulatory Affairs (GSARA)

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Newell Rubbermaid Brands That Matter | Office Products Group

MATERIAL SAFETY DATA SHEET

MSDS # 81860

Section One: Identification

Newell-Rubbermaid (Sanford LP)
2707 Butterfield Road
Oak Brook, IL 60523 USA
800-323-0749 or 630-481-2000

EMERGENCY MEDICAL NUMBER:
888-786-0972

Product Name: Expo White Board (Care) Cleaner, Expo White Board (Care) Cleaning Wipes,

Colors: Not applicable

NewellRubbermaid, Inc (Sanford L.P.) is a member of The Art and Creative Materials Institute, Inc. This product is certified by the Institute to be labeled in accordance with the voluntary chronic hazard labeling standard ASTM D-4236 and is labeled with the AP Non Toxic Seal. Products bearing the AP Approved Product Seal of The Art and Creative Materials Institute, Inc. are certified in a program of toxicological evaluation by a medical expert, subject to review by the Institute Toxicology Advisory Board, to contain no materials in sufficient quantities to be toxic or injurious to humans, or to cause acute toxicity or chronic health problems.

Section Two: Hazard Identification

Not Hazardous under normal use conditions. Contact with eyes may cause irritation

Section Three: Hazardous Ingredients

Water, Propylene glycol n-Butyl ether (5131-66-8)

Section Four: First Aid Measures

Inhalation: Remove source of irritation. If symptoms persist seek medical attention

Skin Contact: Wash with soap and water. If irritation persists seek medical attention.

Eye Contact: Rinse eyes with water, if irritation persists seek medical attention.

Ingestion: If symptoms occur seek medical attention.

Section Five: Fire Fighting Measures

Flash Point: N/A

Extinguishing Media: Water, dry chemical, alcohol foam or carbon dioxide. Water spray may be used to keep exposed material cool.

Fire and Explosion Hazards: Combustion/fires produce smoke consisting of carbon dioxide, carbon monoxide, and other potentially toxic gases.

Section Six: Accidental Release Measures

In Case of Spill or Accidental Release: Wipe up with absorbent material.

Section Seven: Handling and Storage

Recommended Storage Conditions: Keep container closed when not in use.

Section Eight: Exposure Controls and Personal Protection

Eye Protection: None under normal use conditions.

Clothing: None under normal use conditions.

Respirator: None under normal use conditions.

Section Nine: Physical and Chemical Properties

Form:	Liquid	Color:	Colorless
Odor:	Mild	Boiling Point:	N/D
Solubility in Water:	Soluble	Specific Gravity:	N/D
Melting/Freezing Point:	N/D	Evaporation Rate:	Not Applicable
Auto Ignition Temperature:	N/A	Flash Point:	Not Applicable
pH:	6-8	Vapor Pressure:	Not Applicable
VOC:	Not Applicable		

Section Ten: Stability and Reactivity

Stability:	Stable under ordinary conditions of use and storage
Conditions to Avoid:	Strong oxidizing agents
Incompatibility with Other Materials:	Acids and oxidizers
Decomposition:	May produce carbon monoxide, carbon dioxide, nitrogen oxides and irritating fumes
Polymerization:	Polymerization cannot occur

Section Eleven: Toxicological Information

See Section Two: Hazard Identification for any hazards

Section Twelve: Ecological Information

Environmental Fate:	No information found
Environmental Toxicity:	This material is not expected to be toxic to aquatic life
Chemical Fate	Material is readily biodegradable

Section Thirteen: Disposal Considerations

Dispose in accordance with Federal, State and Local Regulations

Section Fourteen: Transport Information

Domestic (Land, DOT), International (Water, IMO), International (Air, ICAO, IATA)

DOT:	Not Regulated
IATA:	Not available
IMO:	Not available

Section Fifteen: Regulatory Information

TSCA and DSL:	The product listed on this Material Safety Data Sheet is not listed on the Toxic Substances Control Act Inventory or Domestic Substance List. All ingredients used to manufacture this product are listed on the TSCA and DSL Inventories.

Section Sixteen: Other Information

HMIS Code	
Health	1
Flammability	0
Reactivity	0
Personal Protection	NA

0=Minimal / 4 = Extreme

NewellRubbermaid, Inc (Sanford L.P) has been advised by Counsel that the OSHA Hazard Communication Standard and the Health Canada Workplace Hazardous Materials Information Standard do not apply to the product described in this Material Safety Data Sheet. The reasons for the exemptions are contained in 29 CFR 1910.1200(b)(6)(ix) as amended Sept 14, 2009 per the Code of Federal Regulations and also Canadian Hazardous Products Act part 12 section (f) as amended June 1, 2009. The information contained in this MSDS is forwarded to you for your information, but is not meant to imply that the product is covered by nor is this MSDS meant to comply with all requirements of the hazard communication standards

Reference Product Images



MATERIAL SAFETY DATA SHEET
SBS 40 Medicated Skin Cream

1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

PRODUCT NAME	SBS 40 Medicated Skin Cream
PRODUCT NO.	40108, 40135, 40139
INTERNAL ID	40A12/2
PRODUCT USE	Medicated after-work cream.
SUPPLIER	Deb USA Inc 1100 S. Highway 27 Stanley NC 28164 704 263 4240
EMERGENCY TELEPHONE	Chemtrec 800 424 9300 (24 hour)

2 HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

INHALATION
No specific health warnings noted.

INGESTION
May cause gastrointestinal irritation or discomfort with nausea, vomiting and diarrhea if swallowed.

SKIN CONTACT
Skin irritation is not anticipated when used normally.

EYE CONTACT
May cause temporary eye irritation.

3 COMPOSITION/INFORMATION ON INGREDIENTS

COMPOSITION COMMENTS
Water, Cetyl Esters, Petrolatum, Isopropyl Palmitate, Phenoxyethanol, Stearyl Alcohol, Carbomer, Allantoin, Triethanolamine, Diazolidinyl Urea, Ceteareth-20, Lanolin, Fragrance.

4 FIRST-AID MEASURES

NOTES TO THE PHYSICIAN
No specific first aid measures noted.

INHALATION
Not relevant Unlikely route of exposure as the product does not contain volatile substances.

INGESTION
Rinse mouth thoroughly. Get medical attention if any discomfort continues.

SKIN CONTACT
Not applicable.

EYE CONTACT
Make sure to remove any contact lenses from the eyes before rinsing. Promptly wash eyes with plenty of water while lifting the eye lids. Get medical attention promptly if symptoms occur after washing.

5 FIRE-FIGHTING MEASURES

EXTINGUISHING MEDIA
This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

SPECIAL FIRE FIGHTING PROCEDURES
No specific fire fighting procedure given.

SBS 40 Medicated Skin Cream

6 ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS
Avoid contact with eyes.

ENVIRONMENTAL PRECAUTIONS
Not relevant considering the small amounts used.

SPILL CLEAN UP METHODS
Flush away small spillages with plenty of water. Do not let washing down water contaminate ponds or waterways. Avoid runoff into storm sewers and ditches which lead to waterways.

7 HANDLING AND STORAGE

HANDLING
Avoid contact with eyes.

STORAGE
Keep in original container.

8 EXPOSURE CONTROLS/PERSONAL PROTECTION

COMPONENT	STD	TWA (8-hrs)		STEL (15 min)		Notes
TRIETHANOLAMINE	ACGIH		5 mg/m3			

ACGIH=American Conference of Governmental Industrial Hygienists.

ENGINEERING MEASURES
Not relevant

RESPIRATORY EQUIPMENT
No specific recommendations.

HAND PROTECTION
Not applicable.

EYE PROTECTION
Wear eye protection if there is a risk of this product getting in the eyes.

9 PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE	Cream
COLOR	White / off-white.
ODOR	Fragrant
SOLUBILITY	Slightly soluble in water.
pH-VALUE, CONC. SOLUTION	5.3 - 6.3
VISCOSITY	Viscous

10 STABILITY AND REACTIVITY

STABILITY
Stable under normal temperature conditions.

CONDITIONS TO AVOID
There are no known conditions that are likely to result in a hazardous situation.

MATERIALS TO AVOID
No incompatible groups noted.

HAZARDOUS DECOMPOSITION PRODUCTS
None under normal conditions.

11 TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION
No information available.

SBS 40 Medicated Skin Cream

12 ECOLOGICAL INFORMATION

ECOTOXICITY
Not regarded as dangerous for the environment.

MOBILITY
The product contains substances, which are insoluble in water and which may spread on water surfaces.

BIOACCUMULATION
No data available on bioaccumulation.

ACUTE FISH TOXICITY
Not considered toxic to fish.

13 DISPOSAL CONSIDERATIONS

WASTE MANAGEMENT
When handling waste, consideration should be made to the safety precautions applying to handling of the product.

DISPOSAL METHODS
Dispose in accordance with local, state and federal regulations.

14 TRANSPORT INFORMATION

ROAD TRANSPORT NOTES	Not Classified
RAIL TRANSPORT NOTES	Not classified.
SEA TRANSPORT NOTES	Not classified.
AIR TRANSPORT NOTES	Not classified.
ENVIRONMENTALLY HAZARDOUS SUBSTANCE/MARINE POLLUTANT	No.
MARINE POLLUTANT	N/A.

15 REGULATORY INFORMATION

INVENTORIES

COMPONENT	CAN	US	EU	AUS	JAP	KOR	CHN	PHLP
PHENOXYETHANOL	Domest	Yes.	No.	Yes.	Yes.	Yes.	Yes.	Yes.
DIAZOLIDINYL UREA	Domest	Yes.						

COMPONENT	TSCA 12(b) Export Notification
PHENOXYETHANOL	No.
DIAZOLIDINYL UREA	No.

US FEDERAL REGULATIONS

COMPONENT	SARA 302-TPC	CERCLA-RQ	SARA 313
PHENOXYETHANOL	Not listed.	Not listed.	No.
DIAZOLIDINYL UREA	Not listed.	Not listed.	No.

CLEAN AIR ACT

COMPONENT	CAA Accidental Release Prevention
PHENOXYETHANOL	Not listed.
DIAZOLIDINYL UREA	Not listed.

SBS 40 Medicated Skin Cream

US STATE REGULATIONS

COMPONENT	CAS	CA	FL	MA	MN	NJ	PA	RI
PHENOXYETHANOL	122-99-6	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.
DIAZOLIDINYL UREA	78491-02-8	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.	Not listed.

REGULATORY STATUS (US)

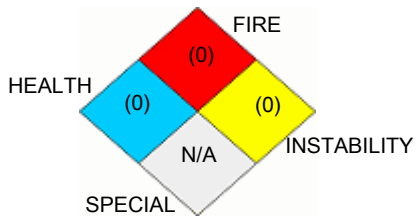
This product is manufactured and labeled in compliance with the Federal Food, Drug, and Cosmetic Act, and is exempt from the labeling requirements of the OSHA Hazard Communication Standard. All components of this product are either on the TSCA 8(b) inventory or otherwise exempt from listing.

16 OTHER INFORMATION

HAZARDOUS MATERIAL INFORMATION SYSTEM (HMIS)

HEALTH	0
FLAMMABILITY	0
PHYSICAL	0
PERSONAL PROTECTION	N/A.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)



REVISION COMMENTS

Formulation Changed

REVISION DATE 02/11/2013

VERSION No. 1

SDS NO. 10842

DISCLAIMER

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.

DOW CORNING

DOW CORNING CORPORATION
Material Safety Data Sheet

Version: 1.13
Revision Date: 2013/04/05

DOW CORNING(R) 732 MULTI -PURPOSE SEALANT CLEAR

1. PRODUCT AND COMPANY IDENTIFICATION

MSDS No.: 01890573

SUPPLIER:
Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

Prepared by Product Safety: (800) 248-2481
NEWALTA: (800) 567-7455
Revision Date: 2013/04/05

MANUFACTURER:
Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

24 Hour Emergency Telephone: (989) 496-5900

WHMIS CLASSIFICATION: Class D, Division 2, Subdivision A.
Class D, Division 2, Subdivision B.

Material Usage: Sealant and adhesive

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Generic Description: Silicone elastomer
Physical Form: Paste
Colour: Colorless
Odour: Acetic acid

Acetic acid is formed upon contact with water or humid air. Provide adequate ventilation to control exposures within guidelines of OSHA PEL: TWA 10 ppm and ACGIH TLV: TWA 10 ppm, STEL 15 ppm.

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POTENTIAL HEALTH EFFECTS

Acute Effects

Eye: Direct contact may cause mild irritation.

Skin: May cause mild irritation.

Inhalation: No significant effects expected from a single short-term exposure.

Oral: Low ingestion hazard in normal use.

Prolonged/Repeated Exposure Effects

Skin: No known applicable information.

Inhalation**:** No known applicable information.

Oral: No known applicable information.

Other Health Effects

This product contains a chemical(s) that has the following effect(s):
Reproductive Toxicity

See Section 11 for specific details.

Signs and Symptoms of Overexposure

No known applicable information.

Medical Conditions Aggravated by Exposure

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS Number	Wt %	Component Name
7631-86-9	7.0 - 13.0	Silicon dioxide
17689-77-9	1.0 - 5.0	Ethyltriacetoxysilane
4253-34-3	1.0 - 5.0	Methyltriacetoxysilane
556-67-2	0.1 - 1.0	Octamethylcyclotetrasiloxane

The ingredients listed above are controlled products as defined in CPR, am. SOR/88-555.

4. FIRST AID MEASURES

Eye: Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes while holding the eyelid(s) open. Obtain medical attention.

Skin: No health effects expected. If irritation does occur flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice.

Inhalation:	If symptoms are experienced remove source of contamination or move victim to fresh air. If irritation persists, obtain medical advice.
Oral:	If irritation or discomfort occur, obtain medical advice.
Notes to Physician:	Treat according to person's condition and specifics of exposure.

5. FIRE-FIGHTING MEASURES

Flash Point:	Not applicable. Not applicable.
Autoignition Temperature:	Not available.
Flammability Limits in Air:	Not available.
Extinguishing Media:	On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO2), dry chemical or water spray. Water can be used to cool fire exposed containers.
Fire Fighting Measures:	Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.
Unusual Fire Hazards:	None.

6. ACCIDENTAL RELEASE MEASURES

Containment/Clean up:	Observe all personal protection equipment recommendations described in Sections 5 and 8. Wipe up or scrape up and contain for salvage or disposal. Clean area as appropriate since spilled materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, provincial, federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases.

Note: See Section 8 for Personal Protective Equipment for Spills. Refer to Section 1 to obtain telephone numbers, if additional information is required.

7. HANDLING AND STORAGE

Use with adequate ventilation. Product evolves acetic acid (HOAc) when exposed to water or humid air. Provide ventilation during use to control HOAc within exposure guidelines or use respiratory protection. Avoid eye contact. Avoid skin contact.

Keep container closed and store away from water or moisture.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Consult local authorities for acceptable provincial values.

CAS Number	Component Name	Exposure Limits
7631-86-9	Silicon dioxide	OSHA PEL (final rule): TWA 80mg/m3 SiO2. NIOSH REL: TWA 6mg/m3. LC50: > 2.08 mg/l - Inhalation Rat ; 4hr dust/mist LD50: > 3,300 mg/kg - Oral Rat LD50: > 5,000 mg/kg - Dermal Rabbit
17689-77-9	Ethyltriacetoxysilane	See acetic acid comments. LD50: 380 mg/kg - Oral Rat
4253-34-3	Methyltriacetoxysilane	See acetic acid comments. LD50: 1,550 mg/kg - Oral Rat
556-67-2	Octamethylcyclotetrasiloxane	Dow Corning guide: TWA 10 ppm. LC50: 2975 PPM - Inhalation Rat ; 4hr vapor LD50: > 4,800 mg/kg - Oral Rat LD50: > 2.5 ML/KG - Dermal Rabbit

Acetic acid is formed upon contact with water or humid air. Provide adequate ventilation to control exposures within guidelines of OSHA PEL: TWA 10 ppm and ACGIH TLV: TWA 10 ppm, STEL 15 ppm.

Engineering Controls

Local Ventilation:	None should be needed.
General Ventilation:	Recommended.

Personal Protective Equipment for Routine Handling

Eyes:	Use proper protection - safety glasses as a minimum.
Skin:	Wash at mealtime and end of shift. Contaminated clothing and shoes should be removed as soon as practical and thoroughly cleaned before reuse. Chemical protective gloves are recommended.
Suitable Gloves:	Handle in accordance with good industrial hygiene and safety practices.
Inhalation:	No respiratory protection should be needed.
Suitable Respirator:	None should be needed.

Personal Protective Equipment for Spills

Eyes:	Use proper protection - safety glasses as a minimum.
Skin:	Wash at mealtime and end of shift. Contaminated clothing and shoes should be removed as soon as practical and thoroughly cleaned before reuse. Chemical protective gloves are recommended.
Inhalation/Suitable Respirator:	No respiratory protection should be needed.
Precautionary Measures:	Avoid eye contact. Avoid skin contact. Use reasonable care.
Comments:	Product evolves acetic acid (HOAc) when exposed to water or humid air. Provide ventilation during use to control HOAc within exposure guidelines or use respiratory protection.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Paste
Color:	Colorless
Odor:	Acetic acid
Odor Threshold:	Not available.
Specific Gravity @ 25°C:	1.04
Viscosity:	Not available.
Freezing/Melting Point:	Not available.
Boiling Point:	Not available.
Vapor Pressure @ 25°C:	Not available.
Vapor Density:	Not available.
Evaporation Rate:	Not available.
Solubility in Water:	Not available.
Coefficient of Water/Oil Distribution:	Not available.
pH:	Not available.
Volatile Content:	Not available.
Flash Point:	Not applicable. Not applicable.
Autoignition Temperature:	Not available.
Flammability Limits in Air:	Not available.

Note: The above information is not intended for use in preparing product specifications. Contact Dow Corning before writing specifications.

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable.

Hazardous Polymerization:	Hazardous polymerization will not occur.
Conditions to Avoid:	None.
Materials to Avoid:	Oxidizing material can cause a reaction. Water, moisture, or humid air can cause hazardous vapors to form as described in Section 8.

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Formaldehyde.

11. TOXICOLOGICAL INFORMATION

Component Toxicology Information

Octamethylcyclotetrasiloxane administered to rats by inhalation at concentrations of 500 and 700 ppm resulted in statistically significant decreases in the number of pups born and the live litter size in both the first and second generations. Prolonged estrous cycles, and decreased mating and fertility indices were observed following 700 ppm exposure in the second generation only. There were also increases in the incidence of deliveries of offspring extending over an unusually long time period (dystocia).

Results from a 2 year repeated vapour inhalation exposure study to rats of octamethylcyclotetrasiloxane (D4) indicate effects (benign uterine adenomas) in the uterus of female animals. This finding occurred at the highest exposure dose (700 ppm) only.

Studies to date have not demonstrated if these effects occur through pathways that are relevant to humans.

Based on the available information on its potential to cause harm to human health, Health Canada, in a 2008 screening assessment, has concluded that octamethylcyclotetrasiloxane is not entering the environment in a quantity or concentration or under conditions that constitute or may constitute a danger in Canada to human life or health (http://www.ec.gc.ca/substances/ese/eng/challenge/batch2/batch2_556-67-2.cfm).

Repeated exposure in rats to D4 resulted in what appears to be protoporphyrin accumulation in the liver. Without knowledge of the specific mechanism leading to the protoporphyrin accumulation the relevance of this finding to humans is unknown.

Special Hazard Information on Components

Reproductive Toxicity

CAS Number	Wt %	Component Name	
556-67-2	0.1 - 1.0	Octamethylcyclotetrasiloxane	Evidence of reproductive effects in laboratory animals.

12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

Complete information is not yet available.

Environmental Effects

Complete information is not yet available.

Fate and Effects in Waste Water Treatment Plants

Complete information is not yet available.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

13. DISPOSAL CONSIDERATIONS

Can be incinerated in accordance with local regulations.

Call local hazardous waste disposal company or provincial waste authorities for more information. Refer to Section 1 to obtain telephone numbers, if additional information is required.

14. TRANSPORT INFORMATION

Canada Road (Based on IMDG Regulations)

Not subject to local road regulations.

Ocean Shipment (IMDG)

Not subject to IMDG code.

Air Shipment (IATA)

Not subject to IATA regulations.

Refer to Section 1 to obtain telephone numbers, if additional information is required.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

WHMIS CLASSIFICATION:	Class D, Division 2, Subdivision A. Class D, Division 2, Subdivision B.
DSL Status:	All chemical substances in this material are included on or exempted from the DSL.
TSCA Status:	All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

16. OTHER INFORMATION

Prepared by: Dow Corning Corporation

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

(R) indicates Registered Trademark

Revision Number: 005.2

Issue date: 11/19/2012

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Loctite(R) 515 Gasket Eliminator(R)
Product use: Sealant

IDH number: 270851
Item number: 51541
Region: Canada

Company address:
Henkel Canada Corporation
2515 Meadowpine Boulevard
Mississauga, Ontario L5N 6C3

Contact information:
Telephone: 905.814.6511
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical state: Gel
Color: Purple
Odor: Sharp

WHMIS hazard class: D.2.A, D.2.B

WARNING: MAY BE HARMFUL IF SWALLOWED.
MAY CAUSE ALLERGIC SKIN REACTION.
CAUSES EYE, SKIN AND RESPIRATORY TRACT IRRITATION.

Relevant routes of exposure: Eyes, Lungs, Skin

Potential Health Effects

Inhalation: May cause irritation to nose and throat.
Skin contact: May cause allergic skin reaction. Causes skin irritation.
Eye contact: Vapors may irritate eyes. Contact with eyes will cause irritation.
Ingestion: May cause gastrointestinal tract irritation if swallowed.

Existing conditions aggravated by exposure: Acrylic acid: Respiratory disorders. Lung disease.

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Polyurethane methacrylate resin	Proprietary	60 - 100
Polyglycol dimethacrylate	25852-47-5	10 - 30
Silica, amorphous, fumed, crystal-free	112945-52-5	5 - 10
Acrylic acid	79-10-7	1 - 5
Cumene hydroperoxide	80-15-9	1 - 5
Saccharin	81-07-2	1 - 5
Ethylene glycol	107-21-1	0.1 - 1
1-Acetyl-2-phenylhydrazine	114-83-0	0.1 - 1
Cumene	98-82-8	0.1 - 1

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If symptoms develop and persist, get medical attention.

Skin contact:	Remove contaminated clothing and footwear. Wash clothing before reuse. If symptoms develop and persist, get medical attention. Wash with soap and water.
Eye contact:	Get medical attention. Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time.
Ingestion:	Get medical attention. Do not induce vomiting. Keep individual calm.

5. FIRE FIGHTING MEASURES

Flash point:	> 93.3 °C (> 199.94 °F)
Autoignition temperature:	Not available.
Flammable/Explosive limits - lower:	Not available.
Flammable/Explosive limits - upper:	Not available.
Extinguishing media:	Foam, dry chemical or carbon dioxide.
Special firefighting procedures:	None
Unusual fire or explosion hazards:	None
Hazardous combustion products:	Oxides of sulfur. Oxides of carbon. Oxides of nitrogen. Irritating organic vapours.
Sensitivity to Mechanical Impact:	Not available.
Sensitivity to static discharge:	Not available.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:	Do not allow product to enter sewer or waterways.
Clean-up methods:	Ensure adequate ventilation. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Store in a partly filled, closed container until disposal.

7. HANDLING AND STORAGE

Handling:	Do not breathe gas/fumes/vapor/spray. Avoid contact with eyes, skin and clothing.
Storage:	For safe storage, store at or below 38 °C (100.4 °F)

For information on product shelf life contact Henkel Canada Customer Service at 800-263-5043.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Polyurethane methacrylate resin	None	None	None	None
Polyglycol dimethacrylate	None	None	None	None
Silica, amorphous, fumed, crystal-free	10 mg/m3 TWA Inhalable dust. 3 mg/m3 TWA Respirable fraction.	20 MPPCF TWA 0.8 mg/m3 TWA	None	None
Acrylic acid	2 ppm TWA (SKIN)	None	None	1 ppm TWA 3 ppm STEL (SKIN)
Cumene hydroperoxide	None	None	(SKIN) 1 ppm (6 mg/m3) TWA	None
Saccharin	None	None	None	None
Ethylene glycol	100 mg/m3 Ceiling Aerosol.	None	None	None
1-Acetyl-2-phenylhydrazine	None	None	None	None
Cumene	50 ppm TWA	50 ppm (245 mg/m3) TWA (SKIN)	None	None

Engineering controls: Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Respiratory protection: Use NIOSH approved respirator if there is potential to exceed exposure limit(s). Use an organic vapor respirator for concentrations exceeding the Occupational Exposure Limit.

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use impermeable gloves and protective clothing as necessary to prevent skin contact. Natural rubber gloves. Butyl rubber gloves. Neoprene gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Gel
Color: Purple
Odor: Sharp
Odor threshold: Not available.
pH: Not applicable
Vapor pressure: Not available.
Boiling point/range: Not available.
Melting point/ range: Not available.
Specific gravity: 1.1
Vapor density: Not available.
Flash point: > 93.3 °C (> 199.94 °F)
Flammable/Explosive limits - lower: Not available.
Flammable/Explosive limits - upper: Not available.
Autoignition temperature: Not available.
Evaporation rate: Not available.
Solubility in water: Slight
Partition coefficient (n-octanol/water): Not available.
VOC content: 1.41 %; 15.4 g/l

10. STABILITY AND REACTIVITY

Stability: Stable

Hazardous reactions: Will not occur.

Hazardous decomposition products: Oxides of sulfur. Oxides of carbon. Oxides of nitrogen. Irritating organic vapours.

Incompatible materials: Strong oxidizing agents.

Conditions to avoid: See "Handling and Storage" (Section 7) and "Incompatibility" (Section 10).

11. TOXICOLOGICAL INFORMATION

Acute oral product toxicity: LD50 (rat) > 5,000 mg/kg (Estimated)

Acute dermal product toxicity: LD50 (rabbit) > 2,000 mg/kg

Toxicologically synergistic products: Not available.

Refer to the following for Irritancy of Product, Sensitization to Product, Carcinogenicity, Reproductive Toxicity, Teratogenicity, and Mutagenicity.

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)	ACGIH Carcinogen
Polyurethane methacrylate resin	No	No	No	No
Polyglycol dimethacrylate	No	No	No	No
Silica, amorphous, fumed, crystal-free	No	No	No	No
Acrylic acid	No	No	No	Group A4
Cumene hydroperoxide	No	No	No	No
Saccharin	No	No	No	No
Ethylene glycol	No	No	No	Group A4
1-Acetyl-2-phenylhydrazine	No	No	No	No
Cumene	No	Group 2B	No	No

Hazardous components	LD50s and LC50s	Health Effects/Target Organs
Polyurethane methacrylate resin	None	Irritant, Allergen
Polyglycol dimethacrylate	None	Irritant, Allergen
Silica, amorphous, fumed, crystal-free	None	Nuisance dust
Acrylic acid	Oral LD50 (RAT) = 193 mg/kg Oral LD50 (RAT) = 2.5 g/kg Oral LD50 (RAT) = 33.5 mg/kg Oral LD50 (RAT) = 1,250 mg/kg Inhalation LC50 (RAT, 4 h) = 1,200 mg/l	Allergen, Corrosive, Irritant, Kidney, Liver
Cumene hydroperoxide	None	Allergen, Central nervous system, Corrosive, Irritant, Mutagen
Saccharin	None	No Target Organs
Ethylene glycol	Oral LD50 (RAT) = 5.89 g/kg Dermal LD50 (rabbit) = 9,530 mg/kg	Blood, Bone Marrow, Central nervous system, Developmental, Eyes, Irritant, Kidney, Liver, Metabolic
1-Acetyl-2-phenylhydrazine	None	Allergen, Blood, Kidney, Mutagen, Some evidence of carcinogenicity
Cumene	Oral LD50 (RAT) = 1,400 mg/kg Oral LD50 (RAT) = 2.91 g/kg Inhalation LC50 (RAT, 4 h) = 8,000 mg/l	Central nervous system, Irritant, Lung

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

14. TRANSPORT INFORMATION

The shipping classifications in this sections are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

Canada Transportation of Dangerous Goods - Ground

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

International Air Transportation (ICAO/IATA)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

Water Transportation (IMO/IMDG)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

15. REGULATORY INFORMATION

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: 9

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR), and the MSDS contains all the information required by the CPR.

Prepared by: Kyra Kozak Woods, Manager, Regulatory Affairs

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MATERIAL SAFETY DATA SHEET
HERTEL PLUS DISINFECTANT

Effective date:10-Apr-2013

SECTION 1 : IDENTIFICATION	
Product name:	HERTEL PLUS DISINFECTANT
Product Use:	Disinfectant - Degreaser
Chemical family :	Mixture
Supplier's name:	LAVO Inc
Address :	11900 Boul. Saint-Jean Baptiste Montréal, Québec Canada H1C 2J3
Telephone :	1-800-361-6898 or 514-526-7783
Emergency phone :	CANUTEC (transport) 1-613-996-6666

SECTION 2 : HAZARD IDENTIFICATION	
Emergency Overview	CAUTION / IRRITANT MAY CAUSE EYES IRRITATION. MAY CAUSE SKIN IRRITATION.
POTENTIAL HEALTH EFFECTS: Signs and symptoms of short-term (acute) exposure	
Eyes :	May cause irritation.
Skin :	May cause irritation.
Ingestion :	May cause stomach distress, nausea or vomiting.
Inhalation :	May cause respiratory tract irritation.
Target organs:	Eyes. Skin.
Effects of long-term (chronic) exposure :	Prolonged or repeated contact may cause drying, cracking and de-fatting of the skin.
Signs and symptoms:	Symptoms may include redness, oedema, drying, de-fatting and cracking of the skin. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Potential environmental effect :	Components of this product have been identified as having potential environmental concerns.

SECTION 3 : COMPOSITION/INFORMATION ON INGREDIENTS		
Ingredients	**CAS**	**Percentage**
Ethoxylated Alcohols C12-C16	68551-12-2	<5 %
Dipropylene glycol methyl ether	34590-94-8	<5 %
Sodium Metasilicate	6834-92-0	<1.5%
Alkyl dimethyl benzyl ammonium Chlorite	68424-85-1	<0.5%
Ethanol	64-17-5	<0.5%

SECTION 4 : FIRST AID MEASURES	
Eye contact :	Immediately flush with cool water. Remove contact lenses, if applicable, and continue flushing for 15 minutes. Obtain medical attention if irritation develops or persists.
Skin contact:	Flush with cool water. Obtain medical attention if irritation persists.
Ingestion :	Do not induce vomiting. Never give anything by mouth if victim is unconscious, or is convulsing. Obtain medical attention.
Inhalation :	If symptoms develop move victim to fresh air. If symptoms persist, obtain medical attention.
Notes for physician :	Treat symptomatically.
General advice :	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Avoid contact with eyes and skin. Keep out of reach of children.

SECTION 5 : FIRE FIGHTING MEASURES	
Fire hazards/conditions of flammability:	Not flammable by WHMIS criteria"
Extinguishing media:	Treat for surrounding material.
Protection of firefighters	
Specific hazards arising from the chemical:	Not available.
Protective equipment for firefighters:	Firefighters should wear full protective clothing including self contained breathing apparatus.
Hazardous combustion products :	Not available.

SECTION 6 : ACCIDENTAL RELEASE MEASURES	
Personal precautions:	Keep unnecessary personnel away. Do not touch or walk through spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Keep people away from and upwind of spill/leak..
Environmental precautions:	Do not discharge into lakes, streams, ponds or public waters.
Methods for containment:	Stop leak if you can do so without risk. Prevent entry into waterways, Sewers, basements or confined areas.
Methods for cleaning up :	Before attempting clean up, refer to hazard data given above. Small spills may be absorbed with non-reactive absorbent and placed in suitable, covered, labeled containers. Prevent large spills from entering sewers or waterways. Contact emergency services and supplier for advice. Never return spills in original containers for re-use.

SECTION 7 : HANDLING AND STORAGE	
Safe Handling procedures:	Use good industrial hygiene practices in handling this material. Avoid contact with eyes and skin.
Storage requirements :	Keep out of reach of children.
Storage temperature:	5-30 C. Do not freeze. Avoid high temperature.

SECTION 8 : EXPOSITION CONTROL/PERSONAL PROTECTION		
Exposition limit values	**ACGIH TLV**	
Ingredients	**CAS**	**TWA**
Ethoxylated Alcohols C12-C16	68551-12-2	Not available
Dipropylene glycol methyl ether	34590-94-8	100ppm Dermal
Sodium Metasilicate	6834-92-0	Not available
Alkyl dimethyl benzyl ammonium Chlorite	68424-85-1	Not available
Ethanol	64-17-5	1000ppm
Engineering controls:	General ventilation normally adequate.	
Eye/Face protection:	Safety glasses or a facial screen if eye contact is possible.	
Skin and body protection:	Rubber gloves. Confirm with a reputable supplier first.	
Respiratory protection:	Where exposure guideline levels may be exceeded, use an approved NIOSH respirator.	
General hygiene considerations:	Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink. Wash hands before breaks and immediately after handling the product.	

SECTION 9 : PHYSICAL AND CHEMICAL PROPERTIES			
Physical state	Liquid	Appearance	Viscous colored liquid
Odor	Fragrant various	Odor threshold	Not available
pH	12.0 – 13.0	Water Solubility	Completely miscible
Boiling point	Not available	Evaporation Rate	Not available
Freezing point	Not available	Viscosity	Not available
Vapour Pressure	Not available	Auto-ignition temperature	Not available
Flash point / Poor point	Not available	Flammability limits in air, lower	Not available
Density	1.00 – 1.02	Flammability limits in air, upper	Not available
Repartition Coefficient water/oil	Not available	Vapor density	Not available

SECTION 10 : STABILITY AND REACTIVITY	
Reactivity:	This product may react with strong acids.
Possibility of hazardous reactions:	Hazardous polymerization does not occur.
Chemical stability:	Stable under recommended storage conditions.
Conditions to avoid:	Do not mix with other chemicals.
Incompatible materials:	Acids.
Hazardous decomposition products:	May include and are not limited to: Oxides of carbon. Oxide of nitrogen.

SECTION 11 : TOXICOLOGICAL INFORMATION

Ingredients	CAS	LC50(4hr)inh, rat	LD50 (Oral, rat)	LD50 (Rat, dermal)
Ethoxylated Alcohols C12-C16	68551-12-2	1.5 à 20.7 mg/L	>1700 mg/kg	>2000mg/kg
Dipropylene glycol methyl ether	34590-94-8	>661ppm	>5000 mg/kg	9510mg/kg (rabbit)
Sodium Metasilicate	6834-92-0	Not available	1153mg/kg	>4640mg/kg
Alkyl dimethyl benzyl ammonium Chlorite	68424-85-1	Not available	530 mg/kg	530 mg/kg
Ethanol	64-17-5	400mg/L	7060 mg/kg	>1990 mg/kg

Effects of acute exposure:	
eyes :	May cause irritation.
Skin :	May cause irritation.
Inhalation:	May cause respiratory tract irritation.
Ingestion :	May cause stomach distress, nausea or vomiting.
Sensitization to material :	Non-hazardous by WHMIS criteria.
Chronic effects:	Non-hazardous by WHMIS criteria.
Carcinogenicity :	Non-hazardous by WHMIS criteria.

ACGH – Threshold limit values – Skin notations		
Ethanol:	64-17-5	A3 – Confirmed animal carcinogen with unknown relevance to humans.

IARC – Group 1 (carcinogenic to humans)		
Ethanol:	64-17-5	Monograph 100E (in preparation) (alcoholic beverages);Monograph 96 (2010) (alcoholic beverages)

Reproductive effects:	Non-hazardous by WHMIS criteria.
Teratogenicity :	Non-hazardous by WHMIS criteria.
Mutagenicity:	Non-hazardous by WHMIS criteria.
Synergistic Products :	Not available.

SECTION 12 : ECOLOGICAL INFORMATION

Eco toxicity :	**CAS**	**Ecotoxicity - Freshwater Fish - Acute Toxicity Data**
Ethoxylated Alcohols C12-C16	68551-12-2	96h [static] LC50 Oncorhynchus mykiss: 1 à 10 mg/L
Dipropylene glycol methyl ether	34590-94-8	96h [static] LC50 Pimephales promelas: >10000 mg/L
Sodium Metasilicate	6834-92-0	Not available
Alkyl dimethyl benzyl ammonium Chlorite	68424-85-1	96h LC50 Sriped bass (morone saxatis):19.1 mg/L
Ethanol	64-17-5	96h [static] LC50 (Oncohynchus mykiss):12.0 – 16.0mL/L; 96h [static] LC50 (Pimephales promelas): >100mg/L; 96h LC50 (Pimephales promelas):13400 - 15100mg/L flow through
Eco toxicity :	**CAS**	**Ecotoxicity - Water Flea - Acute Toxicity Data**
Ethoxylated Alcohols C12-C16	68551-12-2	48h [static] EC50 Daphnia magna: 0.1 à 2.7 mg/L
Dipropylene glycol methyl ether	34590-94-8	48h LC50 Daphnia Magna :1919 mg/L
Sodium Metasilicate	6834-92-0	Not available
Alkyl dimethyl benzyl ammonium Chlorite	68424-85-1	Not available
Ethanol	64-17-5	48h LC50 Daphnia magna: 9268 – 14221 mg/L; 24h EC50 Daphnia magna: 10800mg/L; 48h [static] EC50 Daphnia magna: 2mg/L
Bioaccumulation Potential:	Not available.	
Mobility in environmental media :	Not available.	
Environmental effects:	Not available.	
Aquatic toxicity:	Not available.	
Partition coefficient	Not available.	
Chemical fate information :	Not available.	
Other adverse effects ;	Not available.	

SECTION 13 : DISPOSAL CONSIDERATIONS

Disposal instructions: Dispose in accordance with all applicable federal, state, provincial and local regulations.

Waste from residues / Unused products: Not available.

Contaminated packaging : Not available.

SECTION 14 : TRANSPORT INFORMATION

Transportation of Dangerous Goods (TDG - Canada): Not regulated as dangerous goods.

SECTION 15 : REGULATORY INFORMATION

Canadian federal regulations: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Canada WHMIS – Ingredient disclosure list:

Ingredients	**CAS**	**%**
Sodium Metasilicate	6834-92-0	1%
Ethanol	64-17-5	0.1%
WHMIS classification :		Class D 2B
WHMIS status:		Controlled

WHMIS labeling:



Canadian Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDLS) or exempt.

SECTION 16 : OTHER INFORMATION	
HMIS Rating;	**Chronic hazard:** 0- Minimal 1-Slight 2-Moderate 3-Serious Health : 1 Flammability : 0 Reactivity : 0
Disclaimer of liability:	The information in the Material Safety Data Sheet is offered for your consideration and guidance when exposed to this product. Lavo Inc. expressly disclaims all expressed or implied warranties for the accuracy or completeness of the data contained herein and assumes no responsibilities for any involved damages by above data. Product's users have to do their own tests to establish the applicability of the information for a specific use of the product. MSDS data does not apply to use with any other product or in any other process.
Other information :	For an updated MSDS, please contact the supplier/manufacturer listed on the first page of the document. References: MSDS of suppliers SIMDUT regulation
Prepared by :	Lavo Inc. 11900 Boul. Saint-Jean Baptiste Montreal, QC, Canada H1C 2J3 Téléphone : 1- 800-361-6898 www.lavo.ca
Issuing date : 10-Apr-2013	**Due date :** Apr-2016

Material Safety Data Sheet

GASOLINE, UNLEADED

1 . Product and company identification

Product name : GASOLINE, UNLEADED

Synonym : Regular, Unleaded Gasoline (US Grade), Mid-Grade, Plus, Super, WinterGas, SummerGas, Supreme, SuperClean WinterGas, RegularClean, PlusClean, Premium, marked or dyed gasoline, TQRUL, transitional quality regular unleaded, BOB, Blendstock for Oxygenate Blending, Conventional Gasoline.

Code : W102E, SAP: 102 to 117

Material uses : Unleaded gasoline is used in spark ignition engines including motor vehicles, inboard and outboard boat engines, small engines such as chain saws and lawn mowers, and recreational vehicles.

Manufacturer : PETRO-CANADA
P.O. Box 2844
150 – 6th Avenue South-West
Calgary, Alberta
T2P 3E3

In case of emergency : Petro-Canada: 403-296-3000
Canutec Transportation: 613-996-6666
Poison Control Centre: Consult local telephone directory for emergency number(s).

2 . Hazards identification

Physical state : Clear liquid.

Odour : Gasoline

WHMIS (Canada) :



Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Emergency overview : WARNING!

FLAMMABLE LIQUID AND VAPOUR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER. CONTAINS MATERIAL WHICH MAY CAUSE HERITABLE GENETIC EFFECTS.

Flammable liquid. Irritating to eyes, respiratory system and skin. Keep away from heat, sparks and flame. Avoid exposure - obtain special instructions before use. Do not breathe vapour or mist. Avoid contact with eyes, skin and clothing. Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure. Contains material which may cause heritable genetic effects. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : Inhalation of this product may cause respiratory tract irritation. Inhalation of this product may cause respiratory tract irritation and Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death.

Ingestion : Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract. Ingestion of this product may cause Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death.

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2 . Hazards identification

Skin : Irritating to skin.

Eyes : Irritating to eyes.

Potential chronic health effects

Chronic effects : This product contains an ingredient or ingredients, which have been shown to cause chronic toxic effects. Repeated or prolonged exposure to the substance can produce blood disorders.

Carcinogenicity : Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.

Mutagenicity : Contains material which may cause heritable genetic effects.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure : Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated skin exposure can produce local skin destruction or dermatitis.

See toxicological information (Section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Gasoline	86290-81-5	85-100
Toluene	108-88-3	15-40*
Benzene	71-43-2	0.5-1.5
Ethanol	64-17-5	0.1-0.3

**Montreal: may vary from 3-40%*
**Edmonton: may vary from 1-5%*

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4 . First-aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Notes to physician : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

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5 . Fire-fighting measures

Flammability of the product : Flammable liquid (NFPA) .

Extinguishing media

Suitable : Use dry chemical, CO_2, water spray (fog) or foam.

Not suitable : Do not use water jet.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Products of combustion : Carbon oxides (CO, CO2), nitrogen oxides (NOx), polynuclear aromatic hydrocarbons, phenols, aldehydes, ketones, smoke and irritating vapours as products of incomplete combustion.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Extremely flammable in presence of open flames, sparks, shocks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. Rapid escape of vapour may generate static charge causing ignition. May accumulate in confined spaces.

Special remarks on explosion hazards : Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Containers may explode in heat of fire. Vapours may form explosive mixtures with air.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Avoid exposure - obtain special instructions before use. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly

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7 . Handling and storage

closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination. Ensure the storage containers are grounded/bonded.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Gasoline	**ACGIH TLV (United States).** TWA: 300 ppm 8 hour(s). STEL: 500 ppm 15 minute(s).
Toluene	**ACGIH TLV (United States).** TWA: 20 ppm 8 hour(s).
Benzene	**ACGIH TLV (United States). Absorbed through skin.** TWA: 0.5 ppm 8 hour(s). STEL: 2.5 ppm 15 minute(s).
Ethanol	**ACGIH TLV (United States).** STEL: 1000 ppm 15 minute(s).

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: A NIOSH-approved air-purifying respirator with an organic vapour cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstances where air-purifying respirators may not provide adequate protection.

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8 . Exposure controls/personal protection

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Recommended: polyvinyl alcohol (PVA), Viton®. Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns. It should be realized that eventually any material regardless of their imperviousness, will get permeated by chemicals. Therefore, protective gloves should be regularly checked for wear and tear. At the first signs of hardening and cracks, they should be changed.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Clear liquid.

Flash point : Closed cup: -50 to -38°C (-58 to -36.4°F) [Tagliabue.]

Auto-ignition temperature : 257°C (494.6°F) (NFPA)

Flammable limits : Lower: 1.3% (NFPA)
Upper: 7.6% (NFPA)

Colour : Clear to slightly yellow or green, undyed liquid. May be dyed red for taxation purposes.

Odour : Gasoline

Odour threshold : Not available.

pH : Not available.

Boiling/condensation point : 25 to 220°C (77 to 428°F) (ASTM D86)

Melting/freezing point : Not available.

Relative density : 0.685 to 0.8 kg/L @ 15°C (59°F)

Vapour pressure : <107 kPa (<802.5 mm Hg) @ 37.8°C (100°F)

Vapour density : 3 to 4 [Air = 1] (NFPA)

Volatility : Not available.

Evaporation rate : Not available.

Viscosity : Not available.

Pour point : Not available.

Solubility : Hydrocarbon components virtually insoluble in water. Soluble in alcohol, ether, chloroform and benzene. Dissolves fats, oils and natural resins.

10 . Stability and reactivity

Chemical stability : The product is stable.

Hazardous polymerisation : Under normal conditions of storage and use, hazardous polymerisation will not occur.

Materials to avoid : Reactive with oxidising agents, acids and interhalogens.

Hazardous decomposition products : May release COx, NOx, phenols, polycyclic aromatic hydrocarbons, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

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11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Gasoline	LD50 Dermal	Rabbit	>5000 mg/kg	-
	LD50 Oral	Rat	13600 mg/kg	-
Toluene	LD50 Dermal	Rabbit	12125 mg/kg	-
	LD50 Oral	Rat	636 mg/kg	-
	LC50 Inhalation Vapour	Rat	7585 ppm	4 hours
Benzene	LD50 Dermal	Rabbit	>8240 mg/kg	-
	LD50 Oral	Rat	930 mg/kg	-
	LC50 Inhalation Vapour	Rat	13700 ppm	4 hours
Ethanol	LD50 Oral	Rat	7060 mg/kg	-
	LC50 Inhalation Vapour	Rat	>32380 ppm	4 hours

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Gasoline	A3	2B	-	-	-	-
Toluene	A4	3	D	-	-	-
Benzene	A1	1	A	+	Proven.	+
Ethanol	A3	-	-	-	-	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : There is a wealth of information about the teratogenic hazards of Toluene in the literature; however, based upon professional judgement regarding the body of evidence, WHMIS classification as a teratogen is not warranted.

Reproductive toxicity

Conclusion/Summary : Not available.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

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13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	UN1203	GASOLINE	3	II		-
DOT Classification	Not available.	Not available.	Not available.	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Flammable liquid
Irritating material
Carcinogen

Canada

WHMIS (Canada) : Class B-2: Flammable liquid
Class D-2A: Material causing other toxic effects (Very toxic).
Class D-2B: Material causing other toxic effects (Toxic).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

Canada inventory : All components are listed or exempted.

United States inventory (TSCA 8b) : All components are listed or exempted.

Europe inventory : All components are listed or exempted.

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16 . Other information

Label requirements : FLAMMABLE LIQUID AND VAPOUR. CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER. CONTAINS MATERIAL WHICH MAY CAUSE HERITABLE GENETIC EFFECTS.

Hazardous Material Information System (U.S.A.) :

Health	*	2
Flammability		3
Physical hazards		0
Personal protection		H

National Fire Protection Association (U.S.A.) :



References : Available upon request.
™ Trademark of Suncor Energy Inc. Used under licence.

Date of printing : **10/10/2012.**

Date of issue : 10 October 2012

Date of previous issue : 4/9/2010.

Responsible name : **Product Safety - DSR**

Indicates information that has changed from previously issued version.

For Copy of (M)SDS : Internet: www.petro-canada.ca/msds

Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228

For Product Safety Information: (905) 804-4752

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

ITW Dymon

MATERIAL SAFETY DATA SHEET

Prepared: 07 Sept. 2012

Section 1 – Product and Company Identification

Product(s): SCRUBS® White Board Cleaner Wipes
Formula: B908
Part Number(s): 90801, 90891

Company Name & Address:

ITW Dymon
805 E. Old 56 Hwy.
Olathe, KS 66061
800-443-9536 (8 a.m. – 5 p.m. Weekdays, CDT)

Emergency Numbers: IN CASE OF EMERGENCY, CALL Infotrac @ 1-800-535-5053, 24 hrs.
INTERNATIONAL EMERGENCY NUMBER 352-323-3500
Poison Control Center: 1-800-222-1222

Material Safety Data Sheets: www.dymon.com

Section 2 – Hazards Identification

Towel contact with eyes may cause irritation. Do no use for personal hygiene or as a baby wipe.

Potential Health Effects

EYES:	May cause eye irritation.
SKIN:	Repeated overexposure may cause skin irritation.
INHALATION:	Overexposure to vapors (unlikely) may upper respiratory tract irritation, drowsiness or dizziness.
INGESTION:	Swallowing large amounts may be harmful.
Signs/symptoms of exposure: redness, tearing or burning in eyes. Redness, drying or cracking of skin. Gastrointestinal irritation if swallowed. Overexposure to vapors (unlikely) may cause central nervous system effects such as drowsiness, dizziness, fatigue or loss of coordination. Medical conditions generally aggravated by exposure: pre-existing skin conditions such as dermatitis may be adversely affected by this product. Follow good chemical hygiene practices to avoid complications.	

HMIS Rating Health – 0 Flammability – 0 Reactivity – 0 Personal Protection – None

Section 3 – Composition/Information on Ingredients

Ingredient	CAS Number	Percent Range
Water	7732-18-5	60 – 100

Any substance listed as hazardous by the states of California, Florida, Illinois, Michigan, New Jersey, Ohio, Pennsylvania or Texas is described above if known present in regulated concentrations.

Section 4 – First Aid Measures

EYES:	Flush eyes with large amounts of water for at least 15 minutes while holding eyelids open. Seek medical attention immediately.
SKIN:	If irritation arises and persists seek medical attention.
INHALATION:	Unlikely route as liquid is impregnated on a towel, minimizing exposure via this route. If overexposed move to fresh air. If symptoms develop seek medical attention.
INGESTION:	Not a likely exposure route. If a large quantity of liquid is swallowed, do not induce vomiting, call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

Section 5 – Fire Fighting Measures

Flashpoint (PMCC): None to boiling, solution on towel.
Extinguishing Media: Not usually needed as product does not readily support combustion. Use media appropriate for fire's fuel source.

Special Fire Fighting Procedures:	Keep containers cool and vapors down with water spray. Prevent runoff from entering sewers and public waterways.
Hazardous Products of Combustion:	Carbon monoxide, carbon dioxide, smoke and soot.

Section 6 – Accidental Release Measures

Small spill:	Caution, slip hazard. Wipe up small releases with a dry absorbent cloth or other absorbent material.
Large spill:	Absorb liquid with vermiculite, absorbent cloth, or other absorbent material. Prevent material from entering sewers and drains. Ventilate area and block traffic. Transfer contaminated material into suitable container for proper disposal. Clean any slippery residues with soap and water.

Section 7 – Handling and Storage

Handling:	Do not allow towel contact with eyes. Wash thoroughly after handling. Avoid inhaling vapors. Follow good chemical hygiene practices when handling this material. Use from original container only and follow label directions carefully.
Storage:	Keep container closed when not in use. Store in a cool well-ventilated area. Keep out of reach of children. Do not contaminate water, food or feed by use or storage. Keep from freezing.

Section 8 – Exposure Controls/Personal Protection

Engineering controls:	Ventilation not usually necessary but should be provided in the event of overexposure.
Exposure limits:	No data.
Eye protection:	None necessary. Do not allow towel to directly contact eyes.
Skin protection:	None necessary. If repeated or prolonged contact is possible, wear impervious gloves.
Respiratory protection:	Not usually necessary. If vapors are present or irritation is experienced, use NIOSH/MSHA approved respirator.

Section 9 – Physical and Chemical Properties

Appearance and Odor: Colorless liquid with floral scent saturated onto towels.

pH: 4.5 +/- 0.5	Boiling Point: 212° F	Specific Gravity: 1.002 g/mL
Vapor Density: >1	Vapor Pressure: No Data	Solubility in Water: Complete
Evaporation Rate: No Data	Volatile Organic Compounds (VOCs): 0% by weight	

Section 10 – Stability and Reactivity

Hazardous Polymerization:	This product will not undergo hazardous polymerization.
Hazardous Decomposition or Byproducts:	Carbon monoxide, carbon dioxide, smoke and soot.
Chemical Stability:	Stable
Incompatible Materials:	Strong oxidizers, acids or bases.

Section 11 – Toxicological Information

No data.

Section 12 – Ecological Information

No data.

Section 13 – Disposal Considerations

Dispose of in accordance with all applicable local, state, and federal regulations.

Waste information: If this product becomes a waste, it would not be hazardous as defined by RCRA (40CFR261). However the waste should be properly evaluated in case of modification prior to disposal.

Section 14 – Transport Information

The following transportation information is based on Department of Transportation Regulations found in 49 CFR. If shipping this product by air please refer to International Air Transport Association (IATA) Dangerous Goods Regulations. If shipping this product by ocean please refer to International Maritime Dangerous Goods Regulations (IMDG). To find how to ship this product please refer to the UN# listed below.

	UN #	Proper Shipping Description	Hazard Class	Packing Group
DOT Information	None	Not Regulated	None	None

Marine Pollutants: None

Section 15 – Regulatory Information

US Federal Regulations

Toxic Substances Control Act (TSCA): All ingredients are on the TSCA inventory or exempt from listing.

CERCLA RQ

None

SARA 313 Components

None

State and Local Regulations

California Proposition 65

None

Section 16 – Other Information

WARNING! The use of this product is beyond the control of the manufacturer; therefore, no guarantee, expressed or implied, is made as to the effects of such or the results to be obtained if not used in accordance with directions or established safe practice. The user must assume all responsibility, including injury or damage, resulting from its misuse as such, or in combination with other materials. The manufacturer warrants only that this product meets the manufacturer's specifications for such product. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, AS TO DESCRIPTION, QUALITY, and MERCHANTABILITY. FITNESS FOR ANY PARTICULAR PURPOSE, PRODUCTIVENESS OR ANY OTHER MATTER, OF THIS PRODUCT. THE MANUFACTURER SHALL BE IN NO WAY RESPONSIBLE FOR THE IMPROPER USE OF THIS PRODUCT. The sole and exclusive remedy against the manufacturer for breach of warranty shall be reimbursement of the purchase price of the product in the event that a defective condition of the product shall be found to exist. NO OTHER REMEDY (INCLUDING BUT NOT LIMITED TO INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR INJURY TO PERSON OR PROPERTY OR ANY OTHER INCIDENTAL OR CONSEQUENTIAL LOSS) SHALL BE AVAILABLE.

Date: 2 March 2012
Supercedes: New

MATERIAL SAFETY DATA SHEET

IN CASE OF EMERGENCY CALL CHEMTREC AT 1-800-424-9300

1. PRODUCT IDENTIFICATION AND COMPANY IDENTIFICATION:

Product Name: **PURELL Advanced Moisturizing Foam Hand Rub**

Company Name & Address: GOJO Industries, Inc.
One GOJO Plaza, Suite 500
Akron, OH 44311

Emergency Phone: **1-800-424-9300 CHEMTREC**
Non-Emergency Phone: (330) 255-6000
MSDS Request Phone: (330) 255-6000 x8804

2. INFORMATION ON INGREDIENTS:

HAZARDOUS INGREDIENTS	CAS NUMBER	OSHA PEL	ACGIH TLV	% RANGE
Ethyl Alcohol	64-17-5	1000 ppm	1000 ppm	70
Isopropanol	67-63-0	400 ppm	200 ppm	<5
Glycerin, as mist	56-81-5	TWA: 5 mg/m^3	TWA: 10 mg/m^3	<5

Other ingredient(s) with notification requirements:	CAS NUMBER	List
Ethyl Alcohol	64-17-5	MA 1; NJ 1S; PA 1; CN 2
Isopropanol	67-63-0	MA 1; NJ 1S; PA; CN
Glycerin, as mist	56-81-5	MA 1; PA 1

3. HAZARDS IDENTIFICATION:

EMERGENCY OVERVIEW

When used according to instructions, the product applicable to this MSDS is safe and presents no immediate or long-term health hazard. However, abnormal entry routes, such as gross ingestion, may require immediate medical attention.

Potential Health Effects:

HMIS: Health 2 Flammability 3 Reactivity 0 Personal Protection None

Eye Contact: May cause eye irritation.
Skin Contact: No irritation or reaction expected.
Inhalation: Not applicable.
Ingestion: May cause upset stomach, nausea (Abnormal entry route).
Carcinogenicity: Not listed as a carcinogen by NTP, IARC, OSHA or ACGIH.

4. FIRST AID MEASURES:

Eye Contact: Do not rub eyes. Flush eyes thoroughly with water for 15 minutes. If condition worsens or irritation persists, contact physician.
Skin Contact: Not applicable.
Inhalation: Not applicable.
Ingestion: Do not induce vomiting. Contact a physician or Poison Control Center.

5. FIRE FIGHTING MEASURES:

NFPA: Health 2 Fire 3 Reactivity 0

Flashpoint °F/°C (PMCC method): 78.8°F/ 26°C
Unusual Fire and Explosion Hazards: Product is flammable due to alcohol content.
Special Fire Fighting Procedures: None known.

Extinguishing Media: X Water Fog X Alcohol Foam X CO_2 X Dry Chemical ____ Other

6. ACCIDENTAL RELEASE MEASURES:

Avoid contact with ignition sources since product is flammable. Absorb onto inert material and dispose in appropriate manner. Water clean up and rinse. CAUTION – WILL CAUSE SLIPPERY SURFACES.

7. HANDLING AND STORAGE:

Keep away from fire or flame. Store at normal room temperature away from reach of small children. Keep containers sealed. Use older containers first. Avoid freezing conditions.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

Eye Protection:	None required under normal conditions.
Skin Protection:	None required under normal conditions.
Respiratory Protection:	None required under normal conditions.
Ventilation:	None required under normal conditions.
Protective Equipment or Clothing:	None required under normal conditions.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance and Odor	Clear liquid, fragrance-free
pH (undiluted):	6 - 9
VOC , %:	< 75

10. STABILITY AND REACTIVITY:

Stable/Non reactive product. Avoid ignition sources.

11. TOXICOLOGICAL INFORMATION:

No acute or chronic toxic effects expected when used according to directions.

12. ECOLOGICAL CONSIDERATIONS:

No ecological or special considerations when used according to directions. Not considered environmentally harmful from normal dilution, expected usage and typical drainage to sewers, septic systems and treatment plants.

13. DISPOSAL CONSIDERATIONS:

Characteristic hazardous waste-flammable liquid. Dispose according to local, state and Federal regulations.

14. TRANSPORT INFORMATION:

Hazardous by transport regulations. When transported by ground modes in the U.S., this product is typically shipped as Consumer Commodity ORM-D. When transported by water, this product is typically shipped as a UN1170 in Limited Quantities. Refer to all current transport regulations for exact requirements.

15. REGULATORY AND OTHER INFORMATION:

TSCA: All ingredients are listed or exempt per reference 15 USC 2602 (2)(B)(iv).

Complies with current FDA regulations for cosmetic and/or over-the-counter drug products.

WHMIS: Exempt under the Food and Drug Act

Notice: The information herein is based on data considered to be accurate as of the date of preparation of this material safety data sheet. However, no warranty or representation, expressed or implied, is made as to the accuracy or completeness of the foregoing data and safety information. The user assumes all liability for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices or from any hazards inherent in the nature of the product.

Material Safety Data Sheet

Revision Number: 002.0 **Issue date:** 07/08/2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **LePage® PL9000® Heavy Duty Construction Adhesive**
Product use: Solvent based adhesive

IDH number: 1421925

Region: Canada

Company address:
Henkel Canada Corporation
2515 Meadowpine Boulevard
Mississauga, Ontario L5N 6C3

Contact information:
Telephone: 800.624.7767
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical state: pasty
Color: Beige
Odor: Slightly, mineral-oil-like

WHMIS hazard class: B.2, D.2.B

DANGER**:** FLAMMABLE LIQUID AND VAPOR.
VAPOR MAY CAUSE FLASH FIRE.
MAY BE HARMFUL IF SWALLOWED OR INHALED.
MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.

Relevant routes of exposure: Inhalation, Skin contact

Potential Health Effects

Inhalation: May irritate the nose and respiratory system. Vapors may cause headaches, nausea, dizziness and respiratory tract irritation. Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

Skin contact: Prolonged and/or repeated skin contact with this product may cause irritation/dermatitis.

Eye contact: Contact with eyes can cause eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Ingestion: Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Existing conditions aggravated by exposure: Eye, skin and respiratory disorders.

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
n-Heptane	142-82-5	10 - 30
Limestone	1317-65-3	10 - 30
Phenolic resin	25085-50-1	10 - 30
Methylcyclohexane	108-87-2	1 - 5
Octane	111-65-9	1 - 5
Magnesium oxide	1309-48-4	1 - 5

4. FIRST AID MEASURES

Inhalation: If inhaled, immediately remove the affected person to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. If symptoms develop and persist, get medical attention.

Skin contact: Immediately flush skin with plenty of water (using soap, if available). Remove contaminated clothes. If symptoms develop and persist, get medical attention.

Eye contact: In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention.

Ingestion: Do not induce vomiting, seek medical advice immediately.

5. FIRE FIGHTING MEASURES

Flash point: -14 °C (6.8 °F) no method

Autoignition temperature: Not available.

Flammable/Explosive limits - lower: Not available.

Flammable/Explosive limits - upper: Not available.

Extinguishing media: Water spray (fog), foam, dry chemical or carbon dioxide. Do not direct a solid stream of water or foam into hot, burning pools; this may result in frothing and increase fire intensity. In case of fire, keep containers cool with water spray.

Special firefighting procedures: Wear a self-contained breathing apparatus with a full face piece operated in pressure-demand or other positive pressure mode. Wear full protective clothing.

Unusual fire or explosion hazards: Closed containers may explode when exposed to extreme heat. Vapors may form explosive mixtures with air. Vapors are heavier than air and may travel along floor to an ignition source. Fumes and vapors from thermal decompositions vary in composition and toxicity.

Hazardous combustion products: Carbon dioxide. Carbon monoxide. Acrid smoke and fumes.

Sensitivity to Mechanical Impact: Not sensitive to mechanical impact.

Sensitivity to static discharge: Electrostatic charge may build-up during handling. Grounding of equipment is recommended.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Eliminate all sources of ignition or flammables that may come into contact with a spill of this material. Ventilate area.

Clean-up methods: Absorb spill with inert material. Shovel material into appropriate container for disposal. Wear suitable protective clothing, gloves and eye/face protection. Clean residue with soap and water. Do not allow product to enter sewer or waterways.

7. HANDLING AND STORAGE

Handling: During use and until all vapors are gone: Keep area ventilated - do not smoke; extinguish all flames, pilot lights, and heaters; turn off stoves, electrical tools and appliances, and any other sources of ignition. Do not inhale vapors and fumes. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Keep out of the reach of children. Wash thoroughly after handling.

Storage: Keep away from heat, spark and flame. Keep containers closed when not in use.

For information on product shelf life, please review labels on container or check the Technical Data Sheet.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
n-Heptane	500 ppm STEL 400 ppm TWA	500 ppm (2,000 mg/m3) TWA	None	None
Limestone	10 mg/m3 TWA Total dust.	5 mg/m3 TWA Respirable fraction. 15 mg/m3 TWA Total dust.	None	None
Phenolic resin	None	None	None	None
Methylcyclohexane	400 ppm TWA	500 ppm (2,000 mg/m3) TWA	None	None
Octane	300 ppm TWA	500 ppm (2,350 mg/m3) TWA	None	None
Magnesium oxide	10 mg/m3 TWA Inhalable fraction.	15 mg/m3 TWA Total particulate.	None	None

Engineering controls: Local exhaust ventilation is recommended when general ventilation is not sufficient to control airborne contamination below occupational exposure limits.

Respiratory protection: When workplace hazards warrant the use of a respirator, appropriate respirators must be used. Use NIOSH approved respirator if there is potential to exceed exposure limit(s).

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use impermeable gloves and protective clothing as necessary to prevent skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: pasty
Color: Beige
Odor: Slightly, mineral-oil-like
Odor threshold: Not available.
pH: not applicable
Vapor pressure: Not available.
Boiling point/range: 65 °C (149°F)
Melting point/ range: Not available.
Specific gravity: 0.92 - 0.98
Vapor density: > 1 Heavier than air
Flash point: -14 °C (6.8 °F) no method
Flammable/Explosive limits - lower: Not available.
Flammable/Explosive limits - upper: Not available.
Autoignition temperature: Not available.
Evaporation rate: Not available.
Solubility in water: Insoluble
Partition coefficient (n-octanol/water): Not available.
VOC content: 39 %; 370 g/l (calculated)

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions of storage and use.

Hazardous reactions: Will not occur.

Hazardous decomposition products: Carbon dioxide, carbon monoxide and irritating and/or toxic gases and particulate may be generated by thermal decomposition or combustion.

Incompatible materials: Strong oxidizing agents (peroxides, chlorine, strong acids). Avoid excessive heat and ignition sources.

Conditions to avoid: Heat, flames, sparks and other sources of ignition.

11. TOXICOLOGICAL INFORMATION

Toxicologically synergistic products: Not available.

Refer to the following for Irritancy of Product, Sensitization to Product, Carcinogenicity, Reproductive Toxicity, Teratogenicity, and Mutagenicity.

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)	ACGIH Carcinogen
n-Heptane	No	No	No	No
Limestone	No	No	No	No
Phenolic resin	No	No	No	No
Methylcyclohexane	No	No	No	No
Octane	No	No	No	No
Magnesium oxide	No	No	No	Group A4

Hazardous components	LD50s and LC50s	Health Effects/Target Organs
n-Heptane	Inhalation LC50 (RAT, 4 h) = 103 mg/l	Central nervous system, Irritant
Limestone	None	Nuisance dust
Phenolic resin	None	Irritant, Allergen
Methylcyclohexane	None	Central nervous system, Irritant, Kidney, Liver
Octane	Inhalation LC50 (RAT, 4 h) = 118 mg/l	Central nervous system, Irritant, Lung
Magnesium oxide	None	Blood, Central nervous system, Immune system, Irritant

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Dispose of according to Federal, State and local governmental regulations.

14. TRANSPORT INFORMATION

The shipping classification in this section are for bulk packaging only. Shipping classification may be different for non-bulk packaging as exceptions may apply. Refer to shipping documents for package specific transportation classification.

Canada Transportation of Dangerous Goods - Ground

Proper shipping name: ADHESIVES
Hazard class or division: 3
Identification number: UN 1133
Packing group: II

International Air Transportation (ICAO/IATA)

Proper shipping name:	Adhesives
Hazard class or division:	3
Identification number:	UN 1133
Packing group:	II

Water Transportation (IMO/IMDG)

Proper shipping name:	ADHESIVES (n-Heptane)
Hazard class or division:	3
Identification number:	UN 1133
Packing group:	II
Marine pollutant:	n-Heptane

15. REGULATORY INFORMATION

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: This Material Safety Data Sheet contains changes from the previous version in Section(s): 1,3,8,14

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR), and the MSDS contains all the information required by the CPR.

Prepared by: Mary Ellen Roddy, Sr. Regulatory Affairs Specialist

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SAFETY DATA SHEET

CEB74410 CORPORATE EXPRESS SCREEN WIPES PACK 15

Issued: 03/07/2008

Revision No: 1

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product name: CEB74410 CORPORATE EXPRESS SCREEN WIPES PACK 15

Product code: CEB74410

Synonyms: OTHER PRODUCT REFERENCES: 327-50-013 (00-070)

Use of substance / preparation: Cleaning Fluid for Screens

Company name: Sourcing Partner Inc

1400 Lavon Drive

Suite 200

McKinney

TX75069

USA

Tel: 001 972 562 8002

Fax: 001 972 562 4303

2. HAZARDS IDENTIFICATION

Main hazards: No significant hazard.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Contains: Non Hazardous Liquid with active ingredients : Quaternary Ammonium Compounds, Polymeric Biguanide and Bronopol

4. FIRST AID MEASURES (SYMPTOMS)

Skin contact: No symptoms.

Eye contact: There may be irritation and redness.

Ingestion: There may be irritation of the throat.

Inhalation: No symptoms.

4. FIRST AID MEASURES (ACTION)

Skin contact: Wash immediately with plenty of soap and water.

Eye contact: Bathe the eye with running water for 15 minutes.

Ingestion: Wash out mouth with water.

Inhalation: Consult a doctor.

5. FIRE-FIGHTING MEASURES

Extinguishing media: Suitable extinguishing media for the surrounding fire should be used. Use water spray to cool containers.

Protection of fire-fighters: Wear self-contained breathing apparatus. Wear protective clothing to prevent contact with skin and eyes.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Refer to section 8 of SDS for personal protection details. Turn leaking containers leak-side up to prevent the escape of liquid.

[cont...]

Environmental precautions: Do not discharge into drains or rivers. Contain the spillage using bunding.

Clean-up procedures: Absorb into dry earth or sand. Transfer to a closable, labelled salvage container for disposal by an appropriate method.

7. HANDLING AND STORAGE

Storage conditions: Store in cool, well ventilated area. Keep container tightly closed.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Respiratory protection: Respiratory protection not required.

Eye protection: In case of splashing Safety glasses. Ensure eye bath is to hand.

9. PHYSICAL AND CHEMICAL PROPERTIES

State: Liquid

Colour: Colourless

Odour: Odourless

Evaporation rate: Moderate

Solubility in water: Soluble

Boiling point/range°C: 100

pH: 7

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions.

Conditions to avoid: Direct sunlight.

Materials to avoid: Strong oxidising agents. Strong acids. Strong bases.

11. TOXICOLOGICAL INFORMATION

Routes of exposure: Refer to section 4 of SDS for routes of exposure and corresponding symptoms.

12. ECOLOGICAL INFORMATION

Mobility: Soluble in water.

Persistence and degradability: Biodegradable.

Bioaccumulative potential: No bioaccumulation potential.

Other adverse effects: No data available.

13. DISPOSAL CONSIDERATIONS

NB: The user's attention is drawn to the possible existence of regional or national regulations regarding disposal.

14. TRANSPORT INFORMATION

ADR / RID

UN no: Not Classified.

[cont...]

IMDG / IMO

UN no: Not Classified.

IATA / ICAO

UN no: Not Classified.

15. REGULATORY INFORMATION

Hazard symbols: No significant hazard.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

Legal disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any damage resulting from handling or from contact with the above product.

The Clorox Company of Canada, Ltd.
150 Biscayne Crescent
Brampton, Ontario, Canada
L6W 4V3

Material Safety Data Sheet

SECTION 1 - PRODUCT IDENTIFICATION AND USE

PRODUCT NAME:	**CLOROX® COMMERCIAL SOLUTIONS™ CLOROX® DISINFECTING WIPES - FRESH SCENT - DIN 02319462**	**PRODUCT IDENTIFICATION NUMBER**: Not applicable.
PRODUCT USE:	Moistened disinfecting wipes for hospital, food processing, and institutional use	

MANUFACTURER	SUPPLIER
The Clorox Company of Canada, Ltd. 150 Biscayne Crescent Brampton, Ontario L6W 4V3 EMERGENCY PHONE NO.: 1-800-446-1014	The Clorox Company of Canada, Ltd. 150 Biscayne Crescent Brampton, Ontario L6W 4V3 EMERGENCY PHONE NO.: 1-800-446-1014

SECTION 2 - HAZARDOUS INGREDIENTS

Hazardous Ingredient	% (w/w)	CAS Number	LD50 of Material (Specify Species & Route)	LC50 of Material (Specify Species)
n-Alkyl (5% C_{12}, 60% C_{14}, 30% C_{16}, 5% C_{18}) dimethyl benzyl ammonium chloride	0.1 - 0.2%	68391-01-5	Not available.	Not available.
n-Alkyl (68% C_{12}, 32% C_{14}) dimethyl ethylbenzyl ammonium chloride	0.1 - 0.2%	68956-79-6	Not available.	Not available.
Isopropyl alcohol	1 - 5	67-63-0	5 g/kg (rat, oral) 12.8 g/kg (rabbit, dermal)	22600 ppm (rat)

SECTION 3 - PHYSICAL DATA

Physical State: Liquid absorbed into non-woven wipes.	**Odour & Appearance:** Clear, colorless, thin liquid with a fruity odour absorbed into white, non-woven wipes.		**Odour Threshold:** Not available.	**Specific Gravity:** ≈1.0 for liquid
Vapour Pressure: Not available.	**Vapour Density:** N. Av.	**Evaporation Rate:** N. Av.	**Boiling Point:** N. Av.	**Freezing Point:** N. Av.
% Volatile (by volume): > 98% for liquid	**Solubility in Water:** Appreciable for liquid	**pH:** 5 - 7	**Coeff. of Water/Oil Dist.**: Not available.	

SECTION 4 - FIRE AND EXPLOSION DATA

Flammability: **Yes: X No: ___ If yes, under which conditions?**	Liquid is Class B, Division 3 (Combustible Liquid). Do not use or store near heat or open flame. Liquid ignites but does not sustain combustion.	
Means of Extinction:	Dry chemical, carbon dioxide (CO_2), foam, or water spray.	
Special Procedures:	None.	
Flashpoint & Method: ≈48°C (closed cup) for liquid.	**Upper Flammable Limit (% by volume):** Not available.	**Lower Flammable Limit (% by volume):** Not available.
Autoignition Temperature: N. Ap.	**Hazardous Combustion Products:** Products of combustion are toxic.	
Explosion Data - Sensitivity to Impact: Not applicable.	**Explosion Data - Sensitivity to Static Discharge:** Not applicable.	

SECTION 5 - REACTIVITY DATA

Chemical Stability: **Yes: X No: ___ If no, under which conditions?**	
Incompatibility with other substances: **Yes: X No: ___ If so, which ones?**	Mixing with sodium hypochlorite may release small amounts of formaldehyde gas.
Reactivity, if any, and under what conditions?	None known.
Hazardous decomposition products?	Products of decomposition are toxic.

SECTION 6 - TOXICOLOGICAL PROPERTIES

Route of Entry? **Skin Contact: _X_ Skin Absorption: ___ Eye Contact: _X_ Inhalation Acute: ___ Inhalation Chronic: ___ Ingestion: ___**			
Effects of Acute Exposure to Material: Direct or prolonged eye or skin contact may result in irritation.			
Effects of Chronic Exposure to Material: None known.			
Exposure Limits (TLV, ACGIH): Isopropyl alcohol - 200 ppm - TWA 400 ppm - STEL	**Irritancy of Material:** Moderately irritating to eyes and slightly irritating to skin.	**Sensitization Property of Material:** Not a sensitizer.	**Carcinogenicity of Material:** Not a carcinogen.
Teratogenicity/Embryotoxicity: Not teratogenic or embryotoxic.	**Reproductive Toxicity:** Not a reproductive toxicant.	**Mutagenicity:** Not mutagenic.	**Synergistic Materials:** None known.

SECTION 7 - PREVENTATIVE MEASURES

Personal Protective Equipment:		
Gloves (specify): Wear rubber or nitrile gloves if there is the potential for repeated or prolonged skin contact.	**Respirator (specify):** In situations where exposure limits may be exceeded, a NIOSH-approved respirator is advised.	**Eye (specify):** Safety glasses.
Footwear (specify): Not applicable.	**Clothing (specify):** Not applicable.	**Other (specify):** Not applicable.
Engineering Controls (specify, e.g. ventilation, enclosed process):	Use general ventilation to minimize exposure to product vapour or mist.	
Leak and Spill Procedure:	Absorb and containerize. Wash residual down to sanitary sewer. Contact the sanitary treatment facility in advance to assure ability to process washed-down material.	
Waste Disposal:	Dispose of used wipes in trash. Do not flush. Dispose of in accordance with existing federal, provincial, and municipal environmental regulations.	
Handling Procedures & Equipment:	Wash thoroughly with soap and water after using. Avoid contamination of food. In food preparation areas, wash disinfected surfaces with potable water before allowing contact with food. Not for personal cleansing. Not for use as a baby wipe.	
Storage Requirements:	Do not store near heat or open flame.	
Special Shipping Information:	Not restricted per TDG Regulations Part 2.18.	

SECTION 8 - FIRST AID MEASURES

Eye Contact: In case of eye contact, flush with plenty of water for 15 minutes. If irritation persists, get medical attention immediately.

Skin Contact: In case of skin contact, wash thoroughly with soap and water. If on clothes, remove clothes immediately.

Ingestion: If swallowed, drink two or three glasses of milk or water. Do not induce vomiting. Contact a physician or poison control center immediately.

Inhalation: Remove to fresh air. If breathing problems develop, call a physician.

SECTION 9 - PREPARATION DATE OF MSDS

Prepared by (group, department, etc.)	**Phone Number:**	**Date:**
Clorox Services Company	1-925-425-6100	January 03, 2012 V1

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N. Av. = Not available.

N. Ap. = Not applicable.

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MATERIAL SAFETY DATA SHEET
LPS® 3 (Aerosol)

Revision Date: January 5, 2012 **Supersedes:** March 22, 2011

Section 1 • Product and Company Identification

Product Name: LPS® 3 (Aerosol)

Part Number(s): 00316, C30316

Chemical Name: Petroleum Hydrocarbons

Product Use: A specialized soft-film spray coating designed to prevent rust and corrosion on steel, aluminum and other metals.

Manufacturer Information: LPS Laboratories, 4647 Hugh Howell Road, Tucker, GA, USA 30084
TEL: USA & Canada: 1 800 241-8334
Outside USA and Canada: +1 770 243-8800
FAX: USA & Canada: 1 800 543-1563
Outside USA and Canada: +1 770 243-8899

Emergency Telephone Number: Chemtrec: USA & Canada: 1 800 424-9300
Outside USA and Canada: +1 703 527-3887

Website: http://www.lpslabs.com

Section 2 • Hazards Identification

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

Emergency Overview:

Aerosol: DANGER: Flammable. Contents under pressure.

Bulk: Not applicable

Primary route(s) of entry: Skin and eye contact. Inhalation.

Potential Acute Health Effects:

Eyes: Irritating to eyes.

Skin: Repeated exposure may cause skin dryness or cracking.

Inhalation: Excessive inhalation of vapors can cause irritation of the respiratory tract, nausea, dizziness or headache.

Ingestion: Product has a low order of acute oral toxicity, but ingestion of large quantities may cause nausea, vomiting, and gastrointestinal irritation. May cause injury if aspirated into lungs.

Potential Chronic Health Effects:

Carcinogenic Effects: **NTP:** No **IARC:** No **OSHA:** No **ACGIH:** No

Mutagenic Effects: None

Teratogenic Effects: None

Target Organs: None

Medical conditions aggravated by exposure:
Persons with pre-existing central nervous system (CNS) disease, neurological conditions, skin disorders, chronic respiratory diseases, or impaired liver or kidney function should avoid exposure.

Signs and Symptoms
Stinging in eyes. Repeated or prolonged skin contact can cause redness, irritation, and scaling of the skin (dermatitis). Breathing of high vapor concentrations may cause headaches, stupor, irritation of throat and eyes, and kidney effects.

Section 3 • Composition / Information on Ingredients

Component	CASRN	Weight Percent
Distillates (Petroleum), Hydrotreated Light	64742-47-8	45 - 55%
Dipropylene Glycol Monobutyl Ether	29911-28-2	10 - 15%
Distillates (Petroleum), Hydrotreated Heavy Paraffinic	64742-54-7	5 - 10%
Acetone	67-64-1	1 - 5%
Propylene Glycol Monobutyl Ether	5131-66-8	1 - 5%
Carbon Dioxide	124-38-9	1 - 5%
Stoddard Solvent or Solvent Naphtha (Petroleum), Medium Aliphatic	8052-41-3 or 64742-88-7	1 - 2%

Section 4 • First Aid Measures

Eyes: Check for and remove contact lenses. If irritation or redness develops, flush eyes with cool, clean, low pressure water for at least 15 minutes. Hold eyelids apart to ensure complete irrigation of the eye and eyelid tissue. DO NOT use eye ointment. Seek medical attention immediately.

Skin: Remove contaminated shoes and clothing. Clean affected area thoroughly with mild soap and water. DO NOT use ointments. Seek medical attention if irritation persists.

Inhalation: Immediately move victim to fresh air. If victim is not breathing, immediately begin rescue breathing. If heart has stopped, immediately begin cardiopulmonary resuscitation (CPR). If breathing is difficult, seek medical attention immediately.

Ingestion: DO NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If spontaneous vomiting is about to occur, place victim's head below knees. If victim is drowsy or unconscious, place on the left side with head down. DO NOT leave victim unattended. Seek medical attention immediately.

Section 5 • Fire Fighting Measures

Products of Combustion: Carbon monoxide and carbon dioxide.

General Fire Hazards: Do not use on energized equipment. High heat will cause product to boil, evolving vapor that could cause explosive rupture of closed containers.

Firefighting media: SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use CO2, water spray, fog or foam. Cool containing vessels with water jet in order to prevent pressure build-up, auto-ignition or explosions.

Sensitivity to Impact: None **Sensitivity to Static Discharge:** Yes

Protection Clothing (Fire): Firefighters must use full bunker gear including NIOSH-approved positive pressure self-contained breathing apparatus to protect against potential hazardous combustion or decomposition products and oxygen deficiencies. Evacuate area and fight the fire from a maximum distance or use unmanned hose holders or monitor nozzles.

Special Remarks on Explosion Hazards:
Aerosols may explode upon heating, spread fire and overcome sprinkler systems.

Section 6 • Accidental Release Measures

Containment Procedures:

Small Spill and Leak: Eliminate ignition sources. Absorb with an inert material and dispose of properly.

Large Spill and Leak: Eliminate ignition sources. Secure the area and control access. Dike far ahead of a liquid spill to ensure complete collection. Pick up free liquid for disposal using absorbent pads, sand, or other inert non-combustible absorbent materials. Place into appropriate waste containers for later disposal.

Clean-Up Procedures: Recover free product and place in a suitable container for disposal.

Evacuation Procedures: Ventilate area of leak or spill. Keep unnecessary and unprotected people away.

Special Procedures: Remove all sources of ignition. Ventilate area. Wear personal protective equipment during cleanup. Be aware of spilled material on walking surfaces - this product is slippery.

Section 7 • Handling and Storage

Handling: DO NOT spray into or around ignition sources. DO NOT allow material to come in contact with eyes or skin. Wear appropriate protective equipment during handling. Keep container closed. Avoid breathing vapors or mists. Use only with adequate ventilation. Wash thoroughly after handling.

Storage: Keep container in a cool, well-ventilated area. Avoid all sources of ignition (spark or flame). Store between 40°F and 120°F (4.4°C and 49°C).

Precautions to be taken in handling and storage:
Store aerosols as Level 3 Aerosol (NFPA 30B). Store all materials in a dry, well-ventilated area. Avoid breathing vapors.

Section 8 • Exposure Controls / Personal Protection

Exposure Guidelines:

Component	CASRN	OSHA	ACGIH	NIOSH	Supplier
Distillates (Petroleum), Hydrotreated Light	64742-47-8	5 mg/m3 (oil mist) PEL	5 mg/m3 (oil mist) TLV 10 mg/m3 (oil mist) STEL	5 mg/m3 (oil mist) TWA 10 mg/m3 (oil mist) STEL	100 ppm TWA 525 mg/m3 TWA
Dipropylene Glycol Monobutyl Ether	29911-28-2	Not established	Not established	Not established	10 mg/m3 TWA (aerosol)
Distillates (Petroleum), Hydrotreated Heavy Paraffinic	64742-54-7	5 mg/m3 (oil mist)	5 mg/m3 (oil mist) TLV 10 mg/m3 (oil mist) STEL	5 mg/m3 (oil mist) TWA 10 mg/m3 (oil mist) STEL	None reported
Acetone	67-64-1	1000 ppm PEL	500 ppm TLV 750 ppm STEL	250 ppm TWA	None reported
Propylene Glycol Monobutyl Ether	5131-66-8	Not established	Not established	Not established	50 ppm TWA
Carbon Dioxide	124-38-9	5000 ppm PEL	5000 ppm TLV 30000 ppm STEL	5000 ppm TWA 30000 ppm STEL	None reported
Stoddard Solvent or Solvent Naphtha (Petroleum), Medium Aliphatic	8052-41-3 or 64742-88-7	5 mg/m3 (oil mist)	100 ppm TLV	350 mg/m3 TWA	None reported

Engineering Controls: Provide general and/or local exhaust ventilation to keep exposures below the exposure guidelines listed above.

Personal protective equipment

Eye protection: Safety glasses with side shields conforming to appropriate regulations. Eye wash fountain and emergency shower facilities are recommended.

Hand protection: Normally no hand protection is required; however, if product will be sprayed for an extended period, "overspray" onto skin may occur. If so, wear chemical resistant gloves conforming to appropriate regulations. Please observe the instructions regarding permeability and breakthrough time that are provided by the supplier of the gloves.

Respiratory protection: Typical use of this product under normal conditions does not require the use of respiratory protection. If airborne concentrations are above the applicable exposure limits (listed above), use NIOSH approved respiratory protection (i.e. organic vapor cartridge).

General Hygiene Considerations: Wash thoroughly after handling. Have eye-wash facilities immediately available.

Section 9 • Physical and Chemical Properties

Appearance:	Liquid	**Color:**	Hazy brown
Odor:	Mild cherry	**Evaporation Rate:**	151 (Ethyl Ether = 1)
Solubility Description:	5% in water	**Flash Point:**	23ºC (73ºF) - dispensed liquid
Boiling Point:	153ºC (307°F)	**Flash Point Method:**	Tag-Closed Cup
Specific Gravity (H2O=1):	0.84 - 0.87 @ 20°C	**Decomposition Temperature:**	Not established
Vapor Density (air = 1):	4.8	**Auto ignition temperature:**	> 230ºC (446ºF) - dispensed liquid
Vapor Pressure:	~ 4860 mm Hg @ 20ºC	**Flammable limits (estimated):**	LOWER: 1.0% UPPER: 7.0%
Rule 1171 PPc:	Not applicable	**Partition Coefficient (octanol/water):**	Not established
V.O.C. Content:	Aerosol: 64.0% per State & Federal Consumer Product Regulations Bulk: Not applicable	**Odor Threshold:**	Not established
Melting Point:	Not established	**Viscosity:**	Not established
pH:	Not applicable	**Volatiles:**	70 - 80%
Heat of combustion:	Aerosol: > 30 kJ/g Bulk: Not applicable		

Section 10 • Stability and Reactivity

Chemical Stability:	Product is stable under recommended storage conditions.
Conditions to Avoid:	Keep away from heat and ignition sources.
Incompatibility:	Extremely reactive or incompatible with oxidizing agents.
Hazardous Decomposition:	Combustion will generate smoke, possibly thick and choking, resulting in zero visibility and combustion products include carbon monoxide and carbon dioxide.
Hazardous Polymerization:	Will not occur.

Section 11 • Toxicological Information

Acute and Chronic Toxicity

A: General Product Information

An acute toxicity study of this product has not been conducted. Information given in this section relates only to individual constituents contained in this preparation.

B: Component Analysis

Component	CASRN	LC-50	LD-50
Distillates (Petroleum), Hydrotreated Light	64742-47-8	21400 mg/m3 / rat / 4 hr*	> 8000 mg/kg / oral / rat* 15400 mg/kg / dermal / rabbit*
Dipropylene Glycol Monobutyl Ether	29911-28-2	> 2.04 mg/L / rat / 4 hr*	3700 - 4400 mg/kg / oral / rat* 5330 - 6490 mg/kg / dermal / rabbit*
Distillates (Petroleum), Hydrotreated Heavy Paraffinic	64742-54-7	Not established	> 15 g/kg / oral/ rat* > 5 g/kg / dermal / rabbit*
Acetone	67-64-1	16000 ppm / rat / 4 hr*	5800 mg/kg / oral / rat* 20000 mg/kg / dermal / rabbit*
Propylene Glycol Monobutyl Ether	5131-66-8	Not established	2124 - 2700 mg/kg / oral / female rat 2612 - 5500 mg/kg / oral / male rat
Carbon Dioxide	124-38-9	470000 ppm / rat / 30 minutes	Not appropriate
Stoddard Solvent or Solvent Naphtha (Petroleum), Medium Aliphatic	8052-41-3 or 64742-88-7	> 5500 mg/m3 / rat / 4 hr	> 5000 mg/kg / oral / rat > 3000 mg/kg / dermal / rat

* Supplier Data

Component 64742-47-8 is a mild irritant and a skin and respiratory tract irritant. Human volunteers exposed to an airborne concentration of 400 ppm experienced no ill effects. Saturated vapors in air (or AP 8,200 mg/m3) are below the LC50 level in rats.

Section 12 • Ecological Information

Mobility: Semi-volatile. Readily absorbed into soil. **Persistence / Degradability:** Only slightly biodegradable

Bioaccumulative potential: No bioaccumulation potential **Other adverse effects:** None known

Ecological studies have not been conducted for this product. The following information is available for component(s) of this product.

Ecotoxicity

Effects on Organisms	Component	CASRN	Test	Species	Results
Acute Toxicity on Fishes	Distillates (Petroleum), Hydrotreated Light	64742-47-8	96-hr LC50	Oncorhynchus Mykiss	3,200 µg/L*
	Dipropylene Glycol Monobutyl Ether	29911-28-2	96-hr LC50	Poecilia Reticulata	841 mg/L*
	Propylene Glycol Monobutyl Ether	5131-66-8	96-hr LC50	Poecilia Reticulata	560 - 1000 mg/L*
Acute Toxicity on Daphnia	Dipropylene Glycol Monobutyl Ether	29911-28-2	LC50	Daphnia Magna	> 1000 mg/L*
	Propylene Glycol Monobutyl Ether	5131-66-8	LC50	Daphnia Magna	> 1000 mg/L*
Bacterial Inhibition	No data available				
Growth inhibition of algae					
Bioaccumulation in fish					

* Supplier Data

For the 64742-47-8 component, no toxicity has been observed in water due to extremely low water solubility. However, hydrocarbon and petroleum distillates are potentially toxic to freshwater and saltwater ecosystems. If material is spilled on soil, some potential toxic effects could occur before biodegradation could remove material.

If spilled, the 64742-54-7 constituent may kill grasses and small plants by interfering with transpiration. Spilled material may coat gill structures of fish resulting in suffocation if spilled in shallow, running water. This product may be toxic to amphibians by preventing dermal respiration. This product may also cause gastrointestinal distress to birds and mammals through ingestion.

Section 13 • Disposal Considerations

Waste Status: Aerosol cans, if depressurized and emptied to less than 1 inch (2.54 cm) of fluid contents, are classified as non-hazardous waste under 40 CFR 261.7 (U.S.). If disposed of in its received form, the aerosol product carries the waste codes D001 and D003 (U.S.).

Disposal: Waste must be disposed of in accordance with any and all applicable environmental control rules and/or regulations.

Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information inaccurate, incomplete, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive than federal laws and regulations.

Section 14 • Transport Information

D.O.T. Ground	**Shipping Name:**	Consumer Commodity	**UN No.:**	NA
	Hazard Class:	ORM-D	**Technical Name:**	NA
	Subclass:	NA	**Hazard Label:**	ORM-D Already on box
	Packing Group:	NA		
Road/Rail - ADR/RID	**UN No.:**	1950	**ADR Class:**	2.1
	Packing Group:	NA	**Classification Code:**	5F
	Name and description:	AEROSOLS, flammable	**Hazard ID No.:**	NA
	Labeling:	2.1	**Technical Name:**	NA
IMDG-IMO	**UN No.:**	1950	**Class:**	2
	Shipping Name:	Aerosols	**Subsidiary Risk:**	2.1
	Labeling:	2	**Packing Group:**	NA
	Packing Instructions:	P003, LP02	**EmS:**	F-D, S-U
	Marine pollutant:	No	**Technical Name:**	NA
IATA - ICAO:	**UN No.:**	1950	**Class:**	2.1
	Shipping Name:	Aerosols, flammable	**Subclass:**	NA
	Packing Instructions:	203, Y203 (Ltd. Qty.)	**Packing Group:**	NA
	Labeling:	Flammable Gas	**Technical Name:**	NA

The preceding information is subject to change and must be verified prior to shipment. It is the responsibility of anyone offering hazardous materials for shipment to ensure compliance with all applicable regulations.

Section 15 • Regulatory Information

U.S. Federal Regulations

RCRA Hazardous Waste No.: D001, D003

Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA):
Acetone 67-64-1 5000 lbs

Toxic Substances Control Act (TSCA):
All components of this product are TSCA inventory listed and/or are exempt.

Superfund Amendments and Reauthorization Act (SARA) Title III SARA Section 311/312 (40 CFR 370) Hazard Categories:
Sudden Release of Pressure, Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard

This product contains the following toxic chemical(s) subject to reporting requirements of SARA Section 313 (40 CFR 372):
No individual section 313 component is present at or above 1%.

Section 112 Hazardous Air Pollutants (HAPs): None

State Regulations

California: This product does not contain chemical(s) known to the State of California to cause cancer, birth defects or other reproductive harm.

California and OTC States: This product is not regulated by Consumer Product Regulations. In California's SCAQMD, this product is intended for maintenance and repair operations only. When used in manufacturing, this product does not meet the requirements of SCAQMD's Rule 1144.

MATERIAL SAFETY DATA SHEET
LPS® 3 (Aerosol)

Revision Date: **January 5, 2012** **Supersedes:** **March 22, 2011**

New Jersey Right to Know:
Aerosol: Distillates (Petroleum), Hydrotreated Light 64742-47-8 ● Dipropylene Glycol Monobutyl Ether 29911-28-2 ● Calcium Sulfonate 61789-86-4 ● Distillates (Petroleum), Hydrotreated Heavy Paraffinic 64742-54-7 ● Hydrotreated Microcrystalline Wax 64742-60-5 ● Acetone 67-64-1 ● Propylene Glycol Mono-n-butyl Ether 5131-66-8 ● Carbon Dioxide 124-38-9 ● Stoddard Solvent 64742-88-7 / 8052-41-3
Bulk: Not applicable

International Regulations

Canadian Environmental Protection Act (CEPA):
All of the components of this product are included on the Canadian Domestic Substances list (DSL).

Canadian Workplace Hazardous Materials Information System WHMIS:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

WHMIS Classification:
Aerosol: Class A, Class B5, Class D2B



Other Regulations:

Montreal Protocol listed ingredients:	None
Stockholm Convention listed ingredients:	None
Rotterdam Convention listed engredients:	None
RoHS Compliant:	Yes

Section 16 • Other Information

MSDS#:	10316	**HMIS 1996**		**HMIS III**		**NFPA**
MSDS Preparation Responsible Name: Elena Badiuzzi Compliance Manager Telephone: +1 770 243-8800		Health:	1	Health:	[/] 1	Flammability
		Flammability:	3	Flammability Aerosol:	4	Health / Reactivity
				Flammability Bulk:	NA	
		Reactivity:	0	Physical Hazard Aerosol:	2	
				Physical Hazard Bulk:	NA	Special



Notice to Reader:
To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Elena Badiuzzi, Compliance Manager
LPS Laboratories, a division of Illinois Tool Works

Material Safety Data Sheet

Revision Number: 003.2

Issue date: 10/30/2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **LOCTITE® SUPERFLEX® RED HIGH TEMP RTV Silicone Adhesive Sealant**

Product use: Silicone rubber sealant

IDH number: 743520

Item number: 40465

Region: Canada

Company address:
Henkel Corporation
2515 Meadowpine Boulevard
Mississauga, Ontario L5N 6C3

Contact information:
Telephone: 905.814.6511
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical state: Aerosol, paste
Color: Red
Odor: Acetic acid

WHMIS hazard class: A, D.2.B

WARNING: CONTENTS UNDER PRESSURE.
MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.
MAY CAUSE ALLERGIC SKIN REACTION.

Relevant routes of exposure: Skin, Eye contact, Inhalation

Potential Health Effects

Inhalation: Inhalation of vapors from uncured sealant may cause respiratory tract irritation. When heated to temperatures exceeding 300° F (150° C) in the presence of air, silicones may form formaldehyde vapors. Formaldehyde is a potential cancer hazard and a known skin and respiratory sensitizer. Vapors irritate the eyes, nose and throat. Safe handling conditions may be maintained by keeping formaldehyde vapor concentrations below the OSHA permissible limit. Inhalation of vapors or mists of the product may be irritating to the respiratory system.

Skin contact: Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitisation of susceptible persons.

Eye contact: Vapors may irritate eyes. Contact with eyes will cause irritation.

Ingestion: Not expected under normal conditions of use. May be harmful if swallowed.

Existing conditions aggravated by exposure: None known

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Distillates (petroleum), hydrotreated middle	64742-46-7	5 - 10
Silicon dioxide	7631-86-9	5 - 10
Norflurane	811-97-2	5 - 10
Diiron trioxide	1309-37-1	1 - 5
Triacetoxyethylsilane	17689-77-9	1 - 5
Methylsilanetriyl triacetate	4253-34-3	1 - 5
Acetic acid	64-19-7	0.1 - 1

4. FIRST AID MEASURES

Inhalation:	No specific treatment is necessary since material is not likely to be hazardous by inhalation. If symptoms develop and persist, get medical attention.
Skin contact:	Wipe off paste with paper towel or cloth. Wash with soap and water.
Eye contact:	Flush eyes with water as a precaution. If eye irritation persists, consult a specialist.
Ingestion:	Do not induce vomiting. Consult a physician if necessary.

5. FIRE FIGHTING MEASURES

Flash point:	> 93 °C (> 199.4 °F)
Autoignition temperature:	Not available.
Flammable/Explosive limits - lower:	Not applicable
Flammable/Explosive limits - upper:	Not applicable
Extinguishing media:	Foam, dry chemical or carbon dioxide.
Special firefighting procedures:	None
Unusual fire or explosion hazards:	None
Hazardous combustion products:	Oxides of carbon. Oxides of silicon. Formaldehyde.
Sensitivity to Mechanical Impact:	Not available.
Sensitivity to static discharge:	Not available.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:	Do not allow product to enter sewer or waterways.
Clean-up methods:	Scrape up as much material as possible. Store in a partly filled, closed container until disposal.

7. HANDLING AND STORAGE

Handling:	Avoid contact with eyes, skin and clothing. Do not wear contact lenses.
Storage:	For safe storage, store between 8 °C (46.4 °F) and 28 °C (82.4 °F) Store in a dry area below 90° F.

For information on product shelf life contact Henkel Canada Customer Service at 800-263-5043.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Distillates (petroleum), hydrotreated middle	5 mg/m3 TWA Inhalable fraction.	5 mg/m3 PEL Mist.	None	None
Silicon dioxide	6 mg/m3 TWA	20 MPPCF TWA 0.8 mg/m3 TWA	None	3 mg/m3 TWA Respirable fraction.
Norflurane	None	None	1,000 ppm (4,240 mg/m3) TWA	None
Diiron trioxide	5 mg/m3 TWA Respirable fraction.	10 mg/m3 PEL Fume.	None	None
Triacetoxyethylsilane	None	None	None	None
Methylsilanetriyl triacetate	None	None	None	None
Acetic acid	10 ppm TWA 15 ppm STEL	10 ppm (25 mg/m3) PEL	None	None

Engineering controls: General room ventilation is usually adequate. Use local exhaust ventilation if the potential for airborne exposure exists.

Respiratory protection: No personal respiratory protective equipment normally required. Breathing apparatus only if aerosol or dust is formed.

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Chemical resistant, impermeable gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Aerosol, paste
Color: Red
Odor: Acetic acid
Odor threshold: Not available.
pH: Not available.
Vapor pressure: Not available.
Boiling point/range: Not available.
Melting point/ range: Not available.
Specific gravity: 1.01 at 20 °C (68°F)
Vapor density: Heavier than air
Flash point: > 93 °C (> 199.4 °F)
Flammable/Explosive limits - lower: Not applicable
Flammable/Explosive limits - upper: Not applicable
Autoignition temperature: Not available.
Evaporation rate: Not applicable
Solubility in water: Polymerises in presence of water.
Partition coefficient (n-octanol/water): Not available.
VOC content: 3.08 %; 32.00 g/l Estimated

10. STABILITY AND REACTIVITY

Stability: Stable

Hazardous reactions: Will not occur.

Hazardous decomposition products: Oxides of carbon. Oxides of silicon. Formaldehyde.

Incompatible materials: Acids and bases. Oxidizing agents.

Conditions to avoid: Excessive heat.

11. TOXICOLOGICAL INFORMATION

Toxicologically synergistic products: Not available.

Refer to the following for Irritancy of Product, Sensitization to Product, Carcinogenicity, Reproductive Toxicity, Teratogenicity, and Mutagenicity.

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)	ACGIH Carcinogen
Distillates (petroleum), hydrotreated middle	No	No	No	Group A4
Silicon dioxide	No	No	No	No
Norflurane	No	No	No	No
Diiron trioxide	No	No	No	Group A4
Triacetoxyethylsilane	No	No	No	No
Methylsilanetriyl triacetate	No	No	No	No
Acetic acid	No	No	No	No

Hazardous components	LD50s and LC50s	Health Effects/Target Organs
Distillates (petroleum), hydrotreated middle	None	Irritant
Silicon dioxide	Oral LD50 (RAT) > 22,500 mg/kg	Nuisance dust
Norflurane	None	Cardiac, Central nervous system, Irritant, Respiratory, Skin
Diiron trioxide	None	Allergen, Cardiac, Central nervous system, Irritant, Kidney, Liver, Lung
Triacetoxyethylsilane	None	No Target Organs
Methylsilanetriyl triacetate	None	Irritant, Allergen
Acetic acid	Oral LD50 (RABBIT) = 1,200 mg/kg Oral LD50 (RAT) = 3.53 g/kg Oral LD50 (RAT) = 3.31 g/kg Dermal LD50 (RABBIT) = 1,060 mg/kg Inhalation LC50 (RAT, 4 h) = 11.4 mg/l	Allergen, Corrosive, Eyes, Gastrointestinal, Immune system, Irritant, Kidney

12. ECOLOGICAL INFORMATION

Ecological information:

No specific studies have been conducted by Henkel on the ecotoxicity or environmental fate of this material; however, commonly available data on the material indicate that uncontrolled releases to soil, ground water, or surface waters could entail acute and/or chronic ecological effects, depending on the quantity and concentration of such releases. Releases of volatile components to the atmosphere are not believed to entail significant ecological consequences provided such releases are within the exposure levels set forth in this document. Accordingly, all appropriate measures should be taken to avoid uncontrolled releases to the environment, and any spills or other uncontrolled releases which may occur should be contained and cleaned up immediately in accordance with Section 6.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal:

Do not puncture or incinerate pressurized containers. Follow all local, state, federal and provincial regulations for disposal.

14. TRANSPORT INFORMATION

Canada Transportation of Dangerous Goods - Ground

Proper shipping name: AEROSOLS
Hazard class or division: 2.2
Identification number: UN 1950
Packing group: None

International Air Transportation (ICAO/IATA)

Proper shipping name:	Aerosols, non-flammable
Hazard class or division:	2.2
Identification number:	UN 1950
Packing group:	None

Water Transportation (IMO/IMDG)

Proper shipping name:	AEROSOLS
Hazard class or division:	2.2
Identification number:	UN 1950
Packing group:	None

15. REGULATORY INFORMATION

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: Reviewed MSDS. Reissued with new date.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR), and the MSDS contains all the information required by the CPR.

Prepared by: Lou Fabrizio, Regulatory Affairs Specialist

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Material Safety Data Sheet
May be used to comply with
OSHA's Hazard Communication Standard,
29 CFR 1910.1200. Standard must be
consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY (As used on label and list)
Master Appliance Ultratane Butane Fuel

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

SECTION I.

MANUFACTURER'S NAME	Master Appliance Corp.	**EMERGENCY TELEPHONE NO.**	1-800-535-5053 (Infotrac)
ADDRESS	2420 18TH Street	**TELEPHONE NO. FOR INFORMATION**	1-262-633-7791
	PO BOX 68	**DATE PREPARED**	January 2, 2013
	RACINE WI 53401	**SIGNATURE OF PREPARER**	(optional)

SECTION II. HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

HAZARDOUS COMPONENTS

(Specific Chemical Identity: Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended % (optional)
Isobutane (CAS 75-28-5)	NE	800ppm	
Propane (CAS 74-98-6)	1000ppm	NE	
Butane (CAS 106-97-8)	800ppm	800ppm	

SECTION III. SHIPPING INFORMATION

PROPER SHIPPING NAME	Petroleum Gases, Liquefied
CLASS AND DIVISION NUMBER	2.1 (Flammable Gas)
UN NUMBER	UN-1075
REQUIRED LABELS	Flammable Gas label on each non-bulk package
PACKING GROUP	Not Listed

SECTION IV. PHYSICAL/CHEMICAL CHARACTERISTICS

BOILING POINT	11°F	**SPECIFIC GRAVITY (H_20 = 1)**	.571
VAPOR PRESSURE @70°F (psig)	30 ± 2	**MELTING POINT**	-138c
VAPOR DENSITY (air = 1)	1	**EVAPORATION RATE (Butyl Acetate = 1)**	1
SOLUBILITY IN WATER	Negligible		
APPEARANCE AND ODOR	Clear gas with light ethereal odor		

SECTION V. FIRE AND EXPLOSION HAZARD DATA

FLAMMABLE LIMITS	LEL: 1.4 UEL: 9.5
FLASH POINT (METHOD USED)	-100°F Estimated
EXTINGUISHING MEDIA	Dry chemical, foam, carbon dioxide
SPECIAL FIRE FIGHTING PROCEDURES	Use water spray to cool containers. Avoid rocketing containers.
UNUSUAL FIRE AND EXPLOSION HAZARDS	Containers generate pressure when heated causing violent bursting and dangerous propelling of containers.

SECTION VI. REACTIVITY DATA

STABILITY	**Stable:** Yes Unstable:
CONDITIONS TO AVOID	Not established
INCOMPATIBILITY (Materials to Avoid)	Oxygen and strong oxidizing materials
HAZARDOUS DECOMPOSITION OR BYPRODUCTS	Carbon oxides formed when burned
HAZARDOUS POLYMERIZATION	May occur: **Will not occur:** Yes
CONDITIONS TO AVOID	Not established

SECTION VII. HEALTH HAZARD DATA

ROUTE(S) OF ENTRY **Inhalation?** Yes (A) **Skin?** Yes (B) **Ingestion?** N/A

HEALTH HAZARDS (Acute and Chronic) (A) Simple asphyxiant, dizziness, disorientation, headache, excitation, central nervous system depression, anesthesia.

(B) Liquid contact with exposed skin can cause frostbite.

CARCINOGENICITY? N/A **NTP?** N/A **IARC MONOGRAPHS?** N/A **OSHA REGULATED?** N/A

SIGNS AND SYMPTOMS OF EXPOSURE Dizziness, headache, ect.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE None

EMERGENCY AND FIRST AID PROCEDURES Remove from exposure. If irritation develops seek medical attention.

SECTION VIII. PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Protect from ignition. Ventilate area thoroughly.

WASTE DISPOSAL METHOD Treatment, storage, transportation and disposal must be in accordance with applicable Federal, State and Local regulations.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Store below 120°F. In case of accidental puncturing with forklift, shut off forklift and any other possible source of ignition. Ventilate area.

OTHER PRECAUTIONS Use with adequate ventilation.

SECTION IX. CONTROL MEASURES

RESPIRATORY PROTECTION (Specific Type)	N/A
VENTILATION	Adequate
LOCAL EXHAUST	For small enclosed work areas
MECHANICAL (General)	Adequate for storage
PROTECTIVE GLOVES	Not required for normal handling
EYE PROTECTION	Safety Glasses
OTHER PROTECTIVE CLOTHING OR EQUIPMENT	Not required for normal handling
WORK/HYGIENIC PRATICES	N/A

SECTION X. NFPA HAZARD CODES – HMIS RATING

HEALTH: 1 **FIRE:** 4 **REACTIVITY:** 0

SECTION I-MATERIAL IDENTIFICATION AND USE

Material Name/Identifier:	**ACE-Start Starting Fluid**	**Stock No.**	**735**
Manufacturer's Name:	**Kleen-Flo Tumbler Industries Ltd**	**Street Address:**	**75 Advance Blvd.**
City:	**Brampton**	**Province:**	**Ontario**
Postal Code:	**L6T 4N1**	**Emergency Phone #:**	**CANUTEC:- 613-996-6666 (24HR)**
Chemical Name:	**N.Ap. (Mixture)**	**Chemical Family:**	**N/Av. (Mixture)**
Chemical Formula:	**N.Ap. (Mixture)**	**Trade Names & Synonyms:**	**Kleen-Start**
Material Use:	**Engine Starting Fluid**	**Molecular Weight:**	**N/Av. (Mixture)**

SECTION II-HAZARDOUS INGREDIENTS OF MATERIAL

Hazardous Ingredients	C.A.S.	Approximate % Concentration	LD50 Species & Route	LC50 Species & Route
Diethyl ether	**60-29-7**	**40-70**	**1215mg/kg rat-oral**	**73000 ppm(150 min.) rat-inhal.**
Heptane	**142-82-5**	**30-60**	**4420-5840mg/kg rat-oral**	**14000 ppm (4 hr) rat-inhl.**
Carbon dioxide	**124-38-9**	**5-10**	**N/Ap.**	**N/Av.**

SECTION III-PHYSICAL DATA FOR MATERIAL

Physical State:	**Aerosol**	**Odour/Appearance:**	**ether-like odour/ colorless liquid**
Specific Gravity:	**0.713**	**Odour Threshold(p.p.m.):**	**N/Av.**
Boiling Point:	**35.5°C**	**Evaporation Rate:**	**>1 (Butyl-acetate=1)**
Freezing Point:	**N/E**	**Solubility in Water:**	**Negligible**
% Volatile(by volume):	**100**	**Vapour Pressure, psig**	**80 -90**
Vapour Density(Air=1):	**>1**	**Coefficient of Water/Oil Distribut:**	**N/Av.**
pH	**N/Ap.**		

SECTION IV-FIRE AND EXPLOSION HAZARD OF MATERIAL

Flammability Yes/No:	**Yes, extremely**	**If yes under which conditions?: Excessive heat, open flame or sparks**	
Auto Ignition Temperature:	**N/Av.**	**Means of Extinction: carbon dioxide, dry chemical, foam**	
Flashpoint and Method:	**-45°C**	**Hazardous Combustion Products: Hydrocarbon fumes, smoke,**	
		Carbon dioxide, carbon monoxide.	
Flame Extension:	**>45 cm but <100 cm**	**Flashback yes.**	
Upper Flammable limit (%vol)	**36**	**Lower Flammable Limit(% by volume)**	**1**
Explosion Data:	**Sensitivity to Mechanical Impact: N.Ap**	**Sensitivity to Static Discharge:**	**N.Ap.**

SECTION V-REACTIVITY DATA

Chemical Stability Yes/No:	**No**	**If NO under which conditions?**	**above 35.5°C**
Incompatibility to Other Substances Yes/No:	**Yes**	**If so which ones? Strong oxidizing agents, Nitric acid**	
Reactivity and under what conditions?	**N/Av.**	**Sulfuric acid, Amines.**	
Hazardous Decomposition Products:	**Carbon monoxide & carbon dioxides.**		

N/E: not established **N.Ap.: not applicable** **N/Av.: not available**

SECTION VI-TOXICOLOGICAL PROPERTIES OF PRODUCT

Route of Entry: ALL Routes	--SKIN CONTACT --SKIN ABSORPTION --EYE CONTACT --INHALATION --INGESTION		
Effects of Acute Exposure:	May cause defatting and drying of skin and eye irritation. May irritate mucous membranes of respiratory tract.		
	Overexposure may cause central nervous system depression. Headache or nausea.		
Effects of Chronic Exposure:	Continuous inhalation of spray may harmful or fatal.		
LD 50 of Product:	N/Av.	**LC 50 of Product:** N/Av.	
Irritancy of Product:	Skin & Eye Irritant	**Exposure Limits of Product:**	N/Av.
Sensitization of Product:	N/Av.	**Toxicologically Synergistic Materials:**	N/Av.
--CARCINOGENICITY --REPRODUCTIVE EFFECTS --TERATOGENICITY --MUTAGENICITY			
Diethyl ether has caused birth defects and toxicity to the fetus in animal tests.			

SECTION VII-PREVENTIVE MEASURES

Personal Protective Equipment to be used:

Gloves(specify):	Solvent resistant gloves	**Eye(specify):**	Safety Glasses
Respiratory(specify):	NOISH approved organic vapor mask	**Clothing:**	Not required
Respiratory Protection:	If used indoors or on a continuous basis, use of NIOSH approved respirator is recommended		
Engineering Controls:	Local or mechanical ventilation required to keep exposure limit below 400 ppm (diethyl ether).		
Leak and Spill Procedure:	Absorb with inert non reactive absorbant. Use non sparking tool. Remove all ignition sources.		
Waste Disposal:	Do not puncture or incinerate, even when can is empty. Dispose as per local, provincial regulation.		
Storage Requirements:	Store in cool, well ventilayed area at room temperature. Do not expose under direct sunlight for prolonged period.		
Handling Procedure &	Keep away from open flame and spark excessive heat. Do not store above 30°C for a long period of time.		
Equipment:	Keep away from reach of children. Do not inhale or ingest.		
NFPA30B/CNFC3.3.5	Level 3		
IATA (air transport)	Prohibited. (Passanger Aircraft)		
Marine (IMDG)	Limited Quantity, Aerosol, UN1950, Class 2.1		
DSL listing:	All components are listed in the inventory.		
TDG Classification:	Consumer Commodity		
WHMIS Classification:	Consumer Commodity - exempt from WHMIS labeling requirement.		Complies with CCCR 2001

SECTION VIII-FIRST AID MEASURES

Eye:	Flush with plenty of water for at least 15 minutes. If irritation persists, seek medical help immediately.
Skin:	Remove contaminated clothing. Wash with soap and water. If rash, irritation persists contact a physician.
Inhalation:	Move patient to fresh air and restore breathing if required. If discomfort persist see a doctor.
Ingestion:	DO NOT INDUCE VOMITING. Seek medical help immedaitely.

SECTION IX-PREPARATION DATE OF M.S.D.S.

Additional Info/Comments:		**Sources Used: Supplier's data**	
Phone Number:	(905) 793-4311	**Prepared By: Quality Control Laboratory**	
Date Prepared:	January 16, 2012.	Kleen-Flo Tumbler Industries Limited	

THIS SHEET SUPERSEDES ANY OTHER M.S.D.S. PREVIOUSLY PREPARED

N/E: not established **N.Ap.: not applicable** **N/Av.: not available**

MATERIAL SAFETY DATA SHEET

Section 1 - Product and Company Identification

Brand Name: BEAUTI-TONE SIGNATURE SERIES
Item Number: 73-00W
Material Code: 1853-391, 1853-596, 1853-792
Chemical Family: INTERIOR SEMI-GLOSS WHITE
Intended Use: LATEX PAINT
Preparation Date: 4 February 2010
Prepared By: PAINT LAB **Phone Number:** 519-449-2441

Emergency Phone Number: (613) 996-6666

Supplier:

Home Hardware Stores Limited
6 Brian Drive
Burford, ON
N0E 1A0

Manufacturer:

Home Hardware Stores Limited
6 Brian Drive
Burford, ON
N0E 1A0

Section 2 - Composition/Information on Ingredients

CAS No.	Description	LC50 (ml/m ^{3})	LD50 oral (mg/kg)	LD50 Dermal (mg/kg)	Range
107-21-1	ETHYLENE GLYCOL	2920 (RAT)	4700 (rat)	9500 (rabbit)	0.5% - 1.5%
13463-67-7	TITANIUM DIOXIDE	N/AP	10000 (rat)	10000 (rabbit)	10% - 30%
57-55-6	PROPYLENE GLYCOL	N/AV	20000 (rat)	20800 (rabbit)	1.0% - 5.0%
7631-86-9	SILICON DIOXIDE	N/AP	31600 (rat)	2000 (rabbit)	0.5% - 1.5%

Section 3 - Hazards Identification

Emergency Overview: Eye irritant.

Potential Health Effects

Routes of Entry: Eye contact, skin contact, skin absorption, inhalation, and ingestion.

Eye: May cause eye irritation.

Skin contact: May cause skin irritation.

Skin absorption: Substance may be harmful if absorbed through skin.

Inhalation: May be harmful if vapours are inhaled.

Ingestion: May be harmful if swallowed.

Effects of Chronic Exposure to Product: Refer to Section 11.

Effects Of Acute Exposure: MAY CAUSE EYE IRRITATION

Section 4 - First Aid Measures

Eye contact: Flush immediately with water for 15 mins. Get medical attention.

Skin contact: Immediately flush skin with plenty of water. Remove clothing. Get medical attention if irritation develops or persists.

Skin absorption: Immediately flush skin with plenty of water. Remove clothing. Get medical attention if irritation develops or persists.

Inhalation: Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: Get medical attention immediately. Substance may be harmful if swallowed.

Section 5 - Fire Fighting Measures

Flash Point:	N/AP
Flash Point Method:	N/AP
Upper Flammable Limit:	N/AP
Lower Flammable Limit:	N/AP
Autoignition:	N/AP
Hazardous Combustion Products:	OXIDES OF CARBON
Means of Extinction:	WATER FOG, DRY CHEMICAL, FOAM
Conditions Of Flammability:	NON-FLAMMABLE

Explosion Data

Mechanical Impact:	NO
Static Discharge:	NO

Section 6 - Accidental Release Measures

Dispose of in accordance with regional regulations.

Section 7 - Handling and Storage

Handling Procedures and Equipment: Avoid contact with eyes, skin, and clothing.

Storage Requirements: Keep from freezing. Keep away from food and drink.

Section 8 - Exposure Control/Personal Protection

Specific Engineering Controls: Use adequate ventilation to reduce airborne vapour levels.

Personal Protective Equipment: Wear safety glasses with side shields and chemical resistant gloves. Use NIOSH approved respirator specified for protection against paint spray mist and organic vapours in restricted and confined areas. Use dust mask when sanding.

Exposure Limits: Consult local authorities for acceptable exposure limits.

Section 9 - Physical and Chemical Properties

Appearance:	WHITE LIQUID
Odour:	MILD ODOUR
Vapour Pressure:	N/AV
Vapour Density:	N/AV
Physical State:	LIQUID
Boiling Point:	APPROX 100C
Freezing/Melting Point:	APPROX 0C
pH:	8.0 - 9.0
Evaporation Rate:	SLOWER THAN BUTYL ACETATE
Coefficient water/oil distr.:	N/AV
Odour Threshold:	N/AV
Specific Gravity:	1.2668

Section 10 - Stability and Reactivity

Stability: Yes.

Conditions to Avoid: High temperatures, and avoid freezing.

Materials to Avoid: None known.

Hazardous Decomposition Products: Not available.

Hazardous Polymerization: Not available.

Section 11 - Toxicological Information

Sensitization to Product: Possible from ethylene glycol and latex resin.

Carcinogenicity: Although IARC has classified titanium dioxide as possibly carcinogenic to humans (2B), their summary concludes: "No significant exposure to titanium dioxide is thought to occur during the use of products in which titanium dioxide is bound to other materials, such as paint."

Irritancy of Product: May cause irritation due to ethylene glycol, propylene glycol, and latex resin.

Reproductive Toxicity: Not available.

Teratogenicity: Yes from ethylene glycol.

Mutagenicity: Not available.

Name of Toxicologically Synergistic Products: Not available.

Section 12 - Ecological Information

Not Available.

Section 13 - Disposal Considerations

Contact your local municipal office for specific disposal guidelines in your region.

Section 14 - Transport Information

TDG Road Classification

Shipping Name:	NR
Class:	NR
Packing Group:	NR
UN #:	NR
Limited Quantity Exemption:	NR

Section 15 - Regulatory Information

WHMIS Classification:	D2A, D2B
P.C.P. Registration #:	N/AP
EPA Registration #:	N/AP

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

Section 16 - Other Information

N/AV: Not available
N/AP: Not applicable
NR: Not regulated

Information for this material safety data sheet was obtained from sources considered accurate and reliable, and was prepared to the best of Home Hardware Stores Limited knowledge. Actual conditions of use and handling beyond seller's control. User is responsible to evaluate all available information when using product for any particular use and to comply with all Federal, Provincial and local laws and regulations.

Material Safety Data Sheet

According to the Controlled Product Regulations

1. MATERIAL AND COMPANY IDENTIFICATION

Material Name	:	**Pennzoil Platinum SAE 0W-20 Full Synthetic Motor Oil**
Uses	:	Engine oil. Passenger Car Motor Oil
Product Code	:	001D7527
Manufacturer/Supplier	:	**Pennzoil-Quaker State Canada Inc.** 1101 Blair Road Burlington ON L7M 1T3 Canada
Telephone	:	1-800-263-6200
Fax	:	1-800-463-0358

Emergency Telephone Number

CHEMTREC (24 hr)	:	1-800-424-9300
Canutec (24 hr)	:	1-877-242-7400

2. COMPOSITION/INFORMATION ON INGREDIENTS

Preparation Description : Blend of synthetic hydrocarbon, polyalphaolefins and additives.

Refer to Chapter 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

WHMIS Class/Description	:	THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
Physical Description	:	Blend of synthetic hydrocarbon, polyalphaolefins and additives.
Routes of Exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Health Hazards	:	Not expected to be a health hazard when used under normal conditions. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. Used oil may contain harmful impurities.
Signs and Symptoms	:	Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.
Safety Hazards	:	Not classified as flammable but will burn.
Environmental Hazards	:	Not classified as dangerous for the environment.

4. FIRST AID MEASURES

General Information	:	Not expected to be a health hazard when used under normal conditions.
Inhalation	:	No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
Skin Contact	:	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent

		irritation occurs, obtain medical attention.
Eye Contact	:	Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
Ingestion	:	In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
Advice to Physician	:	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point	:	> 230 °C / 446 °F (COC)
Upper / lower Flammability or Explosion limits	:	Typical 1 - 10 %(V)
Auto ignition temperature	:	> 320 °C / 608 °F
Hazardous Combustion Products and Specific Hazards	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
Suitable Extinguishing Media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	:	Do not use water in a jet.
Protective Equipment for Firefighters	:	Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

Protective Measures	:	Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Clean Up Methods	:	Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
Additional Advice	:	Local authorities should be advised if significant spillages cannot be contained.

7. HANDLING AND STORAGE

General Precautions	:	Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Handling	:	Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety

footwear should be worn and proper handling equipment should be used.

Storage : Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Storage Temperature: 0 - 50 °C / 32 - 122 °F

Recommended Materials : For containers or container linings, use mild steel or high density polyethylene.

Unsuitable Materials : PVC.

Additional Information : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Oil mist, mineral	ACGIH	TWA		5 mg/m3	

Consult local authorities for acceptable exposure limits within their jurisdiction.

Exposure Controls : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

Personal Protective Equipment : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory Protection : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].

Hand Protection : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical

		resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Eye Protection	:	Wear safety glasses or full face shield if splashes are likely to occur.
Protective Clothing	:	Skin protection not ordinarily required beyond standard issue work clothes.
Monitoring Methods	:	Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Environmental Exposure Controls	:	Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Clear white. Liquid at room temperature.
Odour	:	Slight hydrocarbon.
Odour threshold	:	Data not available
pH	:	Not applicable.
Initial Boiling Point and Boiling Range	:	> 280 °C / 536 °F estimated value(s)
Pour point	:	-34.44 °C / -29.99 °F
Vapour pressure	:	< 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Specific gravity	:	0.88 - 0.89
Density	:	880 - 890 kg/m3 at 15 °C / 59 °F
Water solubility	:	Negligible.
n-octanol/water partition coefficient (log Pow)	:	> 6 (based on information on similar products)
Kinematic viscosity	:	> 30 mm2/s at 40 °C / 104 °F
Vapour density (air=1)	:	> 1 (estimated value(s))
Evaporation rate (nBuAc=1)	:	Data not available

10. STABILITY AND REACTIVITY

Stability	:	Stable.
Conditions to Avoid	:	Extremes of temperature and direct sunlight.
Materials to Avoid	:	Strong oxidising agents.
Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage.
Hazardous Polymerisation	:	Data not available
Sensitivity to Mechanical Impact	:	Data not available
Sensitivity to Static Discharge	:	Data not available

11. TOXICOLOGICAL INFORMATION

Basis for Assessment : Information given is based on data on the components and the toxicology of similar products.

Routes of Exposure : Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.

Oral		LD 50: 5,000 mg/kg, Rat
Dermal		LD 50: 5,000 mg/kg, Rabbit

Acute Oral Toxicity : Expected to be of low toxicity: LD50 > 5000 mg/kg

Acute Dermal Toxicity : Expected to be of low toxicity: LD50 > 5000 mg/kg

Acute Inhalation Toxicity : Not considered to be an inhalation hazard under normal conditions of use.

Skin Irritation : Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

Eye Irritation : Expected to be slightly irritating.

Respiratory Irritation : Inhalation of vapours or mists may cause irritation.

Sensitisation : Not expected to be a skin sensitiser.

Repeated Dose Toxicity : Not expected to be a hazard.

Mutagenicity : Not considered a mutagenic hazard.

Carcinogenicity : Components are not known to be associated with carcinogenic effects.

Reproductive and Developmental Toxicity : Not expected to be a hazard.

Additional Information : Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal.
ALL used oil should be handled with caution and skin contact avoided as far as possible.
Continuous contact with used engine oils has caused skin cancer in animal tests.

12. ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Acute Toxicity : Poorly soluble mixture.May cause physical fouling of aquatic organisms.Expected to be practically non toxic:LL/EL/IL50 > 100 mg/l(to aquatic organisms)(LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).

Mobility : Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.

Persistence/degradability : Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product

contains components that may persist in the environment.

Bioaccumulation : Contains components with the potential to bioaccumulate.

Other Adverse Effects : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

13. DISPOSAL CONSIDERATIONS

Material Disposal : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.

Container Disposal : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Local Legislation : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification

This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Class/Description : THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

Inventory Status

EINECS	:	All components listed or polymer exempt.
TSCA	:	All components listed.
DSL	:	All components listed.

16. OTHER INFORMATION

MSDS Version Number	:	1.0
MSDS Effective Date	:	10-26-2010
MSDS Revisions	:	A vertical bar (|) in the left margin indicates an amendment from the previous version.
MSDS Regulation	:	The content and format of this (M)SDS is in accordance with the Controlled Product Regulations.
MSDS Distribution	:	The information in this document should be made available to all who may handle the product.
Disclaimer	:	The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **CAT ARCTIC DEO SYN 0W-30**
Product Description: Synthetic Base Stocks and Additives
Product Code: 202020109005, 478347-60, 97AT41
Intended Use: Engine oil

COMPANY IDENTIFICATION

Supplier: **EXXON MOBIL CORPORATION**
3225 GALLOWS RD.
FAIRFAX, VA. 22037 USA

24 Hour Health Emergency	609-737-4411
Transportation Emergency Phone	800-424-9300
ExxonMobil Transportation No.	281-834-3296
MSDS Requests	713-613-3661
Product Technical Information	800-662-4525, 800-947-9147
MSDS Internet Address	http://www.exxon.com, http://www.mobil.com

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

Reportable Hazardous Substance(s) or Complex Substance(s)

Name	CAS#	Concentration*
ZINC DITHIOPHOSPHATE	68649-42-3	< 2.5%

* All concentrations are percent by weight unless material is a gas. Gas concentrations are in percent by volume.

SECTION 3 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

POTENTIAL HEALTH EFFECTS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight Streams of Water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply. Firefighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Aldehydes, Sulfur oxides, Smoke, Fume, Oxides of carbon, Incomplete combustion products

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200C (392F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. In the event of a spill or accidental release, notify relevant authorities in accordance with all

applicable regulations. US regulations require reporting releases of this material to the environment which exceed the applicable reportable quantity or oil spills which could reach any waterway including intermittent dry creeks. The National Response Center can be reached at (800)424-8802.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do it without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do it without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dike far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Avoid contact with used product. Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE LIMIT VALUES

Exposure limits/standards for materials that can be formed when handling this product: When mists / aerosols can occur, the following are recommended: 5 mg/m³ - ACGIH TLV, 10 mg/m³ - ACGIH STEL, 5 mg/m³ - OSHA PEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapor warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

GENERAL INFORMATION

Physical State: Liquid
Form: Clear
Color: Yellow
Odor: Characteristic
Odor Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 C): 0.85
Flash Point [Method]: >200C (392F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: N/D
Vapor Density (Air = 1): N/D
Vapor Pressure: [N/D at 20 °C] | < 1 kPa (7.5 mm Hg) at 38C
Evaporation Rate (n-butyl acetate = 1): < 1
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: [N/D at 40 °C] | 11.3 cSt (11.3 mm2/sec) at 100C
Oxidizing Properties: See Sections 3, 15, 16.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -45°C (-49°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Route of Exposure	Conclusion / Remarks
Inhalation	
Toxicity (Rat): LC50 > 5000 mg/m3	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
Ingestion	
Toxicity (Rat): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity (Rabbit): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials.
Eye	
Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS

For the product itself:

Diesel engine oils: Not carcinogenic in animals tests. Used and unused diesel engine oils did not produce any carcinogenic effects in chronic mouse skin painting studies.
Oils that are used in gasoline engines may become hazardous and display the following properties: Carcinogenic in animal tests. Caused mutations in vitro. Possible allergen and photoallergen. Contains polycyclic aromatic compounds (PAC) from combustion products of gasoline and/or thermal degradation products.

Contains:

Base oil severely refined: Not carcinogenic in animal studies. Representative material passes IP-346, Modified Ames test, and/or other screening tests. Dermal and inhalation studies showed minimal effects; lung non-specific infiltration of immune cells, oil deposition and minimal granuloma formation. Not sensitizing in test animals.
Synthetic base oils: Not expected to cause significant health effects under conditions of normal use, based on laboratory studies with the same or similar materials. Not mutagenic or genotoxic. Not sensitizing in test animals and humans.

Additional information is available by request.

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = NTP CARC	3 = IARC 1	5 = IARC 2B
2 = NTP SUS	4 = IARC 2A	6 = OSHA CARC

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

RCRA Information: The unused product, in our opinion, is not specifically listed by the EPA as a hazardous waste (40 CFR, Part 261D), nor is it formulated to contain materials which are listed as hazardous wastes. It does not exhibit the hazardous characteristics of ignitability, corrositivity or reactivity and is not formulated with contaminants as determined by the Toxicity Characteristic Leaching Procedure (TCLP). However, used product may be regulated.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (DOT) : Not Regulated for Land Transport

LAND (TDG) : Not Regulated for Land Transport

SEA (IMDG) : Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA) : Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

OSHA HAZARD COMMUNICATION STANDARD: When used for its intended purposes, this material is not classified as hazardous in accordance with OSHA 29 CFR 1910.1200.

NATIONAL CHEMICAL INVENTORY LISTING: IECSC, KECI, DSL, TSCA, PICCS, ENCS

Special Cases:

Inventory	Status
AICS	Restrictions Apply
ELINCS	Restrictions Apply

EPCRA: This material contains no extremely hazardous substances.

SARA (311/312) REPORTABLE HAZARD CATEGORIES: None.

SARA (313) TOXIC RELEASE INVENTORY:

Chemical Name	CAS Number	Typical Value
ZINC DITHIOPHOSPHATE	68649-42-3	< 2.5%

The Following Ingredients are Cited on the Lists Below:

Chemical Name	CAS Number	List Citations
DIPHENYLAMINE	122-39-4	5, 18
ZINC DITHIOPHOSPHATE	68649-42-3	13, 15, 17

--REGULATORY LISTS SEARCHED--

1 = ACGIH ALL	6 = TSCA 5a2	11 = CA P65 REPRO	16 = MN RTK
2 = ACGIH A1	7 = TSCA 5e	12 = CA RTK	17 = NJ RTK
3 = ACGIH A2	8 = TSCA 6	13 = IL RTK	18 = PA RTK
4 = OSHA Z	9 = TSCA 12b	14 = LA RTK	19 = RI RTK
5 = TSCA 4	10 = CA P65 CARC	15 = MI 293	

Code key: CARC=Carcinogen; REPRO=Reproductive

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Changes:
Section 06: Notification Procedures - Header was modified.
Section 13: Empty Container Warning was modified.
Section 08: Hand Protection was modified.
Section 11: Dermal Lethality Test Data was modified.
Section 11: Oral Lethality Test Data was modified.
Section 15: List Citations Table was modified.
Section 15: List Citation Table - Header was modified.
Section 15: National Chemical Inventory Listing was modified.
Section 16: Code to MHCs was modified.
Section 06: Notification Procedures was modified.
Section 15: TSCA Class 2 Statement was deleted.

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Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

CAT® ELC¿ (EXTENDED LIFE COOLANT) PREMIX 50/50 WITH EMBITTERMENT

Product Use: Antifreeze/Coolant
Product Number(s): CPS226387
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Road
San Ramon, CA 94583
United States of America

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 800-LUBE-TEK

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Ethylene Glycol	107-21-1	30 - 60 %weight
Sodium 2-ethylhexanoate	19766-89-3	1 - 5 %weight

SECTION 3 HAZARDS IDENTIFICATION

****

EMERGENCY OVERVIEW

- HARMFUL OR FATAL IF SWALLOWED
- CONTAINS MATERIAL THAT MAY CAUSE HARM TO THE UNBORN CHILD
- CONTAINS MATERIAL THAT MAY CAUSE ADVERSE REPRODUCTIVE EFFECTS BASED ON ANIMAL DATA
- CAUSES DAMAGE TO:
- KIDNEY

****

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.
Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Toxic; may be harmful or fatal if swallowed.
Inhalation: The vapor or fumes from this material may cause respiratory irritation. Symptoms of respiratory irritation may include coughing and difficulty breathing. Breathing this material at concentrations above the recommended exposure limits may cause central nervous system effects. Central nervous system effects may include headache, dizziness, nausea, vomiting, weakness, loss of coordination, blurred vision, drowsiness, confusion, or disorientation. At extreme exposures, central nervous system effects may include respiratory depression, tremors or convulsions, loss of consciousness, coma or death.

DELAYED OR OTHER HEALTH EFFECTS:
Reproduction and Birth Defects: Contains material that may cause adverse reproductive effects if swallowed based on animal data.Contains material that may be harmful to the developing fetus based on animal data.
Target Organs: Contains material that causes damage to the following organ(s) if swallowed: Kidney
See Section 11 for additional information. Risk depends on duration and level of exposure.

SECTION 4 FIRST AID MEASURES

Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: If swallowed, get immediate medical attention. Do not induce vomiting. Never give anything by mouth to an unconscious person.
Inhalation: Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue. Move the exposed person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if breathing difficulties continue or if any other symptoms develop.

SECTION 5 FIRE FIGHTING MEASURES

FIRE CLASSIFICATION:
OSHA Classification (29 CFR 1910.1200): Not classified by OSHA as flammable or combustible.

NFPA RATINGS: Health: 2 Flammability: 1 Reactivity: 0

FLAMMABLE PROPERTIES:
Flashpoint: Not Applicable
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames. Dry Chemical, CO2, AFFF Foam or alcohol resistant foam.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space

without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Do not breathe vapor or fumes. Wash thoroughly after handling.
General Handling Information: Do not taste or swallow antifreeze or solution. Keep out of the reach of children and animals.
General Storage Information: Do not store in open or unlabeled containers.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below the recommended exposure limits.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: Natural rubber, Neoprene, Nitrile Rubber, Polyvinyl Chloride (PVC or Vinyl).

Respiratory Protection: Determine if airborne concentrations are below the recommended occupational exposure limits for jurisdiction of use. If airborne concentrations are above the acceptable limits, wear an approved respirator that provides adequate protection from this material, such as: Air-Purifying Respirator for Organic Vapors, Dusts and Mists.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Ethylene Glycol	ACGIH	--	--	100 mg/m3	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Red
Physical State: Liquid
Odor: Faint or Mild
pH: 8.1 - 8.5
Vapor Pressure: 0.12 mmHg (Typical) @ 20 °C (68 °F)
Vapor Density (Air = 1): 2.1
Boiling Point: 108.9°C (228°F)
Solubility: Miscible
Freezing Point: -37°C (-34.6°F)
Specific Gravity: 1.08 @ 15.6°C (60.1°F) / 15.6°C (60.1°F)
Viscosity: No data available

SECTION 10 STABILITY AND REACTIVITY

Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Hazardous Decomposition Products: Ketones (Elevated temperatures), Aldehydes (Elevated temperatures)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

IMMEDIATE HEALTH EFFECTS
Eye Irritation: The eye irritation hazard is based on evaluation of data for similar materials or product components.
Skin Irritation: The skin irritation hazard is based on evaluation of data for similar materials or product components.
Skin Sensitization: The skin sensitization hazard is based on evaluation of data for similar materials or product components.
Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for similar materials or product components.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains ethylene glycol (EG). The toxicity of EG via inhalation or skin contact is expected to be slight at room temperature. The estimated oral lethal dose is about 100 cc (3.3 oz.) for an adult human. Ethylene glycol is oxidized to oxalic acid which results in the deposition of calcium oxalate crystals mainly in the brain and kidneys. Early signs and symptoms of EG poisoning may resemble those of alcohol intoxication. Later, the victim may experience nausea, vomiting, weakness, abdominal and muscle pain, difficulty in breathing and decreased urine output. When EG was heated above the boiling point of water, vapors formed which reportedly caused unconsciousness, increased lymphocyte count, and a rapid, jerky movement of the eyes in persons chronically exposed. When EG was administered orally to pregnant rats and mice, there was an increase in fetal deaths and birth defects. Some of these effects occurred at doses that had no toxic effects on the mothers. We are not aware of any reports that EG causes reproductive toxicity in human beings.

2-Ethylhexanoic acid (2-EXA) caused an increase in liver size and enzyme levels when repeatedly administered to rats via the diet. When administered to pregnant rats by gavage or in drinking water, 2-EXA caused teratogenicity (birth defects) and delayed postnatal development of the pups. Additionally, 2-EXA impaired female fertility in rats. Birth defects were seen in the offspring of mice who were administered sodium 2-ethylhexanoate via intraperitoneal injection during pregnancy.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is not expected to be harmful to aquatic organisms. The ecotoxicity hazard is based on an evaluation of data for the components or a similar material.

ENVIRONMENTAL FATE
Ready Biodegradability: This material is expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: PROPRIETARY ANTIFREEZE PREPARATION IN NON-BULK PACKAGING; NOT REGULATED FOR TRANSPORT UNDER 49 CFR
Additional Information: Bulk shipments containing a reportable quantity (RQ, 5000 pounds or more) of ethylene glycol in a single packaging are transported as hazardous material. The shipping description is: UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ETHYLENE GLYCOL CONTAINS BITTERANT), 9, III, RQ (ETHYLENE GLYCOL)

IMO/IMDG Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: Anti-freeze Preparations, Proprietary; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES:

1.	Immediate (Acute) Health Effects:	YES
2.	Delayed (Chronic) Health Effects:	YES
3.	Fire Hazard:	NO
4.	Sudden Release of Pressure Hazard:	NO
5.	Reactivity Hazard:	NO

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.

Ethylene Glycol	03, 05, 06, 07

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION:
Refer to components listed in Section 2.

WHMIS CLASSIFICATION:
Class D, Division 1, Subdivision B: Toxic Material - Acute Lethality
Class D, Division 2, Subdivision A: Very Toxic Material - Teratogenicity and Embryotoxicity
Reproductive Toxicity

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 2 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 2* Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

LABEL RECOMMENDATION:
Label Category : ANTIFREEZE/COOLANT 3 - AFC3

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 1,2,5,9,12,16
Revision Date: JULY 18, 2012

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	MSDS - Material Safety Data Sheet
CVX - Chevron	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200) and the ANSI MSDS Standard (Z400.1) by the Chevron Energy Technology Company, 100 Chevron Way, Richmond, California 94802.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identification

Product ID:	**082.04C4200.076**
Product Name:	CAT YELLOW PAINT AEROSOL HG 12U
Product Use:	Paint product.
Effective date:	19/Apr/2013
Revision Date:	19/Apr/2013
UN ID Number (msds):	CONCOM
WHMIS Classification:	D2B Toxic Material D2A Very Toxic Material B2 Flammable Liquids B5 Flammable Aerosols

Company Identification
Valspar, Inc.
1915 Second Street West
Cornwall , Ontario K6H 5T1

Tech Info Phone:	1-613-932-8960
24-Hour Medical Emergency Phone:	1-888-345-5732

2. HAZARDS IDENTIFICATION

Primary Routes of Exposure:
Inhalation
Ingestion
Skin absorption

Eye Contact:

- Severe eye irritation
- Risk of serious damage to eyes.

Skin Contact:

- Causes skin irritation.
- May cause defatting of the skin.

Ingestion:

- Irritation of the mouth, throat, and stomach.
- Aspiration hazard if swallowed - can enter lungs and cause damage.

Inhalation:

- Causes respiratory tract irritation.
- Harmful by inhalation.
- Asphyxia

Acute Other Health Effects:
- Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.
- May cause frostbite

Target Organ and Other Health Effects:
- Liver injury may occur.
- Cardiac arrhythmias
- Causes headache, drowsiness or other effects to the central nervous system.
- Kidney injury may occur.
- Blood disorders

This product contains ingredients that may contribute to the following potential chronic health effects:
- Notice: Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

Teratogens:
- May cause birth defects.
- Female reproductive toxin.

Carcinogens:
- Possible cancer hazard. Contains material which may cause cancer based on animal data.

3. COMPOSITION / INFORMATION ON HAZARDOUS INGREDIENTS

Ingredient Name CAS-No.	Approx. Weight %	Chemical Name	CAS Number
DIMETHYL KETONE-EXEMPT SOLVENT 67-64-1	35 - 40	Acetone	67-64-1
PROPANE 74-98-6	15 - 20	Propane	74-98-6
NAPHTHA 64742-88-7	10 - 15	SOLVENT NAPHTHA, PETROLEUM, MEDIUM ALIPH	64742-88-7
NAPHTHA 64742-89-8	5 - 10	SOLVENT NAPHTHA, PETROLEUM, LIGHT ALIPH	64742-89-8
TOLUENE 108-88-3	1 - 5	Toluene	108-88-3
TITANIUM DIOXIDE 13463-67-7	1 - 5	Titanium dioxide	13463-67-7

If this section is blank there are no hazardous components per WHMIS guidelines.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by the Controlled Products Regulations.

4. FIRST AID MEASURES

Eye Contact:
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. If medical assistance is not immediately available, flush an additional 15 minutes. Get medical attention immediately.

Skin Contact:
Remove contaminated clothing and shoes. Wash off immediately with plenty of water for at least 15 minutes. Get medical attention, if symptoms develop or persist.

Ingestion:
Rinse mouth with water. Give one or two glasses of water. Only induce vomiting at the instruction of medical personnel. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head lower than hips to prevent aspiration. Get medical attention immediately.

Inhalation:
Move injured person into fresh air and keep person calm under observation. Get medical attention immediately. For breathing difficulties, oxygen may be necessary. If breathing stops, provide artificial respiration. Do not give direct mouth-to-mouth resuscitation if inhaled. To protect rescuer, use air-viva, oxy-viva or one-way mask. Resuscitate in a well-ventilated area.

Medical conditions aggravated by exposure:
Any respiratory or skin condition.

5. FIRE FIGHTING MEASURES

Flash point (Fahrenheit):	-76
Flash point (Celsius):	-60
Lower explosive limit (%):	1
Upper explosive limit (%):	13
Autoignition temperature:	not determined
Sensitivity to impact:	no
Sensitivity to static discharge:	Subject to static discharge hazards. Please see bonding and grounding information in Section 7.
Hazardous combustion products:	See Section 10.

Unusual fire and explosion hazards:
Contaminated rags, wipes, saw dust, etc., may catch fire spontaneously. Store waste under water in closed metal containers or in approved self-closing containers designed to prevent spontaneous combustion until disposed of in compliance with applicable regulations. Oxidizing Material

Extinguishing media:
Carbon dioxide, dry chemical, foam and/or water fog.

Fire fighting procedures:
Firefighters should be equipped with self-contained breathing apparatus and turn out gear. Keep containers and surroundings cool with water spray.

6. ACCIDENTAL RELEASE MEASURES

Action to be taken if material is released or spilled:
Ventilate the area. Avoid breathing dust or vapor. Use self-containing breathing apparatus or airmask for large spills in a confined area. Wipe, scrape or soak up in an inert material and put in a container for disposal. See section 7, "Handling and Storage", for proper container and storage procedures. Remove all sources of ignition. Soak up with inert absorbent material. Use only non-sparking tools. Avoid contact with eyes.

7. HANDLING AND STORAGE

7. HANDLING AND STORAGE

Precautions to be taken in handling and storage:

Keep away from heat, sparks and open flame. - No smoking. Keep container closed when not in use. Do not store above 120 degrees F. (49 degrees C). Based on flash point and vapor pressure, suitable storage should be provided in accordance with OSHA regulation 1910.106, Ontario OH&S regulation 851 section 22. Empty containers may contain product residue, including flammable or explosive vapors. Do not cut, puncture or weld on or near container. All label warnings must be observed until the container has been commercially cleaned or reconditioned. If the product is used near or above the flashpoint, an ignition hazard may be present. Activities, uses, or operations which liberate vapor (such as mixing or free fall of liquids) may also present an ignition hazard. Please ensure containers and other interconnected equipment are properly bonded and grounded at all times.

8. PERSONAL PROTECTIVE EQUIPMENT AND EXPOSURE CONTROLS

Personal Protective Equipment

Eye and face protection:

Wear chemical goggles with splash shields or face shield. Contact lenses should not be worn when working with chemicals because contact lenses may contribute to the severity of an eye injury in case of exposure.

Skin protection:

Appropriate chemical resistant gloves should be worn.

Other Personel Protection Data:

Usual industrial work clothes. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection:

If exposure cannot be controlled below applicable limits, use the appropriate NIOSH approved respirator such as an air purifying respirator with organic vapor cartridge and dust/mist filter. Consult the respirator manufacturer's literature to ensure that the respirator will provide adequate protection. Read and follow all respirator manufacturer's instructions.

Ventilation

Use only in well-ventilated areas. Ensure adequate ventilation, especially in confined areas. Ovens used for curing should contain a fresh air purge to prevent vapours from accumulating and creating a possible explosive mixture. Where the product is used in a hazardous classified area, use explosion-proof electrical/ventilating/lighting/equipment.

Exposure Guidelines

OSHA Permissible Exposure Limits (PEL's)

Ingredient Name CAS-No.	Approx. Weight %	TWA (final)	Ceilings limits (final)	Skin designations
DIMETHYL KETONE-EXEMPT SOLVENT 67-64-1	35 - 40	1000 ppm TWA 2400 mg/m^3 TWA		
PROPANE 74-98-6	15 - 20	1000 ppm TWA 1800 mg/m^3 TWA		
TOLUENE 108-88-3	1 - 5	200 ppm TWA	= 300 ppm Ceiling	
TITANIUM DIOXIDE 13463-67-7	1 - 5	15 mg/m^3 TWA dust total		

ACGIH Threshold Limit Value (TLV's)

Ingredient Name CAS-No.	Approx. Weight %	TWA	STEL	Ceiling limits	Skin designations
DIMETHYL KETONE-EXEMPT SOLVENT 67-64-1	35 - 40	500 ppm TWA	750 ppm STEL		

Ingredient Name CAS-No.	Approx. Weight %	TWA	STEL	Ceiling limits	Skin designations
PROPANE 74-98-6	15 - 20	1000 ppm TWA Aliphatic hydrocarbon gases: Alkane C1-C4			
TOLUENE 108-88-3	1 - 5	20 ppm TWA			Can be absorbed through the skin.
TITANIUM DIOXIDE 13463-67-7	1 - 5	10 mg/m^3 TWA			

9. PHYSICAL PROPERTIES

Odor:	Normal for this product type.
Physical State:	Aerosol
pH:	not determined
Vapor pressure:	NOT DETERMINED mmHg @ 68ºF (20ºC)
Vapor density (air = 1.0):	5.5
Boiling point:	-44ºF (-42ºC)
Solubility in water:	not determined
Coefficient of water/oil distribution:	not determined
Density (lbs per US gallon):	6.53
Specific Gravity:	.78
Evaporation rate (butyl acetate = 1.0):	5.6
Flash point (Fahrenheit):	-76
Flash point (Celsius):	-60
Lower explosive limit (%):	1
Upper explosive limit (%):	13
Autoignition temperature:	not determined

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	Heat.
Incompatibility:	Strong oxidizing agents
Hazardous Polymerization:	None anticipated.
Hazardous Decomposition Products:	Carbon monoxide and carbon dioxide. Metal oxide fumes.

Sensitivity to static discharge: Subject to static discharge hazards. Please see bonding and grounding information in Section 7.

11. TOXICOLOGICAL INFORMATION

Ingredient Name CAS-No.	Approx. Weight %	NIOSH - Selected LD50s and LC50s
DIMETHYL KETONE-EXEMPT SOLVENT 67-64-1	35 - 40	= 5800 mg/kg Oral LD50 Rat
PROPANE 74-98-6	15 - 20	= 658 mg/L Inhalation LC50 Rat 4 h
NAPHTHA 64742-88-7	10 - 15	= 3000 mg/kg Dermal LD50 Rabbit > 5.28 mg/L Inhalation LC50 Rat 4 h > 5000 mg/kg Oral LD50 Rat

11. TOXICOLOGICAL INFORMATION

NAPHTHA 64742-89-8	5 - 10	= 3000 mg/kg Dermal LD50 Rabbit = 5000 mg/kg Oral LD50 Mouse
TOLUENE 108-88-3	1 - 5	= 12.5 mg/L Inhalation LC50 Rat 4 h = 12124 mg/kg Dermal LD50 Rat = 636 mg/kg Oral LD50 Rat = 8390 mg/kg Dermal LD50 Rabbit > 26700 ppm Inhalation LC50 Rat 1 h
TITANIUM DIOXIDE 13463-67-7	1 - 5	> 10000 mg/kg Oral LD50 Rat

Mutagens/Teratogens/Carcinogens:

May cause birth defects. Female reproductive toxin.

Possible cancer hazard. Contains material which may cause cancer based on animal data.

Contains TIO2 which is listed by IARC as a possible human carcinogen (Group 2B) based on animal data. Neither long term animal studies, nor human epidemiology studies of workers exposed to TIO2 provide an adequate basis to conclude TIO2 is carcinogenic. TIO2 is not classified as a carcinogen by NTP, U.S. OSHA, or the U.S. EPA.

Ingredient Name CAS-No.	Approx. Weight %	California Prop 65 - Developmental Toxicity	California Prop 65 - Reproductive (Male)
TOLUENE 108-88-3	1 - 5	Listed. initial date 1/1/91 - developmental toxicity	

Ingredient Name CAS-No.	Approx. Weight %	California Prop 65 - Reproductive (Female)	California Prop 65 - Carcinogen
TOLUENE 108-88-3	1 - 5	Listed. Initial date 8/1/09 - female reproductive toxicity	

Ingredient Name CAS-No.	Approx. Weight %	IARC Group 1 - Human Evidence	IARC Group 2A - Limited Human Data	IARC Group 2B - Sufficient Animal Data
TITANIUM DIOXIDE 13463-67-7	1 - 5			Monograph 47 [1989]

Ingredient Name CAS-No.	Approx. Weight %	OSHA - Hazard Communication Carcinogens	OSHA - Specifically Regulated Carcinogens	ACGIH Carcinogens
TITANIUM DIOXIDE 13463-67-7	1 - 5	Present		

12. ECOLOGICAL DATA

No information on ecology is available.

13. DISPOSAL CONSIDERATIONS

Dispose of waste at an approved hazardous waste treatment/disposal facility in accordance with applicable local, provincial and federal regulations.

14. TRANSPORTATION INFORMATION

Canadian Transport of Dangerous Goods

UN ID Number (msds): CONCOM
Proper Shipping Name: CONSUMER COMMODITY ORM-D [Paint]

14. TRANSPORTATION INFORMATION

TDG Clear Language Exceptions:
For Dangerous Goods, the supplier may apply one of the following exceptions (TDG Reference): Limited quantity/Consumer Commodity (1.17), Does not sustain combustion, etc. (2.18), Viscous liquid (2.19), Flammable liquid General Exemption (1.33) or US DOT Reciprocity (9.1,3 & 4). Please consult current TDG regulations before applying any of these exceptions to subsequent shipments.

International Air Transport Association (IATA):

UN/ID No:	UN1950
Proper shipping name:	AEROSOLS, FLAMMABLE
Hazard Class:	2.1

International Maritime Organization (IMO):

UN/ID No:	UN1950
Proper shipping name:	AEROSOLS, FLAMMABLE
Hazard Class:	2.1
Marine Pollutant	No

15. REGULATORY INFORMATION

INTERNATIONAL REGULATIONS - Chemical Inventories

Canada Domestic Substances List:
All components of this product are listed on the Domestic Substances List.

US TSCA Inventory:
All components of this product are in compliance with U.S. TSCA Chemical Substance Inventory Requirements.

Canada National Pollutant Release Inventory:

Ingredient Name CAS-No.	Approx. Weight %	NPRI Status
DIMETHYL KETONE- EXEMPT SOLVENT 67-64-1	35 - 40	Part 4 Substance
PROPANE 74-98-6	15 - 20	Part 5 Substance
NAPHTHA 64742-88-7	10 - 15	Part 5 Substance
NAPHTHA 64742-89-8	5 - 10	Part 5 Substance
TOLUENE 108-88-3	1 - 5	Part 1, Group 1 Substance Part 5 Substance Part 1, Group 1 Substance

16. OTHER INFORMATION

HMIS Codes

Health:	2*
Flammability:	4
Reactivity:	1
PPE:	X - See Section 8 for Personal Protective Equipment (PPE).

16. OTHER INFORMATION

Abbreviations:

OSHA - Occupational Safety and Health Administration, IARC - International Agency for Research on Cancer, NIOSH - National Institute of Occupational Safety and Health, NTP - National Toxicology Program, ACGIH - American Conference of Governmental Industrial Hygienists, SCAQMD - South Coast Air Quality Management District, TSCA - Toxic Substances Control Act, IATA - International Air Transport Association, IMO - International Maritime Organization, DOT - Department of Transportation, NA - Not applicable, NOT ESTAB - Not established, N.A.V. - Not available, RQ - Reportable quantity, WT - Weight, MG/CU M - Milligrams per cubic meter, G/L - Grams per liter, MM - Millimeters, MPPCF - Millions of particles per cubic foot, PPM - parts per million, PPT - parts per thousand, TCC/PM - Tag closed cup / Pensky-Martens, PB - Lead, PEL - Permissible exposure level, TWA - Time Weighted Average, STEL - Short term exposure limit, C - Celsius, F - Fahrenheit.

Disclaimer:

The data on this sheet represent typical values. Since application variables are a major factor in product performance, this information should serve only as a general guide. Valspar assumes no obligation or liability for use of this information. UNLESS VALSPAR AGREES OTHERWISE IN WRITING, VALSPAR MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AND DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR FREEDOM FROM PATENT INFRINGEMENT. VALSPAR WILL NOT BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. Your only remedy for any defect in this product is the replacement of the defective product, or a refund of its purchase price, at our option. This MSDS contains additional information required by the state of Pennsylvania.

Preparation Information:

Prepared By:	Regulatory Affairs Department
Print date:	19/Apr/2013
Revision Date:	19/Apr/2013

Technical Information:

The Valspar Corporation
PO Box 1461
Minneapolis, MN 55440

Tech Info Phone:	1-613-932-8960
24-Hour Medical Emergency Phone:	1-888-345-5732

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	**D-MO GOLD**
Version #	03
Issue date	10-22-2012
Revision date	11-13-2012
Supersedes date	11-13-2012
CAS #	Mixture
Product code	2882
Product use	Lubrication oil.
Synonym(s)	SAE 10W30; 15W40; Sonic D-MO Gold; SAE 10W-30; 15W-40
Manufacturer information	
Manufacturer	Consumers' Co-operative Refineries Limited
Address	P.O. Box 260; 9th Avenue North Regina, SK S4P 3A1 Canada
Telephone	(306) 721-5353
Supplier	Federated Co-operatives Limited
Address	P.O. Box 1050, 401 - 22nd Street East Saskatoon SK S7K 3M9 Canada
Telephone	(306) 244-3447
24 Hour Emergency Telephone	(613) 996-6666 - Canutec

2. Hazards Identification

Physical state	Liquid.
Appearance	Yellowish liquid.
Emergency overview	Low hazard for usual industrial or commercial handling by trained personnel.
OSHA regulatory status	This product is not hazardous according to OSHA 29CFR 1910.1200.
Potential health effects	
Routes of exposure	Eye contact. Skin contact. Ingestion. Inhalation.
Eyes	Direct contact with eyes may cause temporary irritation.
Skin	Prolonged skin contact may cause temporary irritation.
Inhalation	May cause respiratory tract irritation.
Ingestion	Under normal conditions of intended use, this material does not pose a risk to health.
Chronic effects	No data available.
Potential environmental effects	No special environmental precautions required.

3. Composition / Information on Ingredients

The manufacturer lists no ingredients as hazardous according to OSHA 29 CFR 1910.1200.

4. First Aid Measures

First aid procedures

Eye contact	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids. Get medical attention if symptoms occur.
Skin contact	In case of contact, flush skin with plenty of water for at least 20 minutes, while removing contaminated shoes and clothes. Wash contaminated skin with soap and water. Wash contaminated clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention if irritation develops and persists.
Inhalation	If fumes or combustion products are inhaled move victim to fresh air. Get medical attention if any discomfort occurs.

Ingestion	Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if any discomfort occurs.
Notes to physician	Treat symptomatically.
General advice	If you feel unwell, seek medical advice (show the label where possible).

5. Fire Fighting Measures

Extinguishing media

Suitable extinguishing media	Extinguish with water spray, carbon dioxide, dry chemical or material appropriate for the surrounding fire.
Unsuitable extinguishing media	None.

Protection of firefighters

Specific hazards arising from the chemical	By heating and fire, toxic vapors/gases may be formed.
Fire fighting equipment/instructions	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
Hazardous combustion products	Incomplete combustion may produce: Carbon oxides.

6. Accidental Release Measures

Personal precautions	In case of spills, beware of slippery floors and surfaces. Wear suitable protective clothing and gloves.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground. Prevent spreading over a wide area (e.g. by containment or oil barriers).
Methods for containment	Collect and dispose of spillage as indicated in Section 13 of the MSDS.
Methods for cleaning up	Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.
Other information	Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling	Observe good industrial hygiene practices. Use appropriate Personal Protective Equipment.
Storage	Store in original tightly closed container. Keep in a cool, well-ventilated place.

8. Exposure Controls / Personal Protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Engineering controls	General ventilation is normally adequate.

Personal protective equipment

Eye / face protection	Wear approved safety glasses or goggles.
Skin protection	Wear appropriate clothing to prevent repeated or prolonged skin contact. Wear protective gloves. Chemical resistant, impervious gloves are recommended.
Respiratory protection	No personal respiratory protective equipment normally required.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practices.

9. Physical & Chemical Properties

Appearance	Yellowish liquid.
Physical state	Liquid.
Form	Liquid.
Color	Yellowish.
Odor	Hydrocarbon.
Odor threshold	Not available.
pH	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Boiling point	Not available.

Melting point/Freezing point	Not available.
Solubility (water)	Insoluble in cold and hot water.
Specific gravity	0.90 at 15.5°C
Flash point	428 °F (220 °C) Open Cup
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Heat or contact with oxidizing materials will greatly increase fire and explosion hazards.
Incompatible materials	Reactive or incompatible with the following materials: Oxidizing materials. Acids.
Hazardous decomposition products	None expected under normal conditions of use.
Possibility of hazardous reactions	Will not occur.

11. Toxicological Information

Sensitization	No data available.
Acute effects	No data available.
Local effects	None known.
Chronic effects	Chronic effects are not expected when this product is used as intended.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Mutagenicity	Not expected to be mutagenic.
Neurological effects	No data available.
Reproductive effects	Contains no ingredient listed as toxic to reproduction.
Teratogenicity	Not classified.

12. Ecological Information

Ecotoxicity	No data on possible environmental effects have been found.
Environmental effects	The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulation / Accumulation	Not available.

13. Disposal Considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose in accordance with all applicable regulations.
Waste from residues / unused products	Dispose of waste and residues in accordance with local authority requirements.
Contaminated packaging	Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport Information

DOT

Not regulated as a hazardous material by DOT.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

TDG

Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations

This product is not hazardous according to OSHA 29CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance (40 CFR 355, Appendix A)

No

Section 311/312 (40 CFR 370)

No

Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)

Not controlled

WHMIS status

Non-controlled

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	No

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

State regulations

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

US. Massachusetts RTK - Substance List

Not regulated.

US. New Jersey Worker and Community Right-to-Know Act

Not regulated.

US. Pennsylvania RTK - Hazardous Substances

Not regulated.

16. Other Information

Further information	HMIS® is a registered trade and service mark of the NPCA.
HMIS® ratings	Health: 0 Flammability: 1 Physical hazard: 0
NFPA ratings	Health: 0 Flammability: 1 Instability: 0
Disclaimer	To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

MATERIAL SAFETY DATA SHEET

Section 1: Product & Company Identification

Product Name: **Lectra Motive™ Electric Parts Cleaner** (aerosol)

Product Number (s): **75018**

Product Use: Energized Electrical Cleaner

Manufacturer / Supplier Contact Information:

In United States:
CRC Industries, Inc.
885 Louis Drive
Warminster, PA 18974
www.crcindustries.com
1-215-674-4300(General)
(800) 521-3168 (Technical)
(800) 272-4620 (Customer Service)

In Canada:
CRC Canada Co.
2-1246 Lorimar Drive
Mississauga, Ontario L5S 1R2
www.crc-canada.ca
1-905-670-2291

In Mexico:
CRC Industries Mexico
Av. Benito Juárez 4055 G
Colonia Orquídea
San Luís Potosí, SLP CP 78394
www.crc-mexico.com
52-444-824-1666

24-Hr Emergency – CHEMTREC: (800) 424-9300 or (703) 527-3887

Section 2: Hazards Identification

Emergency Overview

DANGER: Vapor Harmful. Contents Under Pressure.
Appearance & Odor: Colorless liquid, irritating odor at high concentrations.

Potential Health Effects:

ACUTE EFFECTS:

EYE: May cause slight temporary eye irritation. Vapors may irritate the eyes at concentrations of 100 ppm.

SKIN: Short single exposure may cause skin irritation. Prolonged exposure may cause severe skin irritation, even a burn. A single prolonged exposure is not likely to result in the material being absorbed through the skin in harmful amounts.

INHALATION: Dizziness may occur at concentrations of 200 ppm. Progressively higher levels may also cause nasal irritation, nausea, incoordination, and drunkenness. Very high levels or prolonged exposure could lead to unconsciousness and death.

INGESTION: Single dose oral toxicity is considered to be extremely low. Swallowing large amounts may cause injury if aspirated into the lungs. This may be rapidly absorbed through the lungs and result in injury to other body systems.

CHRONIC EFFECTS: Repeated contact with skin may cause drying or flaking of skin. Excessive or long term exposure to vapors may increase sensitivity to epinephrine and increase myocardial irritability.

TARGET ORGANS: Central nervous system, possibly liver and kidney

Medical Conditions Aggravated by Exposure: None known.

See Section 11 for toxicology and carcinogenicity information on product ingredients.

Section 3: Composition / Information on Ingredients

COMPONENT	CAS NUMBER	% by Wt.
Tetrachloroethylene (PERC)	127-18-4	> 95
Carbon Dioxide	124-38-9	< 5

Section 4: First Aid Measures

Eye Contact: Immediately flush with plenty of water for 15 minutes. Call a physician if irritation persists.

Skin Contact: Remove contaminated clothing and wash affected area with soap and water. Call a physician if irritation persists. Wash contaminated clothing prior to re-use.

Inhalation: Remove person to fresh air. Keep person calm. If not breathing, give artificial respiration. If breathing is difficult give oxygen. Call a physician.

Ingestion: Do NOT induce vomiting. Call a physician immediately.

Note to Physicians: Because rapid absorption may occur through lungs if aspirated and cause systemic effects, the decision of whether to induce vomiting or not should be made by a physician. If lavage is performed, suggest endotracheal and/or esophageal control. If burn is present, treat as any thermal burn, after decontamination. Exposure may increase myocardial irritability. Do not administer sympathomimetic drugs unless absolutely necessary. No specific antidote.

Section 5: Fire-Fighting Measures

Flammable Properties: This product is nonflammable in accordance with aerosol flammability definitions. (See 16 CFR 1500.3(c)(6))

Flash Point: None (TCC) Upper Explosive Limit: None
Autoignition Temperature: None Lower Explosive Limit: None

Fire and Explosion Data:

Suitable Extinguishing Media: This material does not burn. Use extinguishing agent suitable for surrounding fire.

Products of Combustion: Hydrogen chloride. Trace amounts of phosgene and chlorine.

Explosion Hazards: Aerosol containers, when exposed to heat from fire, may build pressure and explode.

Protection of Fire-Fighters: Firefighters should wear self-contained, NIOSH-approved breathing apparatus for protection against suffocation and possible toxic decomposition products. Proper eye and skin protection should be provided. Use water spray to keep fire-exposed containers cool and to knock down vapors which may result from product decomposition.

Section 6: Accidental Release Measures

Personal Precautions: Use personal protection recommended in Section 8. Do not breathe vapors.

Environmental Precautions: Take precautions to prevent contamination of ground and surface waters. Do not flush into sewers or storm drains.

Methods for Containment & Clean-up: Dike area to contain spill. Ventilate the area with fresh air. If in confined space or limited air circulation area, clean-up workers should wear appropriate

respiratory protection. Recover or absorb spilled material using an absorbent designed for chemical spills. Place used absorbents into proper waste containers.

Section 7: Handling and Storage

Handling Procedures: Vapors of this product are heavier than air and will collect in low areas. Make sure ventilation removes vapors from low areas. Do not eat, drink or smoke while using this product. Use caution around energized equipment. The metal container will conduct electricity if it contacts a live source. This may result in injury to the user from electrical shock and/or flash fire. For product use instructions, please see the product label.

Storage Procedures: Store in a cool dry area out of direct sunlight. Aerosol cans must be maintained below 120°F / 49°C to prevent cans from rupturing.

Aerosol Storage Level: I

Section 8: Exposure Controls / Personal Protection

Exposure Guidelines:

	OSHA		ACGIH		OTHER		
COMPONENT	TWA	STEL	TWA	STEL	TWA	SOURCE	UNIT
Tetrachloroethylene	100	N.E.	25	100	N.E.		ppm
Carbon dioxide	5000	30000 v	5000	30,000	N.E.		ppm
N.E. – Not Established (c) – ceiling (s) – skin (v) – vacated							

Controls and Protection:

Engineering Controls: Area should have ventilation to provide fresh air. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at the source, preventing dispersion into the general work area. Use mechanical means if necessary to maintain vapor levels below the exposure guidelines. If working in a confined space, follow applicable OSHA regulations.

Respiratory Protection: None required for normal work where adequate ventilation is provided. If engineering controls are not feasible or if exposure exceeds the applicable exposure limits, use a NIOSH-approved cartridge respirator with organic vapor cartridge. Air monitoring is needed to determine actual employee exposure levels. Use a self-contained breathing apparatus in confined spaces and for emergencies.

Eye/face Protection: For normal conditions, wear safety glasses. Where there is reasonable probability of liquid contact, wear splash-proof goggles.

Skin Protection: Use protective gloves such as PVA, Teflon, or Viton. Also, use full protective clothing if there is prolonged or repeated contact of liquid with skin.

Section 9: Physical and Chemical Properties

Physical State: liquid
Color: colorless
Odor: irritating odor
Odor Threshold: 50 ppm
Specific Gravity: 1.619

Initial Boiling Point: 250°F / 121°C
Freezing Point: ND
Vapor Pressure: 13 mmHg @ 68°F / 20°C
Vapor Density: 5.76 (air = 1)
Evaporation Rate: very fast
Solubility: 0.015 g / 100 g @ 77°F / 25°C in water
Coefficient of water/oil distribution (log P_{ow}): 2.88
pH: NA
Volatile Organic Compounds: wt %: 0 g/L: 0 lbs./gal: 0

Section 10: Stability and Reactivity

Stability: Stable

Conditions to Avoid: Avoid direct sunlight or ultraviolet sources. Avoid open flames, welding arcs, and other high temperature sources which induce thermal decomposition.

Incompatible Materials: Avoid contact with metals such as: aluminum powders, magnesium powders, potassium, sodium, and zinc powder. Avoid unintended contact with amines. Avoid contact with strong bases and strong oxidizers.

Hazardous Decomposition Products: Hydrogen chloride, trace amounts of chlorine and phosgene

Possibility of Hazardous Reactions: No

Section 11: Toxicological Information

Long-term toxicological studies have not been conducted for this product. The following information is available for components of this product.

Acute Toxicity:

Component	Oral LD50 (rat)	Dermal LD50 (rabbit)	Inhalation LC50 (rat)
Tetrachloroethylene	2629 mg/kg	3228 mg/kg	5200 mg/kg/4H
Carbon dioxide	No data	No data	470,000 ppm/30M

Chronic Toxicity:

Component	OSHA Carcinogen	IARC Carcinogen	NTP Carcinogen	Irritant	Sensitizer
Tetrachloroethylene	No	Group 2A	Reasonably Anticipated to be a Carcinogen	Skin	No
Carbon dioxide	No	No	No	No	No

Reproductive Toxicity: No information available
Teratogenicity: No information available
Mutagenicity: Tetrachloroethylene: In vitro studies were negative
Animal studies were negative
Synergistic Effects: No information available

Section 12: Ecological Information

Ecological studies have not been conducted for this product. The following information is available for components of this product.

Ecotoxicity: Tetrachloroethylene -- 96 Hr LC50 Rainbow Trout: 5.28 mg/L (static)
96 Hr LC50 Fathead minnow: 13.4 mg/L (flow-through)

Persistence / Degradability: Biodegradation under aerobic conditions is below detectable limits. Biodegradation may occur under anaerobic conditions. Biodegradation rate may increase in soil and/or water with acclimation.

Bioaccumulation / Accumulation: Bioconcentration potential is low (BCF less than 100).

Mobility in Environment: Potential for mobility in soil is medium.

Section 13: Disposal Considerations

Waste Classification: The dispensed liquid product is a RCRA hazardous waste for toxicity with the following potential waste codes: U210, F001, F002, D039. (See 40 CFR Part 261.20 – 261.33)
Empty aerosol containers may be recycled. Any liquid product should be managed as a hazardous waste.

All disposal activities must comply with federal, state, provincial and local regulations. Local regulations may be more stringent than state, provincial or national requirements.

Section 14: Transport Information

US DOT (ground): UN1950, Aerosols, non-flammable, 2.2 (6.1), Limited Quantity**

ICAO/IATA (air): UN1950, Aerosols, non-flammable, containing substances in Division 6.1, Packing Group III, 2.2 (6.1), Limited Quantity

IMO/IMDG (water): UN1950, Aerosols, 2.2 (6.1)

Special Provisions: Marine Pollutant
**This product can be classified and labeled as 'Consumer Commodity, ORM-D' for domestic ground shipping until January 1, 2014.
If shipping as limited quantity by ground, note that shipping papers are not required.

Section 15: Regulatory Information

U.S. Federal Regulations:

Toxic Substances Control Act (TSCA):
All ingredients are either listed on the TSCA inventory or are exempt.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):
Reportable Quantities (RQ's) exist for the following ingredients: Tetrachloroethylene (100 lbs)

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center (800-424-8802) and to your Local Emergency Planning Committee.

Superfund Amendments Reauthorization Act (SARA) Title III:
Section 302 Extremely Hazardous Substances (EHS): None

Section 311/312 Hazard Categories:		
	Fire Hazard	No
	Reactive Hazard	No
	Release of Pressure	Yes
	Acute Health Hazard	Yes
	Chronic Health Hazard	Yes

Section 313 Toxic Chemicals: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:
tetrachloroethylene (98%)

Clean Air Act:
Section 112 Hazardous Air Pollutants (HAPs): tetrachloroethylene

Occupational Safety and Health Administration:
This product is regulated by the Hazard Communications Standard.

U.S. State Regulations:

California Safe Drinking Water and Toxic Enforcement Act (Prop 65):
This product may contain the following chemicals known to the state of California to cause cancer, birth defects or other reproductive harm: tetrachloroethylene

Consumer Products VOC Regulations: Not applicable to Canadian product

State Right to Know:

New Jersey:	127-18-4, 124-38-9
Pennsylvania:	127-18-4, 124-38-9
Massachusetts:	127-18-4, 124-38-9
Rhode Island :	127-18-4, 124-38-9

Canadian Regulations:

Controlled Products Regulations:
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

WHMIS Hazard Class: A, D1B, D2A, D2B

Canadian DSL Inventory: All ingredients are either listed on the DSL Inventory or are exempt.

European Union Regulations:

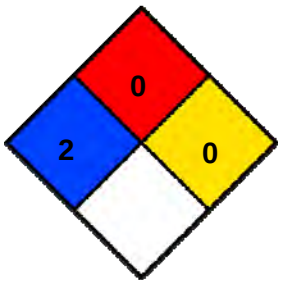
RoHS Compliance: This product is compliant with Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003. This product does not contain any of the restricted substances as listed in Article 4(1) of the RoHS Directive.

Additional Regulatory Information: None

Section 16: Other Information

HMIS® (II)	
Health:	**2**
Flammability:	**0**
Reactivity:	**0**
PPE:	**B**

NFPA



Ratings range from 0 (no hazard) to 4 (severe hazard)

Prepared By: Michelle Rudnick
CRC #: 491G
Revision Date: 04/25/2012

Changes since last revision: Section 14: transport information

The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. This information is accurate to the best of CRC Industries' knowledge or obtained from sources believed by CRC to be accurate. Before using any product, read all warnings and directions on the label. For further clarification of any information contained on this MSDS consult your supervisor, a health & safety professional, or CRC Industries.

ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Service
CFR: Code of Federal Regulations
DOT: Department of Transportation
DSL: Domestic Substance List
g/L: grams per Liter
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
IMDG: International Maritime Dangerous Goods
IMO: International Maritime Organization
lbs./gal: pounds per gallon
LC: Lethal Concentration
LD: Lethal Dose
NA: Not Applicable
ND: Not Determined
NIOSH: National Institute of Occupational Safety & Health
NFPA: National Fire Protection Association
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PMCC: Pensky-Martens Closed Cup
PPE: Personal Protection Equipment
ppm: Parts per Million
RoHS: Restriction of Hazardous Substances
STEL: Short Term Exposure Limit
TCC: Tag Closed Cup
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Information System

Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing
	**Class D-2B: Material causing other toxic effects (TOXIC).**	

Section I. Chemical Product and Company Identification

Product Name/ Trade Name	**Ecopure EP61 Glass & Surface Cleaner**
Supplier	AVMOR LTD 950 Michelin Laval (QC) Tel : (450)-629-8074 www.avmorgreen.com
Synonym	Not available.
Chemical Name	Not applicable.
Chemical Family	Mixture
Chemical Formula	Not applicable.
Manufacturer	AVMOR LTD 950 Michelin Laval (QC) Tel : (450)-629-8074 www.avmorgreen.com
Material Uses	Glass & surface cleaner

Code	1989
CAS#	Not applicable.
DSL	All ingredients are listed.
CI#	Not applicable
In case of Emergency	CANUTEC : 1-613-996-6666

Section II. Composition and Information on Ingredients

			Exposure Limits	
Name	**CAS #**	**% by Weight**	**TLV/PEL**	**LC_{50}/LD_{50}**
Alcohols, C9-11 ethoxylate	68439-46-3	5 - 10	Not available.	ORAL (LD50): Acute: 1400 mg/kg [Rat].
Surfactant	N.J. Trade Secret Registry # 360116-01	1 - 5	Not available.	Not available.
Complexing agent	N.J. Trade Secret registry # 361102-02	1 - 5	Not available.	Not available.

Section III. Hazards Identification.

Potential Acute Health Effects	Irritating to eyes. Incidental skin contact is not expected to cause any significant irritation. If ingested might cause disconfort, diarrhea and nausea.
Potential Chronic Health Effects	No ingredient in this product is currently listed as carcinogens by IARC, NTP or OSHA. Prolonged contact without washing may cause skin rash or redness.

Continued on Next Page

Section IV. First Aid Measures

Eye Contact	In case of contact with eyes, rinse immediately with plenty of water.If irritation persists, get medical attention.
Skin Contact	Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. If irritation persists, seek medical attention.
Hazardous Skin Contact	Not applicable.
Inhalation	Allow to rest in a well ventilated area. If discomfort persists seek medical attention.
Hazardous Inhalation	Not applicable.
Ingestion	DO NOT induce vomiting. Have conscious person drink several glasses of water. Seek medical attention. NEVER give an unconscious person anything to ingest.
Hazardous Ingestion	Not applicable.

Section V. Fire and Explosion Data

The Product is:	Non-flammable.
Auto-Ignition Temperature	Not applicable.
Flash Points	Not applicable.
Flammable Limits	Not applicable.
Products of Combustion	Not applicable.
Fire Hazards in Presence of Various Substances	Not applicable.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product : Not explosive.
Fire Fighting Media and Instructions	Use dry chemical or CO_2.
Special Remarks on Fire Hazards	Not applicable.
Special Remarks on Explosion Hazards	Not applicable.

Section VI. Accidental Release Measures

Small Spill	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
Large Spill	No additional information.

Continued on Next Page

Section VII. Handling and Storage

Precautions	Avoid contact with skin and eyes.In case of contact with eyes, rinse with plenty of water.In case of contact, immediately flush skin with plenty of water.
Storage	Store in a cool, well-ventilated area away from incompatible materials.

Section VIII. Exposure Controls/Personal Protection

Engineering Controls	No special measures required for normal use conditions.
Personal Protection	Safety eyewear should be used when there is a likelihood of exposure.Gloves (impervious) are recommanded for prolonged contact with bulk quantities.
Personal Protection in Case of a Large Spill	Wear suitable protective clothing, gloves and eye/face protection.
Exposure Limits	Not available.

Section IX. Physical and Chemical Properties

Physical State and Appearance	Liquid. (Clear.)	**Odor**	Fragrance free.
Molecular Weight	Not applicable.	**Taste**	Not available.
pH (1% soln/water)	11 to 12 (Conc. (% w/w): 100)	**Color**	Blue.
Boiling Point	The lowest known value is 100°C (212°F) (Water).		
Melting Point	May start to solidify at 0°C (32°F) based on data for: water .		
Critical Temperature	Not available.		
Specific Gravity	1.01 to 1.03 (Water = 1)		
Vapor Pressure	Not applicable.		
Vapor Density	The highest known value is >1 (Air = 1) (). Weighted average: 1 (Air = 1)		
Volatility	Not available.		
Odor Threshold	Not available.		
Evaporation rate	Not available.		
Viscosity	Not available.		
Water/Oil Dist. Coeff.	The product is much more soluble in water.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	Easily soluble in water		

Section X. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Not available.
Incompatibility with various substances	Incompatible with strong oxydizing materials.

Continued on Next Page

Corrosivity	Not considered to be corrosive.
Special Remarks on Reactivity	No additional information.
Special Remarks on Corrosivity	No additional information.

Section XI. Toxicological Information

Routes of Entry	Eye contact. Ingestion. Inhalation. Skin.
Toxicity to Animals	See section II
Chronic Effects on Humans	No ingredient in this product is currently listed as carcinogens by IARC, NTP or OSHA. Prolonged contact without washing may cause skin rash or redness.
Other Toxic Effects on Humans	Irritating to eyes. Incidental skin contact is not expected to cause any significant irritation. If ingested might cause disconfort, diarrhea and nausea.
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	Not available.
Special Remarks on Other Toxic Effects on Humans	Not available.

Section XII. Ecological Information

Ecotoxicity	Not determined.
BOD5 and COD	Not determined.
Products of Biodegradation	All components of this product are readily biodegradable as per OECD 301E.
Toxicity of the Products of Biodegradation	The products of biodegradation are less toxic than the original product.
Special Remarks on the Products of Biodegradation	No additional information.

Section XIII. Disposal Considerations

Waste Disposal	Dispose of material according to regional, provincial and federal regulations. Consult your local or regional authorities.

Section XIV. Transport Information

TDG Classification	Not a TDG controlled material.
PIN	Not applicable.
Special Provisions for Transport	No additional remark.

Continued on Next Page

TDG (Pictograms)



Section XV. Other Regulatory Information and Pictograms

Other Regulations	OSHA:Not hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).	
Other Classifications	**HCS (U.S.A.)**	Not determined.
	DSCL (EEC)	R36- Irritating to eyes.

Hazardous Material Information System (U.S.A.)

Health Hazard	1
Fire Hazard	0
Reactivity	0
Personal Protection	b

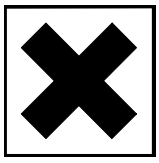
National Fire Protection Association (U.S.A.)



DOT (U.S.A) (Pictograms)



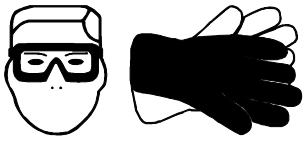
DSCL (Europe) (Pictograms)



ADR (Europe) (Pictograms)



Protective Equipment (Pictograms)



Section XVI. Other Information

References	-Manufacturer's Material Safety Data Sheet. -Material safety data sheet issued by: la Commission de la Santé et de la Sécurité du Travail du Québec.
Other Special Considerations	This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. Always follow label directions carefully when using this or any other chemical product. Keep MSDSs filed and organized in an area accessible to workers.

Validated by Regulatory Affairs on 16/05/2008.

Verified by Regulatory Affairs.

Printed 16/05/2008.

Information Contact **If information about this product is required, please contact Avmor Ltd. at (450) 629-3800 or visit us at www.ecopure.ca.**

Notice to Reader

Continued on Next Page

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Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing
	Class D-2B: Material causing other toxic effects (TOXIC).	

Section I. Chemical Product and Company Identification

Product Name/ Trade Name	**ECOPURE EP70 Washroom Cleaner**
Supplier	AVMOR LTD 950 Michelin Laval (QC) Tel : (450)-629-8074 www.avmorgreen.com
Synonym	Not available.
Chemical Name	Not applicable.
Chemical Family	Mixture
Chemical Formula	Not applicable.

Code	1993
CAS#	Not applicable.
DSL	All ingredients are listed.
CI#	Not applicable

In case of Emergency

Emergency phone:
CANUTEC : 1-613-996-6666
If information about this product is required, please contact Avmor Ltd at (450) 629-3800.

Manufacturer	AVMOR LTD 950 Michelin Laval (QC) Tel : (450)-629-8074 www.avmorgreen.com
Material Uses	washroom cleaner

Section II. Composition and Information on Ingredients

			Exposure Limits	
Name	**CAS #**	**% by Weight**	**TLV/PEL**	**LC_{50}/LD_{50}**
Ethoxylated C7-C21 alcohols	68991-48-0	10-30	Not available.	ORAL (LD50): Acute: 2000 mg/kg [Rat].
Hydrogen peroxide	7722-84-1	1 - 5	Not available.	Not available.

Section III. Hazards Identification.

Potential Acute Health Effects	May cause severe eye irritation. Incidental skin contact is not expected to cause any significant irritation. If ingested might cause disconfort, diarrhea and nausea.
Potential Chronic Health Effects	No ingredient in this product is currently listed as carcinogens by IARC, NTP or OSHA. Prolonged contact without washing may cause skin rash or redness.

Section IV. First Aid Measures

Eye Contact	Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open.If irritation persists, get medical attention.
Skin Contact	Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. If irritation persists, seek medical attention.
Hazardous Skin Contact	Not applicable.

Continued on Next Page

Inhalation	Allow to rest in a well ventilated area. If discomfort persists seek medical attention.
Hazardous Inhalation	Not applicable.
Ingestion	DO NOT induce vomiting. Have conscious person drink several glasses of water. Seek medical attention. NEVER give an unconscious person anything to ingest.
Hazardous Ingestion	Not applicable.

Section V. Fire and Explosion Data

The Product is:	Non-flammable.
Auto-Ignition Temperature	Not applicable.
Flash Points	Not applicable.
Flammable Limits	Not applicable.
Products of Combustion	Not applicable.
Fire Hazards in Presence of Various Substances	Not applicable.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product : Not explosive.
Fire Fighting Media and Instructions	Use dry chemical or CO_2 or water spray or fog.
Special Remarks on Fire Hazards	Not applicable.
Special Remarks on Explosion Hazards	Not applicable.

Section VI. Accidental Release Measures

Small Spill	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
Large Spill	No additional information.

Section VII. Handling and Storage

Precautions	Avoid contact with skin and eyes.In case of contact with eyes, rinse with plenty of water.In case of contact, flush skin with plenty of water.
Storage	Store in a cool, well-ventilated area away from incompatible materials.Store between 10 -30 °C

Continued on Next Page

Section VIII. Exposure Controls/Personal Protection

Engineering Controls	No special measures required for normal use conditions.
Personal Protection	Safety glasses. Gloves (impervious) are recommanded for prolonged contact with bulk quantities.
Personal Protection in Case of a Large Spill	Wear suitable protective clothing, gloves and eye/face protection.
Exposure Limits	US OSHA Hydrogene peroxyde : 1 ppm TWA

Section IX. Physical and Chemical Properties

Physical State and Appearance	Liquid. (Clear.)	**Odor**	Fragrance free.
Molecular Weight	Not applicable.	**Taste**	Not available.
pH (1% soln/water)	5 to 6.5 (Conc. (% w/w): 100) [Acidic.]	**Color**	Pinkish / Red.
Boiling Point	Weighted average: 113.43°C (236.2°F)		
Melting Point	Weighted average: 1.24°C (34.2°F)		
Critical Temperature	Not available.		
Specific Gravity	1.01 to 1.02 (Water = 1)		
Vapor Pressure	Not applicable.		
Vapor Density	Weighted average: 1.01 (Air = 1)		
Volatility	Not available.		
Odor Threshold	Not available.		
Evaporation rate	Not available.		
Viscosity	Not available.		
Water/Oil Dist. Coeff.	The product is much more soluble in water.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	Easily soluble in water		

Section X. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Not available.
Incompatibility with various substances	Incompatible with strong oxydizing materials and combustible materials
Corrosivity	Not considered to be corrosive.
Special Remarks on Reactivity	No additional information.
Special Remarks on Corrosivity	No additional information.

Continued on Next Page

Section XI. Toxicological Information

Routes of Entry	Eye contact. Ingestion. Inhalation. Skin.
Toxicity to Animals	See section II
Chronic Effects on Humans	No ingredient in this product is currently listed as carcinogens by IARC, NTP or OSHA. Prolonged contact without washing may cause skin rash or redness.
Other Toxic Effects on Humans	May cause severe eye irritation. Incidental skin contact is not expected to cause any significant irritation. If ingested might cause disconfort, diarrhea and nausea.
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	Not available.
Special Remarks on Other Toxic Effects on Humans	Not available.

Section XII. Ecological Information

Ecotoxicity	Not determined.
BOD5 and COD	Not determined.
Products of Biodegradation	All surfactants of this product are readily biodegradable as per OECD 301
Toxicity of the Products of Biodegradation	The products of biodegradation are less toxic than the original product.
Special Remarks on the Products of Biodegradation	No additional information.

Section XIII. Disposal Considerations

Waste Disposal	Dispose of material according to regional, provincial and federal regulations. Consult your local or regional authorities.

Section XIV. Transport Information

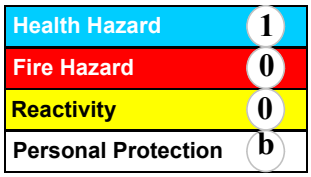
TDG Classification	Not a TDG controlled material.
PIN	Not applicable.
Special Provisions for Transport	No additional remark.
TDG (Pictograms)	

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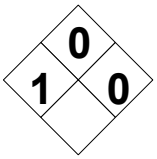
Section XV. Other Regulatory Information and Pictograms

Other Regulations	Not determined.	
Other Classifications	**HCS (U.S.A.)**	Not determined.
	DSCL (EEC)	R41- Risk of serious damage to eyes.

Hazardous Material Information System (U.S.A.)



National Fire Protection Association (U.S.A.)

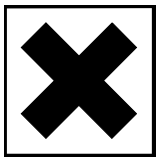


Health
Fire Hazard
Reactivity
Specific Hazard

DOT (U.S.A) (Pictograms)



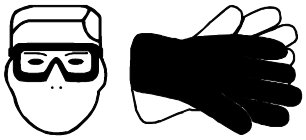
DSCL (Europe) (Pictograms)



ADR (Europe) (Pictograms)



Protective Equipment (Pictograms)



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References	-Manufacturer's Material Safety Data Sheet. -Material safety data sheet issued by: la Commission de la Santé et de la Sécurité du Travail du Québec.
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Validated by Regulatory Affairs on 23/12/2008.

Verified by Regulatory Affairs.

Printed 23/12/2008.

Information Contact **If information about this product is required, please contact Avmor Ltd. at (450) 629-3800 or visit us at www.ecopure.ca.**

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Material Safety Data Sheet

Section 1 Chemical Product and Company Identification

Manufacturer

Federal Process Corporation
4520 Richmond Rd
Cleveland OH 44128
1-800-846-7325

Emergency Telephone Number	Call Chemtrec at 1-800-424-9300
Product Identifier:	Gasoila® Soft Set
Product Description:	Complex Mixture
Product Use:	Pipe Thread Sealant

Section 2 Hazards Identification

HMIS HAZARD IDENTIFICATION
Health 1 Flammability 2 Reactivity 0

EMERGENCY OVERVIEW:

PHYSICAL HAZARDS: May become slippery if spilled on floor.

ACUTE HEALTH EFFECTS:

May cause severe eye irritation but no lasting damage.
Transient irritation may result from extended skin contact.
If ingested may cause gastrointestinal discomfort.

CHRONIC HEALTH EFFECTS:

No chronic health effects are expected

Section 3 Composition/Information on Ingredients

Additional information is provided in the Regulatory section of this document for Sara 313, California Proposition 65, and various state right-to-know laws.

Contains:		OSHA PEL	ACGIH TLV	% by wt.
Polytetrafluorethylene	CAS # 9002-84-0	NA	NA	.5-2
Titanium Dioxide	CAS# 13463-67-7	15mg/m3	10mg/m3	1-6
Talc	CAS# 14807-96-6	2mg/m3	.1mg/m3	48-59
Isopropyl Alcohol	CAS # 67-63-0	400 ppm	400 ppm	5-12
Ethylene Glycol Butyl Ether	CAS # 111-76-2	50 ppm	25 ppm	5-10

Polytetrafluorethylene can emit toxic vapors at temperatures exceeding 700 F see Section 5 for additional information.

Section 4 First Aid Measures

INHALATION: Not expected to become a significant inhalation hazard under normal conditions of use.
INGESTION: If ingested this product is not expected to cause an acute reaction. Give two glasses of water to drink. Consult a physician. Never give anything by mouth to an unconscious person.
EYES: Flush eyes immediately with large quantities of water, lifting the lower and upper lids occasionally. If irritation persists consult a physician.
SKIN: Flush the contaminated skin and wash with soap and water. If irritation develops or persists seek medical advice. Contaminated clothing should be washed prior to re-use.

Section 5 Fire Fighting Measures

EXTINGUISHING MEDIA: Foam (Aqueous Film Forming Foam) , dry chemical, carbon dioxide.

SPECIAL PRECAUTIONS: Water fog may be used to cool the containers, however frothing may occur if water is sprayed directly into burning containers. Do not enter fire area without proper protection.
HAZARDOUS COMBUSTION PRODUCTS: The thermal decomposition products are highly dependant upon the combustion conditions. Noxious or toxic fumes may be generated, some of which may be toxic or irritating. Polytetrafluorethylene can emit toxic fumes when heated to temperatures exceeding 700 F. The maximum operating temperature for this compound is around 500 F. At these temperatures PTFE does not undergo any thermal degradation and is not hazardous.

FLASH POINT: 90 F
LOWER FLAMMABLE LIMIT: 1.1%
UPPER FLAMMABLE LIMIT: 10.6%
AUTOIGNITION TEMPERATURE: Not established

Section 6 Accidental Release Measures

Isolate the spill area, and keep unnecessary people away. Absorb spilled material with a suitable inert absorbent material. Collect and dispose of the contaminated absorbent in accordance with local state and federal laws.

Section 7 Handling and Storage

HANDLING: Avoid contact with the skin and eyes. Use good industrial hygiene practices. Provide adequate ventilation. Keep containers closed. No smoking or open flame in storage areas. Wash hands after using product and before eating, drinking, smoking or using toilet facilities.
STORAGE: Store in a dry place away from moisture, excessive heat and sources of ignition. Avoid storage near food to prevent food contamination. Avoid freezing.

Section 8 Exposure Controls/Personal Protection

VENTILATION REQUIREMENTS: In confined areas local and general ventilation should be provided to maintain airborne concentrations below permissible exposure limits. Ventilation systems must be designed according to approved engineering standards.

PERSONAL PROTECTION:
EYE: The wearing of protective glasses is recommended when handling any chemicals.
GLOVES: If prolonged or repeated skin contact is expected wear gloves as appropriate to prevent skin contact. Butyl and nitrile rubbers are recommended.
RESPIRATORY: Provide adequate ventilation in the workplace.
OTHER: Eating and smoking should be prohibited in areas where product is handled. Nothing replaces good personal hygiene. Coveralls or other full body clothing shall be worn and properly laundered after use. Workers should wash hands, face, neck, and arms before eating, drinking, or smoking.

Section 9 Physical and Chemical Properties

PHYSICAL STATE:	Light Blue Paste
ODOR AND APPEARANCE:	Slight Odor
LOWEST BOILING POINT:	180 F
VAPOR PRESSURE:	0.88 mm/hg
VAPOR DENSITY:	1
WATER SOLUBILITY:	Slight
% ORGANIC VOLATILES:	27.0% w/w (2.249 lbs/gallon)= (269.16 grams/liter)
pH	N.A.
SPECIFIC GRAVITY	1.53 (12.74 LBS/GALLON)

Section 10 Stability and Reactivity

STABILITY: Stable under normal conditions.

REACTIVITY: Unknown

Section 11 Toxicological Information

Exposure limits: The limits reported in Section 2 of this document refer to other physical forms of the ingredients present in this product. Limits for the formulated product have not been determined.

None of the components of this product have been reported as carcinogenic by NTP, OSHA or IARC.

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Section 12 Ecological Information

General: No special Procedures

Section 13 Disposal Information

Waste materials must be disposed of in accordance with your municipal, state, provincial and federal regulations. Contact the proper authorities for specific instructions. Avoid incineration.

Section 14 Transportation Information

CONTAINERS UNDER 1 GALLON:

DOT HAZARD CLASS: Consumer Commodity ORM-D
PROPER SHIPPING NAME: Consumer Commodity ORM-D
IDENTIFICATION NUMBER: Not Listed
Refer to CFR 49 Section 173.150 for specific requirements.

CONTAINERS 1 GALLON AND OVER::

DOT HAZARD CLASS: FLAMMABLE LIQUIDS N.O.S. (contains Alcohol) 3
PROPER SHIPPING NAME: FLAMMABLE LIQUIDS N.O.S. (contains Alcohol) 3
IDENTIFICATION NUMBER: UN1993,III
DO NOT SHIP BY AIR

Section 15 Regulatory Information

Listed below are chemical substances subject to supplier notification requirements. The percentages, when present represent average values.

CAS Number	SARA 313	WHMIS	CA-65
111-76-2 Ethylene Glycol Butyl Ether	X		X

CA-65 - Chemical substances identified under the California Proposition 65 column are known to the State of California to cause cancer and/or reproductive toxicity.

TSCA STATUS: All ingredients of this product comply with the requirements of the US EPA Toxic Substances Control Act.

Section 16 Other

Prepared by R. L.

The above information and recommendations are believed accurate and reliable. Because it is not possible to anticipate all conditions of use, additional safety precautions may be required. The Federal Process Company makes no warranty, either express or implied, including merchantability and fitness.

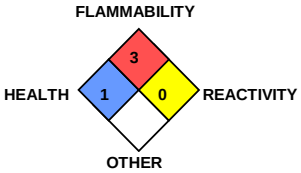
USER RESPONSIBILITY: Each user should read and understand this information and incorporate it into individual site safety programs in accordance with applicable hazard communication standards and regulations.

Health	1
Flammability	3
Reactivity	0
PPI	B

HMIS SYMBOL

MATERIAL SAFETY DATA SHEET

RENEW™ - Aerosol



NFPA SYMBOL

SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Renew™ AEROSOL**
Chemical Family: Mixture
Use: Belt dressing
Manufacturer/Supplier: **Jet-Lube of Canada Ltd.**

3820 – 97 Street NW
Edmonton, Alberta
Canada T6E 5S8
Phone: (780) 463-7441 Fax: (780) 463-7454
CCOHS: 1-800-668-4284

Emergency:
CANUTEC PH: (613) 996-6666 Cell: *666 TTY/TDD: 1-888-675-6863

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components	**Propellant**	**Solvent**
CAS NO.	68476-85-7	110-54-3
WT %	10 - 30	60 - 100
OSHA PEL	1000mg/L	50ppm (skin)
ACGIH TLV	1000mg/L	50ppm
LD50	Not Available	28700mg/kg (oral, rat)
LC50	Not Available	48500ppm (rat, exposure)
OTHER:	Not Available	Not Available

SECTION 3 - HAZARDS IDENTIFICATION

Route of Entry: Eyes, Inhalation, Ingestion, Skin
Eyes: May cause irritation to eyes.
Inhalation: Viscous nature may block breathing passages if inhaled.
Ingestion: May cause diarrhea if ingested.
Skin: May cause irritation after prolonged skin exposure, especially for persons with hyper sensitivity.

SECTION 4 - FIRST AID MEASURES

Eyes: Flush with water until all residual material is gone. If irritation persists, seek medical help.
Ingestion: Do not induce vomiting. Wash out mouth. Contact a physician immediately.
Skin: Remove by wiping or with a waterless hand cleaner, followed by washing with soap and water.
Inhalation: Clear air passage. If breathing difficulty continues seek medical help.

SECTION 5 - FIRE FIGHTING MEASURES

Flammability: Flammable
Extinguishing Media: Use dry chemicals, foam, halon, CO_2
Flash Point (OC): 18ºC (64ºF)
Flash Point (Resin): 193ºC (220ºF)
Flammable Limit: Upper (Not Available) Lower (Not Available)
Explosive Properties: LEL – 1.1% UEL - 7.5%
Explosive Data: Sensitivity to Impact (Not Available)
Sensitivity to Static Discharge (Not Available)
Auto ignition Temp: 225°C (437°F)
Hazardous Combustion Products: Oxides of carbon, smoke and irritating vapors as products of incomplete combustion.
Protective Equipment: Self-contained breathing apparatus.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spillage: Scoop up excess, then wipes down the affected area and pick up residue with diatomaceous earth to avoid a walking hazard.
Environmental Precautions: Do not allow product to enter into drains.

SECTION 7 - HANDLING AND STORAGE

Handling Procedures: No special handling precautions necessary. Do not pressurize, cut, heat or weld empty containers.
Storage Requirements: Store in a cool, well ventilated place.

SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits:
ACHIG TLV Propellant (1000mg/L) Solvent (50ppm)
OSHA PEL Propellant (1000mg/L) Solvent (50ppm)
Engineering Controls: If user's operation generates vapors or mists, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make up air should always be supplied to balance air removed by exhaust ventilation. Ensure eyewash station and safety shower are close to work station.
Personal Protective Equipment (PPE):
Respiratory Protection: Breathing apparatus in confined spaces.
Hand Protection: Protective gloves for hypersensitive persons.
Eye Protection: Protective glasses if applying to moving parts.
Body Protection: Protective overalls.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Aerosol Form	Odor:	Strong Petroleum
Odor Threshold:	Not Available	Specific Gravity:	0.80 Typical
Vapor Pressure:	20 kPa	Vapor Density:	2.97
Boiling Point:	Not Available	Freezing Point:	Not Available
pH:	Neutral	Water Solubility:	Nil
Density:	0.80 g/cm^3	VOC%:	75 Typical

Evaporation Rate (Butyl Acetate = 1.0): >8.4
Coefficient of Water/Oil Distribution: Not Available

SECTION 10 - STABILITY AND REACTIVITY

Stability: Chemically stable under normal conditions.
Conditions to Avoid: Powerful sources of ignition and extreme temperatures.
Materials to Avoid: Strong acids and oxidizing agents.
Hazardous Decomposition Products: May release COx, smoke and irritating vapors when heated to decomposition.

SECTION 11 - TOXICOLOGICAL INFORMATION

Teratogenecity, Embryotoxicity and/or Fetotoxicity: Not Available
Mutagenicity: Not Available
Effects of Short-Term (Acute) Exposure: Minor irritation in contact with skin. Irritation of nasal pathways and eyes if inhaled. Toxic effects if swallowed.
Effects of Long-Term (Chronic) Exposure: Long term dermal application may produce possible skin irritation. Elevated temperatures or mechanical action may form vapors or fumes. Inhalation of oil mists or vapors may cause irritation of the upper respiratory tract.
Name of Synergistic Products and Effects: Not Available
Irritancy of Product: Not Available
Skin Sensitization: Not Available
Respiratory Sensitization: Not Available
Carcinogen: Not Reasonably believed to be carcinogenic to humans NTP: No IARC: No OSHA: No

SECTION 12 - ECOLOGICAL INFORMATION

Possible Effects: May generate oil fractions that could act as a marine pollutant, but is highly unlikely.
Behavior: Chemically stable in nature. Bioaccumulation potential of product almost nil.
Environmental Fate: Product will float and spread across water, making it a nuisance contaminant.

SECTION 13 - DISPOSAL CONSIDERATIONS

Consult federal, provincial and local regulations for disposal of petroleum products.
Do not incinerate.

SECTION 14 - TRANSPORT INFORMATION

TDG (Canada): The mixture is not specifically listed in the Canadian Transportation of Dangerous Goods regulations. The mixture is not regulated.
Shipping Name: AEROSOLS, Flammable
UN No.: UN1950
Packing Group: none
Classification: CLASS 2.1, Flammable Gases
Labeling Requirements: Limited Quantity labels for containment less than LQI of 6 L net contents per containment.
Class 2.1 Label if > 6 L net contents per containment or large containment.
Placard Requirements: Limited Quantities – None required.
Large Containment – Class 2.1

SECTION 15 -REGULATORY INFORMATION

WHMIS: A, B-5, D-2B
DSL: All components listed
CPR Compliance: This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all of the information required by those regulations.

SECTION 16 - OTHER INFORMATION

CPR - Controlled Product Regulations
DSL - Domestic Substance List

As of issue date, the information contained herein is accurate and reliable to the best of Jet-Lube of Canada Ltd.'s knowledge. Jet-Lube of Canada Ltd. does not warrant or guarantee its accuracy or reliability and shall not be liable for any loss or damage arising out of the use thereof. It is the users' responsibility to satisfy themselves that the information offered for their consideration is suitable for their particular use.

Prepared by: **Jet-Lube of Canada Ltd. - Laboratory**
Last Date of Revision: **October 3, 2012**

SECTION I-MATERIAL IDENTIFICATION AND USE

Material Name/Identifier:	**Black Dashboard Cleaner**	**Stock No.**		**291/ 293**
Manufacturer's Name:	**Kleen-Flo Tumbler Industries Ltd**	**Street Address:**		**75 Advance Blvd.**
City:	**Brampton**	**Province:**		**Ontario**
Postal Code:	**L6T 4N1**	**Emergency Phone #:**	**CANUTEC:- 613-996-6666 (24HR)**	
Chemical Name:	**Mixture (N.Ap.)**	**Chemical Family:**		**Mixture (N.Ap.)**
Chemical Formula:	**Mixture (N.Ap.)**	**Trade Names & Synonyms:**		**None**
Material Use:	**Dashboard polish**	**Molecular Weight:**		**Mixture (N.Ap.)**

SECTION II-HAZARDOUS INGREDIENTS OF MATERIAL

Hazardous Ingredients	C.A.S.	Approximate Concentration	LD50 Species & Route	LC50 Species & Route
Heptane	**142-82-5**	**40-70%**	**>15000mg/kg rat-oral**	**N/Av.**
Isobutane (propellant)	**75-28-5**	**10-30%**	**N.Ap.**	**142,500ppm (4hr) mouse-inh.**
Propane (propellant)	**74-98-6**	**7-13%**	**>5000mg/kg dermal-rabb**	**N/Av.**

SECTION III-PHYSICAL DATA FOR MATERIAL

Physical State:	**Aerosol**	**Odour/Appearance:**	**Lemon and cherry perfume, clear liquid**
Specific Gravity:	**0.68-0.72**	**Odour Threshold(p.p.m.):**	**N/Av.**
Boiling Point: (Conc.)	**92 °C**	**Evaporation Rate:**	**>1**
Freezing Point:	**N/Av.**	**Solubility in Water:**	**Negligible**
% Volatile(by volume):	**93-94**	**Vapor Pressure: (Aerosol)**	**35-45 psig**
Vapour Density(Air=1):	**>1**	**Coefficient of Water/Oil Distribut**	**N/Av.**
pH:	**N.Ap.**		

SECTION IV-FIRE AND EXPLOSION HAZARD OF MATERIAL

Flammability Yes/No	**Extremely flammable**	**If yes under which conditions: Excessive heat, sparks, open flame**
Auto Ignition Temperature:	**N/Av.**	**Means of extinction: Carbon dioxide, dry chemical, foam, water**
Flashpoint (Concentrate):	**Lowest known Heptane -7 ºC, T.C.C.**	**Hazardous Combustion Products: Hydrocarbon fumes**
Flame Extention:	**> 45 cm < 100 cm**	**and smoke. Carbon monoxide where combustion is incomplete.**
Upper Flammable limit(%vol)	**9.5**	**Lower Flammable Limit (% by volume): 1.2**
Explosion Data:	**Sensitivity to mechanical impact: Yes**	**Sensitivity to Static Discharge: No**

SECTION V-REACTIVITY DATA

Chemical Stability Yes/No:		**Yes**	**If No under which conditions?**
Incompatibility to Other Substances Yes/No:		**Yes**	**If so which ones? Strong oxidizing agents**
Reactivity and under what conditions?		**N/E**	
Hazardous Decomposition Products:		**Hydrocarbon fumes, smoke, carbon monoxide where combustion incomplete**	

N/E: not established **N.Ap.:not applicable** **N/Av.: not available**

SECTION VI-TOXICOLOGICAL PROPERTIES OF PRODUCT

Routes of Entry: All Routes	--SKIN CONTACT --SKIN ABSORPTION --EYE CONTACT --INHALATION --INGESTION		
Effects of Acute Exposure:	May cause headache, nausea, dizziness, irrtation to skin and eyes.		
Effects of Chronic Exposure:	Dizziness, nausea, irritation to skin and eyes. Solvent may cause defatting dermatitis		
	Heptane contains trace amount of benzene		
LD 50 of Product:	N/E	LC 50 of Product:	N/E
Irritancy of Product:	Skin and eye irritant	Exposure limits of product:	Section II
Sensitization of Product:	Unknown	Toxicologically Synergistic Materials:	N/A
--CARCINOGENICITY --REPRODUCTIVE EFFECTS --TERATOGENICITY --MUTAGENICITY			None known

SECTION VII-PREVENTIVE MEASURES

Personal Protective Equipment to be used:

Gloves(specify):	Not required in normal use	Eye (specify):	Safety glasses
Respiratory(specify):	Not required in normal use	Clothing:	Not normally required
Respiratory Protection:	If used indoors or on a continuous basis, use of NIOSH approved cartridge type respirator is recommended		
Engineering Controls:	Local ventilation (mechanical if used indoors on a continuous basis)		
Leak and Spill Procedure:	Remove sources of ignition. Use an inert absorbent material and non-sparkling tools. Avoid breathing fumes		
	Ventilate area. Prevent product liquid from entering sewage drain.		
Waste Disposal:	Do not puncture or incinerate containers, even if empty. Dispose in accordance with local		
	provincial and federal regulations.		
Storage Requirements:	Store in a cool, well ventilated area where temperature not to exceed 50 oC.		
Handling Procedures and	Handle with care, keep away form heat, source of ignition, open flame.		
Equipment:	Keep away from children. Do not ingest or inhale.		
NPFA20B/CNFC3.3.5	Level 3		
TDG Classification:	Consumer Commodity.		
WHMIS Classification:	Consumer Commodity.	Complies with CCCR 2001	

SECTION VIII-FIRST AID MEASURES

Eye:	Flush with water for at least 15 minutes. Consult a physician immediately.
Skin:	Wash with clean soapy water for 5 - 10 minutes, consult doctor if irritation or rash persist.
Inhalation	Move patient to fresh air and restore breathing if required. See doctor if discomfort persist.
Ingestion:	DO NOT INDUCE VOMITING, Seek medical help immediately.

SECTION IX-PREPARATION DATE OF M.S.D.S.

Additional Info/Comments:		Source Used: Supplier's Data
Phone Number:	(905) 793-4311	Prepared By: Quality Control Laboratory
Date Prepared:	January 2, 2012.	Kleen-Flo Tumbler Industries Limited

THIS SHEET SUPERSEDES ANY OTHER M.S.D.S. PREVIOUSLY PREPARED

SECTION I-MATERIAL IDENTIFICATION AND USE

Material Name/Identifier:	**Anti-Seize Sealing Compound**	**Stock No.**	**810**
Manufacturer's Name:	**Kleen-Flo Tumbler Industries Ltd**	**Street Address:**	**75 Advance Blvd.**
City:	**Brampton**	**Province:**	**Ontario**
Postal Code:	**L6T 4N1**	**Emergency Phone #:**	**CANUTEC:- 613-996-6666 (24HR)**
Chemical Name:	**N. Ap (Mixture)**	**Chemical Family:**	**N/Av.**
Chemical Formula:	**N. Ap (Mixture)**	**Trade Names & Synonyms:**	**None**
Material Use:	**Sealer-Lubricant**	**Molecular Weight:**	**N. Ap (Mixture)**

SECTION II-HAZARDOUS INGREDIENTS OF MATERIAL

Hazardous Ingredients	C.A.S.	Approximate Concentration	LD50 Species & Route	LC50 Species & Route
Aluminum	**429-90-5**	**5-10%**	**N/Av.**	**N/Av.**
Aluminum Stearate	**637-12-7**	**5-10%**	**N/Av.**	**N/Av.**
Copper	**7440-50-8**	**5-10%**	**N/Av.**	**N/Av.**
Graphite	**7792-42-5**	**10-30%**	**N/Av.**	**N/Av.**
Mineral Spirits	**8032-32-4**	**15 -40%**	**N/Av.**	**3400 ppm (4hr) rat-inh.**
Zinc Oxide	**1314-13-2**	**1-5%**	**N/Av.**	**N/Av.**

SECTION III-PHYSICAL DATA FOR MATERIAL

Physical State:	**Paste**	**Odour/Appearance:**	**faint, sweet odour/ copper paste**
Specific Gravity:	**1.31**	**Odour Threshold(p.p.m.):**	**N/Av.**
Boiling Point:	**N/Av.**	**Evaporation Rate (B.A.=1):**	**N/Av.**
Freezing Point:	**N/Av.**	**Solubility in Water:**	**Negligible**
% Volatile(by volume):	**N/Av.**	**Vapour Pressure (mm) Hg:**	**N/Av.**
Vapour Density(Air=1):	**N/Av.**	**Coefficient of Water/Oil Distribut:**	**N/Av.**
pH	**N/Ap**		

SECTION IV-FIRE AND EXPLOSION HAZARD OF MATERIAL

Flammability Yes/No	**No**	**If yes under which conditions?:**	**N.Ap.**
Auto Ignition Temperature:	**N/Av.**	**Means of Extinction: carbon dioxide, dry chemicals, foam**	
Flashpoint and Method:	**213ºC COC**	**Hazardous Combustion Prod.: carbon monoxide, carbon dioxide, oxides**	
		sulfur and nitrogen, toxic fumes of metals and oxides.	
Upper Flammable limit %vol	**N/Av.**	**Lower Flammable Limit(% by volume):**	**N/Av.**
Sensitivity to mechanical Impac	**N/Ap**	**Sensitivity to Static Discharge:**	**N.Ap.**

SECTION V-REACTIVITY DATA

Chemical Stability Yes/No:	**Yes**	**If NO under which conditions?**	**N.Ap.**
Incompatibility to Other Substances Yes/No:	**Yes**	**If so which ones? Strong acids, base, oxidizers, bromate, chlorate,**	
		Iodates, Chlorinated hydrocarbons.	
Reactivity and under what conditions?	**Open flame, fire**		
Hazardous Decomposition Products:	**Carbon monoxide, carbon dioxide, Oxides of Sulfur, Nitrogen, Toxic Metal fumes**		
	and oxides.		

N/E: not established **N.Ap.: not applicable** **N/Av.: not available**

SECTION VI-TOXICOLOGICAL PROPERTIES OF PRODUCT

Route of Entry: ALL Routes	--SKIN CONTACT --SKIN ABSORPTION --EYE CONTACT --INHALATION --INGESTION		
Effects of Acute Exposure:	May cause eye, irritation, skin irritation, drying and cracking. Ingestion may cause irritation and burning		
	pain in mouth and stomach, thirst, nausea, vomiting, diarrhea with possible collapse if large amount ingested.		
Effects of Chronic Exposure:	Chronic exposure to aluminum is possibly connected with Alzheimer's disease. Copper contact nasal membranes		
	may cause ulceration or perforation. Some test indicates that it's reproductive toxine and feto toxin.		
LD 50 of Product:	N/Av.	**LC 50 of Product:**	N/Av.
Irritancy of Product:	Eye, skin Irritant	**Exposure Limits of Prod:**	N/Av.
Sensitization of Product:	Contains copper, a potential skin sensitizer	**Toxicologically Synergistic Materials:**	N/Av.
--CARCINOGENICITY --REPRODUCTIVE EFFECTS --TERATOGENICITY --MUTAGENICITY		N/Av.	

SECTION VII-PREVENTIVE MEASURES

Personal Protective Equipment to be used:

Gloves(specify):	Chemical resistant gloves	**Eye(specify):**	Safety glasses
Respiratory (specify):	Not Required in normal use	**Clothing:**	Not Required
Respiratory Protection:	If mist generated by heating or spraying, wear NOISH approved organic vapour cartridge respirator suitable		
	for oil mist areas with sufficient oxygen.		
Engineering Controls:	Local or mechanical exhaust ventilation is recommended.		
Leak and Spill Procedure:	Contain spilled liquid with inert absorbant such as dry claysand, diatomaceous earth.		
	Prevent spills from entering sewers.		
Waste Disposal:	Standard methods as approved in your region by government bodies..		
Storage Requirements:	Store in cool, well ventilated place. Keep away from heat opn flame, spark and incompatible materials		
Handling Procedures and	Avoid skin or eye contact. Wash hand thoroughly after handling and before eating. Launder contaminated cloths.		
Equipment:	Keep containers closed.		
DSL listing	All components are listed.		
TDG Classification:	Not regulated		
WHMIS Classification:	Consumer Commodity		

SECTION VIII-FIRST AID MEASURES

Eye:	Wash with water for at least 15 minutes. Seek immediate medical help if irritation persists.
Skin:	Flush immediately and thoroughly with soap and water. Contact doctor if rash, irritation persist.
Inhalation:	Move patient to fresh air and restore breathing if required. See doctor if discomfort persist.
Ingestion:	DO NOT INDUCE VOMITING. Get prompt medical attention.

SECTION IX-PREPARATION DATE OF M.S.D.S.

Additional Info/Comments:		**Source used: Supplier's data**	
Phone Number:	(905) 793-4311	**Prepared By: Quality Control Laboratory**	
Date prepared:	January 16, 2012.	**Kleen-Flo Tumbler Industries Limited**	

THIS SHEET SUPERSEDES ANY OTHER M.S.D.S. PREVIOUSLY PREPARED

N/E: not established **N.Ap.: not applicable** **N/Av.: not available**

SECTION I-MATERIAL IDENTIFICATION AND USE

Material Name/Identifier:	**Brake & Parts Kleen(Non Chlorinated)**	**Stock No.**	**313**
Manufacturer's Name:	**Kleen-Flo Tumbler Industries Ltd**	**Street Address:**	**75 Advance Blvd.**
City:	**Brampton**	**Province:**	**Ontario**
Postal Code:	**L6T 4N1**	**Emergency Phone #:**	**CANUTEC:- 613-996-6666 (24HR)**
Chemical Name:	**N.Ap.**	**Chemical Family:**	**N/Ap. (mixture)**
Chemical Formula:	**N.Ap. (mixture)**	**Trade Names & Synonyms:**	**none**
Material Use:	**Cleaner**	**Molecular Weight:**	**N.Ap. (mixture)**

SECTION II-HAZARDOUS INGREDIENTS OF MATERIAL

Hazardous Ingredients	C.A.S.	Approximate Conc. %wt.	LD50 Species & Route	LC50 Species & Route
Heptane	**142-82-5**	**60-100**	**>15000 mg/kg rat-oral**	**103g/m3 (4hr) rat-inhal**
Isopropyl alcohol	**67-63-0**	**10 -30**	**>4720 mg/kg rat-oral**	**12000 ppm rat- (8 hr) inhl.**
Carbon dioxide	**124-38-9**	**3 -7**	**N/Ap**	**N/Av.**

SECTION III-PHYSICAL DATA FOR MATERIAL

Physical State:	**aerosol**	**Odour/Appearance:**	**Solvent-like, clear, colorless**
Specific Gravity:	**0.7**	**Odour Threshold(p.p.m.):**	**N/E**
Boiling Point: (on conc.)	**80 -100 °C**	**Evaporation Rate:**	**> 1 (water=1)**
Freezing Point:	**N/Av.**	**Solubility in Water:**	**partial soluble**
% Volatile(by volume):	**100%**	**Vapour Pressure(mm)Hg:**	**N/E**
Vapour Density(Air=1):	**>1**	**Coefficient of Water/Oil Distribut:**	**N/E**
pH	**N.Ap.**		

SECTION IV-FIRE AND EXPLOSION HAZARD OF MATERIAL

Flammability Yes/No	**Yes, Highly flammable**	**If yes under which conditions?: Open flame, Spark, Excessive heat**	
Auto Ignition Temperature:	**204-399 °C**	**Means of Extinction:**	**Water fog, Dry Chemical, Foam**
Flashpoint (Concentrate):	**Lowest known Heptane -7 ºC, T.C.C.**	**Hazardous Combustion Products:**	**hydrocarbon fumes and**
Flame extension	**>45 cm**	**smoke, carbon monoxide where combustion is incomplete.**	
Upper Flammable limit (%vol)	**12**	**Lower Flammable Limit(% by volume)**	**1.2**
Explosion Data:	**Sensitivity to Mechanical Impact: N.Av.**	**Sensitivity to Static Discharge:**	**N/E**

SECTION V-REACTIVITY DATA

Chemical Stability Yes/No:	**Yes**	**If NO under which conditions?**	**N.Ap.**
Incompatibility to Other Substances Yes/No:	**Yes**	**If so which ones?**	**Strong oxidizing agents**
Reactivity and under what conditions?	**Excessive heat, open flame, spark**		
Hazardous Decomposition Products:	**Hydrocarbon fumes and smoke, carbon monoxide where combustion is incomplete**		

N/E: not established **N.Ap.: not applicable** **N/Av.: not available**

SECTION VI-TOXICOLOGICAL PROPERTIES OF PRODUCT

Route of Entry: ALL Routes	--SKIN CONTACT --SKIN ABSORPTION --EYE CONTACT --INHALATION --INGESTION		
Effects of Acute Exposure:	May cause Dizziness, nausea, vomiting, weekness, eye and skin irritation.		
Effects of Chronic Exposure:	Solvents may cause defatting dermatitis.		
LD 50 of Product:	N/E	LC 50 of Product:	N/E
Irritancy of Product:	Skin and eye irritant	Exposure Limits of Product:	N/E
Sensitization of Product:	N/E	Toxicologically Synergistic Materials:	N/E
--CARCINOGENICITY --REPRODUCTIVE EFFECTS --TERATOGENICITY --MUTAGENICITY			none known

SECTION VII-PREVENTIVE MEASURES

Personal Protective Equipment to be used:

Gloves(specify):	Nitrile, vinyl or chemical resistant gloves	Eye(specify):	Wear eye/face protection
Respiratory(specify):	Wear cartridge type respirator	Clothing:	Not required
Respiratory Protection:	If used indoors or on a continuous basis, use of NIOSH approved cartridge type respirator is recommended		
Engineering Controls:	Use adequate ventilation.		
Leak and Spill Procedure:	Use inert absorbent material, non sparking tools to contain spills. Ventilate area.		
	Prevent from entering sewage or waterways.		
Waste Disposal:	Do not puncture or incinerate, even when can is empty. Dispose as per local, provincial regulation.		
Storage Requirements:	Store in a cool, well ventilated area where temperature not to exceed 50°C		
Handling Procedures and	Use with adequate ventilation. Contents under pressure. Keep away from heat, sparks, flame and other		
Equipment:	sources of ignition. Keep away from children. Do not inhale or ingest.		
DSL	All ingredients are in the Domestic substance listing.		
NFPA 30B/CNFC 3.3.5	Level 3		
TDG Classification:	Consumer Commodity		
WHMIS Classification:	A, B5, D2-B		

SECTION VIII-FIRST AID MEASURES

Eye:	Flush immediately with fresh water for at least 15 minutes. See a doctor immediately.
Skin:	Wash with soap and water, consult a doctor if irritation or rashes persist.
Inhalation:	Move patient to fresh air and restore breathing if required. Call a physician if discomfort persist.
Ingestion:	DO NOT INDUCE VOMITING. Get medical attention immediately.

SECTION IX-PREPARATION DATE OF M.S.D.S.

Additional Info/Comments:		Source used: Supplier's data	
Phone Number:	(905) 793-4311	Prepared By: Quality Control Laboratory	
Date Prepared:	January 2, 2012.	Kleen-Flo Tumbler Industries Limited	

THIS SHEET SUPERSEDES ANY OTHER M.S.D.S. PREVIOUSLY PREPARED

N/Av.: not available N/Ap: not applicable N/E: not established

MATERIAL SAFETY DATA SHEET

03702
05 00

DATE OF PREPARATION
Dec 14, 2013

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
03702

PRODUCT NAME
KRYLON® Industrial QUIK-MARK™ Solvent-Based Inverted Marking Paint (Fluorescent), Orange

MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
KRYLON PRODUCTS GROUP
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	(800) 247-3266 www.kpg-industrial.com
Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
14	**74-98-6**	**Propane**		
		ACGIH TLV	1000 PPM	760 mm
		OSHA PEL	1000 PPM	
6	**106-97-8**	**Butane**		
		ACGIH TLV	1000 PPM	760 mm
		OSHA PEL	800 PPM	
8	**110-54-3**	**Hexane**		
		ACGIH TLV	50 PPM	127 mm
		OSHA PEL	50 PPM	
4	**107-83-5**	**2-Methylpentane**		
		ACGIH TLV	Not Available	211 mm
		OSHA PEL	Not Available	
1	**96-14-0**	**3-Methylpentane**		
		ACGIH TLV	500 PPM	211 mm
		OSHA PEL	Not Available	
1	**79-29-8**	**2,3-Dimethylbutane**		
		ACGIH TLV	Not Available	230 mm
		OSHA PEL	Not Available	
9	**142-82-5**	**Heptane**		
		ACGIH TLV	400 PPM	50 mm
		ACGIH TLV	500 PPM STEL	
		OSHA PEL	400 PPM	
		OSHA PEL	500 PPM STEL	
7	**64742-89-8**	**V. M. & P. Naphtha**		
		ACGIH TLV	300 PPM	12 mm
		OSHA PEL	300 PPM	
		OSHA PEL	400 PPM STEL	
0.4	**100-41-4**	**Ethylbenzene**		
		ACGIH TLV	20 PPM	7.1 mm
		OSHA PEL	100 PPM	
		OSHA PEL	125 PPM STEL	
2	**1330-20-7**	**Xylene**		
		ACGIH TLV	100 PPM	5.9 mm
		ACGIH TLV	150 PPM STEL	
		OSHA PEL	100 PPM	
		OSHA PEL	150 PPM STEL	
27	**1317-65-3**	**Calcium Carbonate**		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	10 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	

SECTION 3 — HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE

INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.

HMIS Codes

Health	2*
Flammability	3
Reactivity	0

EFFECTS OF OVEREXPOSURE

EYES: Irritation.
SKIN: Prolonged or repeated exposure may cause irritation.
INHALATION: Irritation of the upper respiratory system.

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.
Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:

- the liver
- the urinary system
- the reproductive system

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None generally recognized.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	EXTINGUISHING MEDIA
Propellant < 0 °F	0.9	9.5	Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Containers may explode when exposed to extreme heat.
Application to hot surfaces requires special precautions.
During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.
Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.
Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

Not Available

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.
Consult NFPA Code. Use approved Bonding and Grounding procedures.
Contents under pressure. Do not puncture, incinerate, or expose to temperature above 120F. Heat from sunlight, radiators, stoves, hot water, and other heat sources could cause container to burst. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.
Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.
Wash hands after using.
This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.
When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES

None required for normal application of aerosol products where minimal skin contact is expected. For long or repeated contact, wear chemical resistant gloves.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	7.37 lb/gal	883 g/l
SPECIFIC GRAVITY	0.89	
BOILING POINT	<0 - 325 °F	<-18 - 162 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	78%	
EVAPORATION RATE	Faster than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	
pH	7.0	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

Volatile Weight 56.25% Less Water and Federally Exempt Solvents

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

Prolonged and repeated exposure to Hexane may cause damage to nerve tissue of the arms and legs (peripheral neuropathy), resulting in muscular weakness and loss of sensation. This effect may be increased by the presence of Methyl Ethyl Ketone.

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Ethylbenzene is classified by IARC as possibly carcinogenic to humans (2B) based on inadequate evidence in humans and sufficient evidence in laboratory animals. Lifetime inhalation exposure of rats and mice to high ethylbenzene concentrations resulted in increases in certain types of cancer, including kidney tumors in rats and lung and liver tumors in mice. These effects were not observed in animals exposed to lower concentrations. There is no evidence that ethylbenzene causes cancer in humans.

TOXICOLOGY DATA

CAS No.	Ingredient Name			
74-98-6	**Propane**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
106-97-8	**Butane**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
110-54-3	**Hexane**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		28700 mg/kg
107-83-5	**2-Methylpentane**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
96-14-0	**3-Methylpentane**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
79-29-8	**2,3-Dimethylbutane**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
142-82-5	**Heptane**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
64742-89-8	**V. M. & P. Naphtha**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
100-41-4	**Ethylbenzene**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		3500 mg/kg
1330-20-7	**Xylene**			
		LC50 RAT	4HR	5000 ppm
		LD50 RAT		4300 mg/kg
1317-65-3	**Calcium Carbonate**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.
Do not incinerate. Depressurize container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

May be classed as LTD. QTY. OR ORM-D
UN1950, AEROSOLS, 2.1, LIMITED QUANTITY, (ERG#126)

Canada (TDG)

May be classed as LTD. QTY. OR ORM-D
UN1950, AEROSOLS, CLASS 2.1, LIMITED QUANTITY, (ERG#126)

IMO

May be shipped as Limited Quantity
UN1950, AEROSOLS, CLASS 2.1, LIMITED QUANTITY, EmS F-D, S-U

IATA/ICAO

UN1950, AEROSOLS, FLAMMABLE, 2.1, LIMITED QUANTITY

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
110-54-3	Hexane	8	
100-41-4	Ethylbenzene	0.3	
1330-20-7	Xylene	2	

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

MATERIAL SAFETY DATA SHEET

3727
08 00

DATE OF PREPARATION
Dec 3, 2013

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
3727

PRODUCT NAME
KRYLON® Industrial TOUGH COAT™ Acrylic Enamel, Max Flat Black

MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
KRYLON PRODUCTS GROUP
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	(800) 247-3266 www.kpg-industrial.com
Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units	Vapor Pressure
14	**74-98-6**	**Propane**		
		ACGIH TLV	1000 PPM	760 mm
		OSHA PEL	1000 PPM	
13	**106-97-8**	**Butane**		
		ACGIH TLV	1000 PPM	760 mm
		OSHA PEL	800 PPM	
18	**108-88-3**	**Toluene**		
		ACGIH TLV	20 PPM	22 mm
		OSHA PEL	100 ppm (Skin)	
		OSHA PEL	150 ppm (Skin) STEL	
33	**67-64-1**	**Acetone**		
		ACGIH TLV	500 PPM	180 mm
		ACGIH TLV	750 PPM STEL	
		OSHA PEL	1000 PPM	
8	**14807-96-6**	**Talc**		
		ACGIH TLV	2 mg/m3 as Resp. Dust	
		OSHA PEL	2 mg/m3 as Resp. Dust	
1	**471-34-1**	**Calcium Carbonate**		
		ACGIH TLV	10 mg/m3 as Dust	
		OSHA PEL	15 mg/m3 Total Dust	
		OSHA PEL	5 mg/m3 Respirable Fraction	
0.5	**1333-86-4**	**Carbon Black**		
		ACGIH TLV	3.5 MG/M3	
		OSHA PEL	3.5 MG/M3	

SECTION 3 — HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE
INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.

EFFECTS OF OVEREXPOSURE
EYES: Irritation.
SKIN: Prolonged or repeated exposure may cause irritation.
INHALATION: Irritation of the upper respiratory system.

HMIS Codes

Health	2*
Flammability	3
Reactivity	0

May cause nervous system depression. Extreme overexposure may result in unconsciousness and possibly death.
Prolonged overexposure to hazardous ingredients in Section 2 may cause adverse chronic effects to the following organs or systems:

- the liver
- the urinary system
- the cardiovascular system
- the reproductive system

SIGNS AND SYMPTOMS OF OVEREXPOSURE

Headache, dizziness, nausea, and loss of coordination are indications of excessive exposure to vapors or spray mists.
Redness and itching or burning sensation may indicate eye or excessive skin exposure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

None generally recognized.

CANCER INFORMATION

For complete discussion of toxicology data refer to Section 11.

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	EXTINGUISHING MEDIA
Propellant < 0 °F	1.0	12.8	Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Containers may explode when exposed to extreme heat.
Application to hot surfaces requires special precautions.
During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.
Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.
Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

Not Available

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Keep away from heat, sparks, and open flame. Vapors will accumulate readily and may ignite explosively.
During use and until all vapors are gone: Keep area ventilated - Do not smoke - Extinguish all flames, pilot lights, and heaters - Turn off stoves, electric tools and appliances, and any other sources of ignition.
Consult NFPA Code. Use approved Bonding and Grounding procedures.
Contents under pressure. Do not puncture, incinerate, or expose to temperature above 120F. Heat from sunlight, radiators, stoves, hot water, and other heat sources could cause container to burst. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.
Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.
Wash hands after using.
This coating may contain materials classified as nuisance particulates (listed "as Dust" in Section 2) which may be present at hazardous levels only during sanding or abrading of the dried film. If no specific dusts are listed in Section 2, the applicable limits for nuisance dusts are ACGIH TLV 10 mg/m3 (total dust), 3 mg/m3 (respirable fraction), OSHA PEL 15 mg/m3 (total dust), 5 mg/m3 (respirable fraction).

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

When sanding or abrading the dried film, wear a dust/mist respirator approved by NIOSH/MSHA for dust which may be generated from this product, underlying paint, or the abrasive.

PROTECTIVE GLOVES

None required for normal application of aerosol products where minimal skin contact is expected. For long or repeated contact, wear chemical resistant gloves.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

OTHER PRECAUTIONS

Intentional misuse by deliberately concentrating and inhaling the contents can be harmful or fatal.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	6.48 lb/gal	775 g/l
SPECIFIC GRAVITY	0.78	
BOILING POINT	<0 - 238 °F	<-18 - 114 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	90%	
EVAPORATION RATE	Faster than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	
pH	7.0	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

Volatile Weight 47.55% Less Water and Federally Exempt Solvents

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage.

Carbon Black is classified by IARC as possibly carcinogenic to humans (group 2B) based on experimental animal data, however, there is insufficient evidence in humans for its carcinogenicity.

TOXICOLOGY DATA

CAS No.	Ingredient Name			
74-98-6	**Propane**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
106-97-8	**Butane**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
108-88-3	**Toluene**			
		LC50 RAT	4HR	4000 ppm
		LD50 RAT		5000 mg/kg
67-64-1	**Acetone**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		5800 mg/kg
14807-96-6	**Talc**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
471-34-1	**Calcium Carbonate**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available
1333-86-4	**Carbon Black**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product may be hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Waste must be tested for ignitability to determine the applicable EPA hazardous waste numbers.
Do not incinerate. Depressurize container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

May be classed as LTD. QTY. OR ORM-D
UN1950, AEROSOLS, 2.1, LIMITED QUANTITY, (ERG#126)

Canada (TDG)

May be classed as LTD. QTY. OR ORM-D
UN1950, AEROSOLS, CLASS 2.1, LIMITED QUANTITY, (ERG#126)

IMO

May be shipped as Limited Quantity
UN1950, AEROSOLS, CLASS 2.1, LIMITED QUANTITY, EmS F-D, S-U

IATA/ICAO

UN1950, AEROSOLS, FLAMMABLE, 2.1, LIMITED QUANTITY

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element
108-88-3	Toluene	18	

CALIFORNIA PROPOSITION 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Personal protective equipment
	**Class D-1B: Material causing immediate and serious toxic effects (Toxic).** **Class D-2B: Material causing other toxic effects (Toxic).**	

Section 1. Product and Company Identification

Product name / Trade name	Brake Fluid DOT 3	**Associated Product's Item Code**	35-814PRES
Synonym	Not available.	**CAS #**	Not applicable.
Chemical family	Not available.	**Validation date**	Jan. 09 2012
Chemical formula		**Print date**	Jan. 17 2012
Manufacturer	Recochem Inc. 850 Montee de Liesse Montreal, Quebec H4T 1P4 (514) 341-3550 www.recochem.com	**In case of emergency**	Recochem Inc. Communications and Regulatory Affairs Department (905) 878-5544
Material uses	Consumer products: Brake Fluid.		

Section 2. Hazards identification

Emergency Overview	CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. Avoid exposure - obtain special instructions before use. Do not breathe vapor or mist. Contains material that can cause target organ damage.
Potential Acute Health Effects	**See section 11 for more detailed information on health effects and symptoms.** Slightly hazardous by the following route of exposure: of skin contact (irritant, permeator), of eye contact (irritant), of ingestion, . Severe over-exposure can result in death.
Note to Physician	Not available.

Section 3. Composition, information on ingredients

Canada

Name	CAS number	%
2-(2-(2-ethoxyethoxy)ethoxy)ethanol	112-50-5	50 - 70
Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-hydroxy-Ethane-1,2-diol, ethoxylated	25322-68-3	15 - 40
2,2'-oxybisethanol	111-46-6	10 - 12

There are no ingredients or additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Continued on next page

Section 4. First aid measures

Eye contact	Immediately flush eyes with plenty of water for at least 60 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Skin contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Inhalation	Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Ingestion	Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Notes to physician	No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Section 5. Fire fighting measures

Products of combustion	Decomposition products may include the following materials: carbon oxides
Fire-fighting media and instructions	Use an extinguishing agent suitable for the surrounding fire.
Fire Hazards	Not considered to be flammable.
Explosion Hazards	Not considered to be a product presenting a risk of explosion.

Section 6. Accidental release measures

Small spill and leak	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill and leak	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Section 7. Handling and Storage

Handling	Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Continued on next page

Storage	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls, personal protection

Engineering controls	If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protection

Eyes	Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. Recommended: splash goggles
Body	Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
Hands	Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. >8 hours (breakthrough time): nitrile rubber

Product name	**Exposure limits**
United States	
Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-hydroxy-Ethane-1,2-diol, ethoxylated	**AIHA WEEL (United States, 1/2007).** TWA: 10 mg/m³ 8 hour(s). Form: Aerosol
2,2'-oxybisethanol	**AIHA WEEL (United States, 1/2007).** TWA: 10 mg/m³ 8 hour(s).

Section 9. Physical and chemical properties

Physical State and Appearance	Slightly viscous liquid.	**Odour**	Not available.
Molecular weight	Not applicable.	**Taste**	Not available.
pH	Not available.	**Colour**	Colorless to amber. (Light.)
Boiling/condensation point	235 to 246°C (455 to 474.8°F)	**Volatility**	Not available.
Melting/freezing point	Not available.	**Evaporation rate**	Not available.
Relative density	1.038 to 1.04	**Odour Threshold**	Not available.
Vapour Pressure	<0.013 kPa (<0.1 mm Hg)	**Viscosity**	
Vapour Density	Not available.	**Solubility**	Easily soluble in the following materials: cold water, hot water, methanol and diethyl ether.
VOC Content	0 (g/l).	**Other Properties**	Not available.
The product is:	Non-flammable.		

Continued on next page

Auto-ignition temperature	Not available.
Flash Point	Closed cup: 132°C (269.6°F)
Flammable limits	Not available.
Fire hazards in the presence of various substances	Non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and shocks and mechanical impacts.

Section 10. Stability and reactivity

Stability	The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions of instability	Not available.
Incompatibility with various substances	Reactive or incompatible with the following materials: oxidizing materials. Avoid contamination with oxidizing agents.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological Information

Canada

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
2-(2-(2-ethoxyethoxy)ethoxy)ethanol	LD50 Dermal	Rabbit	8 mL/kg	-
	LD50 Oral	Rat	7750 mg/kg	-
Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-hydroxy-Ethane-1,2-diol, ethoxylated	LD50 Dermal	Rabbit	20000 mg/kg	-
	LD50 Oral	Rat	43600 mg/kg	-
2,2'-oxybisethanol	LD50 Dermal	Rabbit	11890 mg/kg	-
	LD50 Dermal	Hamster	11890 mg/kg	-
	LD50 Intraperitoneal	Rat	7.7 g/kg	-
	LD50 Intravenous	Rat	6565 mg/kg	-
	LD50 Oral	Rat	12000 mg/kg	-
	LD50 Oral	Hamster	12565 mg/kg	-
	LD50 Oral	Rat	12565 mg/kg	-
	LD50 Subcutaneous	Rat	18800 mg/kg	-
	LD50 Unreported	Rat	15650 mg/kg	-
	LDLo Intramuscular	Rat	7826 mg/kg	-

Conclusion/Summary : LD50 is an expected value.

Chronic toxicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Mutagenicity

Continued on next page

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

Section 12. Ecological information

For accidental discharges into the environment, see Section 6:"Accidental Release Measures" for suggested instructions.

Environmental effects : No known significant effects or critical hazards.

Canada

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
Poly(oxy-1,2-ethanediyl), .alpha.-hydro-.omega.-hydroxy-Ethane-1,2-diol, ethoxylated	-	Acute LC50 >20000000 ug/L Fresh water	Fish - Carassius carassius	96 hours
	-	Acute LC50 >20000000 ug/L Fresh water	Fish - Oncorhynchus mykiss	96 hours
	-	Acute LC50 >1000000 ug/L Fresh water	Fish - Salmo salar	96 hours
2,2'-oxybisethanol	-	Acute LC50 75200000 ug/L Fresh water	Fish - Pimephales promelas	96 hours
	-	Acute LC50 >32000000 ug/L Fresh water	Fish - Gambusia affinis	96 hours

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Section 13. Disposal considerations

Waste information The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Continued on next page

Section 14. Transport information

Canada TDG Classification

Class	Not a TDG-controlled material.
Subsidiary class	
Proper Shipping Name	
(Canada) TDG	
UN number	
Packing Group	
Special provisions	Not applicable.

No placard (handling and hazard label) required.

IMDG Classification

Class	Not controlled under IMDG.
Subsidiary class	
Proper Shipping Name	
IMDG	
UN number	
Packing Group	
Marine pollutant	Not a pollutant.
Special provisions	

No placard (handling and hazard label) required.

United States DOT (Classification)

Class	Not a DOT controlled material (United States).
Subsidiary class	
Proper Shipping Name	
(United States) DOT	
UN number	
Packing Group	
Special provisions	

No placard (handling and hazard label) required.

International Air Transport Association (IATA) For air shipment classification and associated regulations, please refer to the latest edition of IATA Dangerous Goods Regulations.

Section 15. Regulatory information

WHMIS Classification (Canada)	Class D-1B: Material causing immediate and serious toxic effects (Toxic). Class D-2B: Material causing other toxic effects (Toxic).
Canada Domestic Substances List (DSL) Status	This product and/ or all of its components are on the DSL.
HCS Classification (U.S.A.)	Target organ effects
U.S.A. Regulatory Lists	This product and/ or all of its components are on the TSCA inventory list.

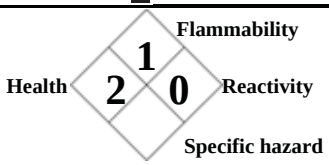


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Hazardous Material Information System (U.S.A.)

Health	2
Flammability	1
Reactivity	0
Personal protection	B

National Fire Protection Association (U.S.A.)



Section 16. Other information

Validated and verified by Compliance and Technical Information Manager Jan. 09 2012 **ph.# 905-791-1788.**

Printed Jan. 17 2012

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

MSDS are available at www.recochem.com

K-G PACKAGING
8001 KEELE STREET, P.O BOX 89
CONCORD; L4K 1Y8; ONTARIO
CANADA 905--669-9855

PRODUCT: 3108-0036 MOTOMASTER INFLATE & SEAL

Section 01: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER	K-G PACKAGING INC. 8001 KEELE STREET P.O. BOX 89 ONTARIO CANADA L4K 1Y8 CANUTEC EMERGENCY #:1-613-996-6666(24HR)
PRODUCT NAME	3108-0036 MOTOMASTER INFLATE & SEAL
CHEMICAL FAMILY	ACRYLIC BASED COATING.
MOLECULAR WEIGHT	NOT APPLICABLE.
CHEMICAL FORMULA	MIXTURE.
TRADE NAMES & SYNONYMS	3108-0036 MOTOMASTER INFLATE & SEAL
PRODUCT USES	SEALANT.
LAB BOOK NUMBER	008-1-255/349.

Section 02: COMPOSITION/INFORMATION INGREDIENTS

Hazardous Ingredients	%	Exposure Limit	C.A.S.#	LD/50, Route,Species	LC/50 Route,Species
POLY(n-BUTYL METHACRYLATE/ ISO-BUTYL METHACRYLATE)	3-7	N/E	9011-53-4		
PERCHLOROETHYLENE (TETRACHLOROETHYLENE)	30-60	25 ppm	127-18-4	2629 mg/kg ORAL - RAT	5200 ppm (4 Hr) INHAL - MOUSE
MINERAL SPIRITS	10-30	100 ppm	64742-47-8	>5000 mg/kg ORAL - RAT	1400 ppm/4H INHAL - RAT
1,1,1,2-TETRAFLUOROETHANE	10-30	1000 ppm	811-97-2	NOT AVAILABLE	567000 ppm (4hr) INHAL - RAT

Section 03: HAZARDS IDENTIFICATION

ROUTE OF ENTRY:

INGESTION	CAUSES SEVERE IRRITATION AND INFLAMMATION OF MOUTH, THROAT AND STOMACH. SEVERE STOMACH PAINS WILL FOLLOW WITH THE POSSIBLE LOSS OF CONSCIOUSNESS. MAY CAUSE HEADACHE, NAUSEA, VOMITING AND WEAKNESS.
INHALATION	HIGH VAPOR CONCENTRATIONS ATTAINABLE AT ELEVATED TEMPERATURES MAY PRODUCE DIZZINESS, HEADACHE, AND RESPIRATORY IRRITATION. PROPELLANT IS A SIMPLE ASPHYXIANT.
EYE CONTACT	CONTAINS MATERIALS THAT ARE MODERATELY IRRITATING TO THE EYES.
SKIN ABSORPTION	ONLY VERY SLOWLY UPON PROLONGED OR REPEATED CONTACT.
SKIN CONTACT	CAN CAUSE SEVERE IRRITATION, DRYING, CRACKING, SCALING, LEADING POSSIBLY TO ALLERGIC DERMATITIS.
EFFECTS OF ACUTE EXPOSURE	DIZZINESS, NAUSEA. IRRITATION TO SKIN & EYES.
EFFECTS OF CHRONIC EXPOSURE	SOLVENTS MAY CAUSE DEFATTING DERMATITIS .
EXPOSURE LIMIT OF MATERIAL	SEE SECTION 2.

Section 04: FIRST AID MEASURES

EMERGENCY FIRST AID PROCEDURE	IN CASE OF EYE CONTACT, FLUSH IMMEDIATELY WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES AND GET MEDICAL ATTENTION. FOR SKIN, WASH THOROUGHLY WITH SOAP AND WATER. IF AFFECTED BY INHALATION OF VAPOUR OR SPRAY MIST, REMOVE TO FRESH AIR. IF SWALLOWED; DO NOT INDUCE VOMITING, GET MEDICAL ATTENTION.

Section 05: FIRE FIGHTING MEASURES

AUTO IGNITION TEMPERATURE (°C)	NOT AVAILABLE.
SPECIAL PROCEDURES	WATER FROM FOGGING NOZZLES MAY BE USED TO COOL CLOSED CONTAINERS TO PREVENT BUILD-UP IF EXPOSED TO EXTREME TEMPERATURES. FULL PROTECTIVE EQUIPMENT INCLUDING SELF CONTAINED BREATHING APPARTATUS SHOULD BE WORN IN A FIRE INVOLVING THIS MATERIAL.
FLAMMABILITY	NOT A FLAMMABLE PRODUCT (AS PER CANADIAN AEROSOL REGULATIONS).
IF YES, UNDER WHICH CONDITIONS?	EXCESSIVE HEAT, SPARKS AND OPEN FLAME.
EXTINGUISHING MEDIA	WATER, CARBON DIOXIDE, DRY CHEMICAL, FOAM.
UPPER FLAMMABLE LIMIT (% BY VOLUME)	6.
LOWER FLAMMABLE LIMIT (% BY VOLUME)	1.1.
EXPLOSION DATA	
SENSITIVITY TO STATIC DISCHARGE	NOT APPLICABLE.
SENSITIVITY TO IMPACT	NOT APPLICABLE.
HAZARDOUS COMBUSTION PRODUCTS	POSSIBLE PHOSGENE OVER 250 DEG C, CHLORINE GAS, HYDROCHLORIC ACID. HYDROCARBON FUMES AND SMOKE. CARBON MONOXIDE WHERE COMBUSTION IS INCOMPLETE.
AEROSOL FLAME PROJECTION CLASSIFIED AS:	0 cm.
FLASHBACK	NONE.
FLASH POINT(°C),TAG CLOSED-CUP (CONCENTRATE)	>42.

PRODUCT: 3108-0036 MOTOMASTER INFLATE & SEAL

Section 06: ACCIDENTAL RELEASE MEASURES

LEAK/SPILL	REMOVE ALL SOURCES OF IGNITION. USE AN INERT ABSORBENT MATERIAL, AND NON-SPARKING TOOLS. VENTILATE AREA. PREVENT FROM ENTERING A WATERCOURSE.

Section 07: HANDLING AND STORAGE

STORAGE NEEDS	KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAMES.
ENGINEERING CONTROLS	VENTILATION - LOCAL (MECHANICAL IF USED INDOORS ON A CONTINUOUS BASIS).
HANDLING PROCEDURES AND EQUIPMENT	STORE IN A COOL, WELL VENTILATED AREA NOT TO EXCEED 50 DEG C.
SYNERGISTIC MATERIALS	NONE KNOWN.

Section 08: EXPOSURE CONTROLS/PERSONAL PROTECTION

GLOVES/ TYPE	WEAR CHEMICAL RESISTANT GLOVES.
RESPIRATORY/TYPE	IF USED INDOORS ON A CONTINUOUS BASIS, USE OF A CARTRIDGE TYPE RESPIRATOR (NIOSH/MSHATC 23C OR EQUIVALENT) IS RECOMMENDED.
EYE/TYPE	SAFETY GLASSES.
FOOTWEAR/TYPE	NOT NORMALLY REQUIRED.
OTHER/TYPE	NOT REQUIRED.

Section 09: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	AEROSOL.
APPEARANCE	CLEAR LIQUID.
ODOR	ETHEREAL.
ODOR THRESHOLD	NOT AVAILABLE.
VAPOUR PRESSURE(PSIG)-AEROSOL @ 20 C	68-78.
BOILING POINT (°C)(CONC)	121-200.
EVAPORATION RATE. n-BUTYL ACETATE = 1	GREATER THAN 1.
VAPOUR DENSITY (AIR=1) (BY WEIGHT)	GREATER THAN 1.
SOLUBILITY IN WATER g/L (20°C)	NEGLIGIBLE.
pH	NOT APPLICABLE.
SPECIFIC GRAVITY (LIQUID)	1.14-1.18.
COEFFICIENT OF WATER\OIL DIST	NOT AVAILABLE.
FREEZING POINT: (°C)	NOT AVAILABLE.
AEROSOL PERCENT VOLATILE (BY WEIGHT).	93-94.
SPECIFIC GRAVITY (AEROSOL)	1.16-1.20.
AEROSOL PERCENT VOC (w/w)	23-24.

Section 10: STABILITY AND REACTIVITY

HAZARDOUS PRODUCTS OF DECOMPOSITION	POSSIBLE PHOSGENE OVER 250 DEG C, CHLORINE GAS, HYDROCHLORIC ACID. HYDROCARBON FUMES AND SMOKE. CARBON MONOXIDE WHERE COMBUSTION IS INCOMPLETE.
CHEMICAL STABILITY:	
YES	UNDER NORMAL CONDITIONS.
NO, WHICH CONDITIONS?	NOT APPLICABLE.
COMPATIBILITY WITH OTHER SUBSTANCES:	
NO, WHICH ONES?	STRONG OXIDIZING AGENTS.
REACTIVITY CONDITIONS?	NOT APPLICABLE.

Section 11: TOXICOLOGICAL INFORMATION

REPRODUCTIVE EFFECTS	NO INFORMATION IS AVAILABLE AND NO ADVERSE REPRODUCTIVE EFFECTS ARE ANTICIPATED.
IRRITANCY OF MATERIAL	SKIN/EYE IRRITANT.
SENSITIZING CAPABILITY OF MATERIAL	UNKNOWN.
CARCINOGENICITY OF MATERIAL	PERCHLOROETHYLENE HAS BEEN LISTED AS A POTENIAL CARCINOGEN BY IARC.
TERATOGENICITY	NO INFORMATION IS AVAILABLE AND NO ADVERSE TERATOGENIC EFFECTS ARE ANTICIPATED.
MUTAGENICITY	NO INFORMATION IS AVAILABLE AND NO ADVERSE MUTAGENIC EFFECTS ARE ANTICIPATED.

Section 12: ECOLOGICAL CONSIDERATIONS

ENVIRONMENTAL	NOT AVAILABLE.

Section 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL	DO NOT PUNCTURE OR INCINERATE CONTAINERS, EVEN WHEN EMPTY. DISPOSE OF IN ACCORDANCE WITH LOCAL, PROVINCIAL AND FEDERAL REGULATIONS.

PRODUCT: 3108-0036 MOTOMASTER INFLATE & SEAL

Section 14: TRANSPORTATION INFORMATION

T.D.G. CLASSIFICATION.....	CONSUMER COMMODITY.

Section 15: REGULATORY INFORMATION

WHMIS CLASSIFICATION.....	A,D1B,D2A,D2B.
HMIS RATING HEALTH.....	2 MODERATE HAZARD.
HMIS RATING FLAMMABILITY.....	0 MINIMAL HAZARD.
HMIS RATING REACTIVITY.....	0 MINIMAL HAZARD.
NFPA CODE 30B.....	LEVEL 1.
CNFC SECTION 3.3.5.....	LEVEL 1.

Section 16: OTHER INFORMATION

NOTICE FROM KG PACKAGING INC	THE INFORMATION ON THIS MATERIAL SAFETY DATA SHEET IS PROVIDED BY K-G PACKAGING INC. FREE OF CHARGE. WHILE BELIEVED TO BE RELIABLE, IT IS INTENDED FOR USE BY SKILLED PERSONS AT THEIR OWN RISK. K-G PACKAGING INC. ASSUMES NO RESPONSIBILITY FOR EVENTS RESULTING OR DAMAGES INCURRED FROM ITS USE. THE INFORMATION ON THIS MATERIAL SAFETY DATA SHEET RELATES ONLY TO THE SPECIFIC MATERIAL DESIGNATED HEREIN AND DOES NOT RELATE TO USE IN COMBINATION WITH ANY OTHER MATERIAL OR IN ANY PROCESS.
PREPARED BY.....	TECHNICAL SERVICES
PREPARATION DATE	Jan14/11

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL 1 15W-50**
Product Description: Synthetic Base Stocks and Additives
MSDS Number: 17647
Intended Use: Engine oil

COMPANY IDENTIFICATION

Supplier: **Imperial Oil Products Division**
240 4th Avenue
Calgary, ALBERTA. T2P 3M9 Canada

24 Hour Environmental / Health Emergency Telephone	1-866-232-9563
Transportation Emergency Phone Number	1-866-232-9563
Product Technical Information	1-800-268-3183
Supplier General Contact	1-800-567-3776

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

No Reportable Hazardous Substance(s) or Complex Substance(s).

SECTION 3 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines see Section 15.

HEALTH EFFECTS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity: 0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek

immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Smoke, Fume, Aldehydes, Sulphur oxides, Incomplete combustion products, Oxides of carbon

FLAMMABILITY PROPERTIES

Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending

on the specific circumstances and/or the expert judgment of the emergency responders.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do so without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Avoid contact with used product. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or earthing procedures. However, bonding and earthing may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers. Keep away from incompatible materials.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following is recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction).

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practise good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Colour: Amber
Odour: Characteristic
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.864
Flash Point [Method]: >200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316°C (600°F)
Vapour Density (Air = 1): > 2 at 101 kPa
Vapour Pressure: < 0.013 kPa (0.1 mm Hg) at 20ºC
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): N/D
Solubility in Water: Negligible
Viscosity: 124 cSt (124 mm2/sec) at 40ºC | 17.3 cSt (17.3 mm2/sec) at 100°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -41°C (-42°F)
DMSO Extract (mineral oil only), IP-346: < 3 %wt

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Route of Exposure	Conclusion / Remarks
Inhalation	
Toxicity (Rat): LC50 > 5000 mg/m3	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
Ingestion	
Toxicity (Rat): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity (Rabbit): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials.

Eye	
Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS

For the product itself:

Diesel engine oils: Not carcinogenic in animals tests. Used and unused diesel engine oils did not produce any carcinogenic effects in chronic mouse skin painting studies. Oils that are used in gasoline engines may become hazardous and display the following properties: Carcinogenic in animal tests. Caused mutations in vitro. Possible allergen and photoallergen. Contains polycyclic aromatic compounds (PAC) from combustion products of gasoline and/or thermal degradation products.

Contains:

Synthetic base oils: Not expected to cause significant health effects under conditions of normal use, based on laboratory studies with the same or similar materials. Not mutagenic or genotoxic. Not sensitising in test animals and humans.

Additional information is available by request.

CMR Status: None.

--REGULATORY LISTS SEARCHED--

1 = IARC 1	3 = IARC 2B	5 = ACGIH A1
2 = IARC 2A	4 = ACGIH ALL	6 = ACGIH A2

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents,

brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (TDG): Not Regulated for Land Transport

LAND (DOT): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

WHMIS Classification: Not controlled

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the (M)SDS contains all the information required by the Controlled Products Regulations.

CEPA: All components of this material are either on the Canadian Domestic Substances List (DSL), exempt, or have been notified under CEPA.

Complies with the following national/regional chemical inventory requirements: PICCS, TSCA, IECSC, DSL, AICS, KECI

Special Cases:

Inventory	Status
ELINCS	Restrictions Apply
ENCS	Restrictions Apply

The Following Ingredients are Cited on the Lists Below:

Chemical Name	CAS Number	List Citations
CARBONIC ACID, CALCIUM SALT (1:1)	471-34-1	6
PHENOL, 4,4-METHYLENEBIS(2,6-BIS(1,1-	118-82-1	1

DIMETHYLETHYL)-		
ZINC DITHIOPHOSPHATE	68649-42-3	6

--REGULATORY LISTS SEARCHED--

1 = TSCA 4	3 = TSCA 5e	5 = TSCA 12b
2 = TSCA 5a2	4 = TSCA 6	6 = NPRI

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Changes:
Section 04: First Aid Skin - Header was modified.
Section 04: First Aid Eye - Header was modified.
Section 04: First Aid Ingestion - Header was modified.
Section 06: Notification Procedures - Header was modified.
Section 13: Disposal Considerations - Disposal Recommendations was modified.
Section 10: Materials To Avoid - Header was modified.
Section 11: Acute Toxicity Table Header was modified.
Section 09: Phys/Chem Properties Note was modified.
Section 11: Inhalation - Header was modified.
Section 09: Boiling Point C(F) was modified.
Section 09: Evaporation Rate - Header was modified.
Section 08: Comply with applicable regulations phrase was modified.
Section 09: Vapour Pressure - Header was modified.
Section 09: Vapour Pressure was modified.
Section 07: Handling and Storage-Handling was modified.
Section 07: Handling and Storage-Storage Phrases was modified.
Section 11: Inhalation Lethality Test Data was modified.
Section 05: Hazardous Combustion Products was modified.
Section 06: Accidental Release- Spill Management- Water was modified.
Section 09: Relative Density - Header was modified.
Section 09: Flash Point C(F) was modified.
Section 09 Viscosity was modified.
Section 09 Viscosity was modified.
Section 14: Sea (IMDG) - Header was modified.
Section 14: Air (IATA) - Header was modified.
Section 14: LAND (TDG) - Header was modified.
Section 14: LAND (DOT) - Header was modified.
Section 14: LAND (DOT) - Default was modified.
Section 14: LAND (TDG) Default was modified.
Section 14: Sea (IMDG) - Default was modified.
Section 14: Air (IATA) - Default was modified.
Section 15: National Chemical Inventory Listing - Header was modified.
Section 15: National Chemical Inventory Listing was modified.
Section 08: Exposure limits/standards was modified.
Hazard Identification: Hazards Note was modified.
Section 15: Special Cases Table was modified.
Section 16: CA Prepared by - Header was modified.

Section 09: Oxidizing Properties was modified.
Section 15: Canadian List Citations Table was modified.
Section 01: Company Contact Methods Sorted by Priority was modified.
Section 13: Regulatory Disposal Information - Header was modified.
Section 06: Protective Measures was added.
Section 06: Accidental Release - Protective Measures - Header was added.

WHMIS Classification: Not controlled

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Prepared by: Imperial Oil Limited, IH and Product Safety

MATERIAL SAFETY DATA SHEET
SKY BLUE LAKE DYE

Manufacturer/Distributor:
CLEAN-FLO International LLC
827 Lincoln Avenue, Suite 1
West Chester, PA 19380

Emergency Phone Numbers: 610-431-1934

HMIS RATINGS: **HEALTH:** 1 **Fire**: 0 **Reactivity**: 0 **Personal Protection**: H

SECTION 1: PRODUCT IDENTIFICATION

Product I.D.:	SKYBLUE
Product Name:	Sky Blue Lake Dye
Product Description:	Aqueous Acid Blue Colorant
C.I. Name:	Acid Blue 9 (Solution)
C.I. Number:	42090
Chemical Family:	Triphenylmethane dye
CAS Number:	3844-45-9
Effective Date:	October 28, 2010

SECTION 2: HAZARD IDENTIFICATION AND EMERGENCY OVERVIEW

Emergency Overview:

Unprotected contact may cause mild-eye-respiratory-skin irritation.

Eye Contact:

Depending on duration and personal sensitivity, unprotected contact may cause mild irritation, discomfort, redness, watering, itching or other effects. Heavy contact for prolonged period may increase effects. Follow ALL supervisor and Personal Protection instructions in Section 8 of this SDS.

Skin Contact:

Depending on degree of unprotected contact with product and individual sensitivity, may cause mild irritation to skin, redness, rash, itching, and other effects. Constant/repeated long-term heavy contact with some powdered products may cause abrasion of skin. Some components may be absorbed through unprotected skin causing or adding to effects.

Inhalation:

Depending on duration of unprotected inhalation of product, vapors, mists, aerosols or dusts may cause mild irritation of the nose, throat, lungs and mucous membranes, shortness of breath, sneezing, cough, runny nose, nausea, headache and other effects. Prolonged or heavy exposure, or heating of liquid material may increase severity of symptoms.

Ingestion:

Depending on amount swallowed, product can cause mild irritation of mouth, throat, esophagus, stomach, and gastrointestinal tract, upset stomach, abdominal discomfort, nausea, vomiting, gastrointestinal disturbances, dizziness, diarrhea, and other effects. Aspiration into lungs during vomiting is an emergency and may cause lung injury and life-threatening conditions. Higher dose may increase irritation and severity of symptoms.

Improper protection allowing contact with vapors, mists, aerosols, liquids, splashes or dusts of product by inhalation, eye contact, or skin contact may aggravate pre-existing conditions or diseases of the respiratory system, skin, or eyes. Product containing solvents may aggravate Central Nervous System conditions or diseases. Individuals with above-noted conditions or known or suspected chemical sensitivities or allergies should avoid working with chemicals.

Skin Sensitization:

Not known to cause skin sensitization. With careful handling and when good chemical hygiene procedures are followed, harmful effects are not expected. As a precaution against unforeseen or unexpected sensitivity or possible allergic reactions, follow ALL Personal Protection instructions in Section 8 of this SDS.

Respiratory Sensitization:

Not known to cause respiratory sensitization. With careful handling and good chemical hygiene procedures being followed, no harmful effects are expected . As a precaution against unforeseen or unexpected sensitivity or possible allergic reactions, follow ALL Personal Protection instructions in Section 8 of this SDS. All PPE must be cleaned and maintained after each shift. All exposures should be avoided. Individuals known to be, or suspected to be sensitive to chemical exposure should not work with chemicals.

Special Warnings:

None for this material

Unusual Health Hazards:

None for this material

Supplemental Hazard Information

No additional information is currently available

Notes to Physician

Treat Symptomatically based on Section 2 Hazard Warnings and Section 3 ingredients unless indicated otherwise

Cancer Information:

***** Not known to contain carcinogens *****

SECTION 3: OSHA HAZARDOUS INGREDIENTS

Component	CAS Number	Wt %	OSHA - PEL	ACGIH - TLV	Recommended PEL
Acid Blue 9 Liquid	3844-45-9	30%	Not established	Not established	Lowest exposure to mists/aerosols

Important Notice:

Unprotected contact with Section 3 ingredients may be hazardous based on OSHA 29 CFR 1910.1200 & related appendices. Components not listed are trade secrets, non-hazardous, or not reportable. This SDS is not intended to offer full disclosure, but all component information is available to medical or emergency personnel. All hazards are based on contact exposure. Reducing or eliminating contact can reduce or eliminate risk. Use protective equipment and clothing in Section 8 to minimize or eliminate contact. Effects may be unpredictable and may vary from person to person due to individual reactions. Users are responsible for hazard determination and communication. Unless indicated otherwise, non-carcinogenic components are indicated within a 1-10% range, and investigated or potential carcinogens within a 0.1-1% range. HMIS ratings are based on data interpretation, and vary from company to company. They are intended only for quick, general identification of the degree of potential hazards. Hazards range from 0 (Minimal) up to 4 (Severe). Consult the National Paint & Coatings Association HMIS Manual for detailed information on ratings. To handle material safely, consider all information in this SDS.

SECTION 4: FIRST AID INSTRUCTIONS

Eye Contact:

Immediately rinse with flowing water for at least 15 minutes while holding eyelids open. Get immediate medical attention, as a precaution.

Skin Contact:

Immediately remove contaminated clothing. Wash affected area with soap and rinse with plenty of water. Get medical attention, as a precaution.

Inhalation:

Immediately move person to fresh air. If breathing is difficult give oxygen, call 911, calm the individual. If not breathing, call 911, give artificial respiration (CPR) until medical help arrives. Have this Material Safety Data Sheet available.

Ingestion:

Do not induce vomiting unless directed to do so by a doctor or by other emergency medical personnel. Forced vomiting of certain chemicals may cause aspiration and lung damage. Have this Material Safety Data Sheet available.

SECTION 5: FIRE FIGHTING INSTRUCTIONS

Flash Point:

Not applicable or not established

Auto-ignition Temperature:

Not applicable

LEL:

Not applicable

UEL:

Not applicable

Unusual hazards:

None expected

Other Hazards:

None known

Types of Extinguishers:

CO2, dry chemical, foam, water fog or spray depending on type of fire

Fire Fighting Directions:

Wear self-contained breathing equipment and fire-proof clothing. Use water spray to cool fire exposed containers if they cannot be safely moved.

SECTION 6: ACCIDENTAL SPILL OR RELEASE INSTRUCTIONS

Special Precautions:

None known. Follow general precautions shown below.

Reporting:

Check the RQ

Static Discharges:

Take precautionary measures against static discharges when cleaning up leaks or spills of powders, combustibles, or flammable liquids. Containers should be properly grounded with metal straps, cables or other appropriate means to relieve static electricity build-up or generation. .

Environmental Protection:

Immediately dike liquid spills with inert absorbent material (sand, "Oil Dry" or other commercially available spill absorbent) to contain and soak up liquid. For powder spills, use sweeping compound, sawdust, or other appropriate material to contain dust. If possible, recover any uncontaminated materials to re-use.

Protective equipment and clothing:

Wear all proper personal protective equipment and clothing to care for spill situation. See section 8 of this MSDS.

Clean up:

After containing liquid spill by diking and soaking up with inert absorbent material, place in labeled container to be sealed for proper and regulated disposal. Only the slightest residue should remain. Try to save uncontaminated material for reuse whenever possible. For powders, use sweeping compound to minimize dust and pick up as much product as possible. Check Sections 1 and 2 for dye description or type. Solvent dye residue may be cleaned by scrubbing with detergent, depending on type. Do not add water to water-soluble dyes. Dye is concentrated. This will increase amount of color to remove. All cleaning or scrubbing liquids used should be absorbed and placed in labeled containers for correct disposal. Absorbent material containing solvents may release combustible or flammable vapors and should be handled accordingly, properly labeled and disposed. Check Sections 2, 5, 13 & 15 for applicable instructions and regulations.

SECTION 7: HANDLING AND STORAGE

Warnings and Precautions:

No special precautions anticipated. Wear all PPE in section 8 as a precaution, and avoid physical contact with material.

Personal Protection:

Wear ALL proper personal protective equipment as outlined in section 8 of this SDS.

Handling, Storage & Temperature Conditions:

Keep containers tightly sealed in cool & dry area, out of direct sunlight. FOR PRODUCTS LISTING FLAMMABLE/COMBUSTIBLE SOLVENTS or LOW FLASH POINTS: Store away from fire hazards and ignition sources, high heat, open flames, welding, hot plates, steam pipes, radiators, etc. Maintain good ventilation. Guard against static discharges. Ground all containers before mixing or filling. Use non-sparking tools to open, close or otherwise work with containers. Limit indoor storage to approved areas with automatic sprinklers. Vapors expected to be released when material is heated during process operations.

General precaution for powders: Although unlikely in most instances, GUARD AGAINST DUST EXPLOSION HAZARD. Eliminate or keep dust to a minimum. Under the right conditions, high dust concentrations of certain particle sizes mixed with air in a critical ratio in the presence of an ignition source can theoretically cause a dust explosion.

At a minimum, follow all Section 8 recommendations for Exposure Controls and Personal Protection. FOR WATER-BASED PRODUCTS: DO NOT FREEZE. Also ground containers when filling or mixing powders.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Note: Selecting protective equipment & clothing:

When choosing personal protective equipment and clothing, consider each worker's environment, all chemicals being handled, temperature, ventilation, and all other conditions. Determination of the level of protection needed for the eyes, skin and respiratory system under working conditions is the responsibility of the product end-user or shift supervisor. SDS Sections 2, 3, 8 and 11 should be consulted.

Eye protection:

As a precaution, wear indirectly vented, splash-proof chemical safety goggles. When handling liquids, wear splash-proof goggles under a clear face-shield. Face shield is not to be used without these goggles. The type or extent of protection needed should be determined by the product end-user or shift supervisor.

Skin Protection:

Always wear impervious, chemical-resistant synthetic or rubber gloves. Check with manufacturer for best glove for the material being handled. Wear good quality long sleeved work shirt, coveralls, and a rubber or plastic apron. Wash hands after handling and before eating, drinking or using restroom. Shower after each shift. Clean contaminated but reusable protective equipment and clothing before reusing and wearing again. Discard contaminated disposable gloves and clothing. The type or extent of protection needed should be determined by the product end-user or shift supervisor.

Respiratory Protection:

Depending on type of material handled and processing conditions, it is recommended that an appropriate NIOSH approved organic vapor/mist respirator, or dust respirator (with proper filters as required) be worn when exposure to product is expected. After each shift or when equipment becomes contaminated, clean respirator and replace filters in compliance with 29 CFR 1910.134. The type or extent of protection needed should be determined by the product end-user or shift supervisor.

Eye Washes and Other Protection:

Eye wash stations and drench showers should be located within 100 feet or 10-second walk of the work area per ANSI standard Z358.1-1990.

Ventilation:

Local exhaust should be used to maintain exposure limits below specified amounts recommended by OSHA, NIOSH, or ACGIH and to draw spray, aerosol, vapors, or dusts away from workers and prevent routine inhalation. At least 10 air changes per hour are recommended for good room ventilation.

Airborne Exposure Limits:

Not referenced in literature

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

pH:	3.5 - 4.5
% Water Content:	55-65
% Total Solids/Non-Volatiles:	~ 34.00
% Total VOC:	0
% Solvents:	0
% Other Components:	Undisclosed
Boiling Point:	Not established
Color:	Blue
Form:	Liquid
Odor:	None
Freezing/Melting Point:	~ 32 ºF
Lbs. per gallon:	9.66
Specific Gravity (Liquid):	1.15
Vapor Pressure:	0
Water Solubility:	Soluble. Test in specific applications
Solvent Solubility:	Not applicable
Other Properties:	No further data

All Data shown above are typical values, not specifications.

SECTION 10: STABILITY AND REACTIVITY

Stability:

Product is expected to be stable under normal, ambient (controlled) conditions concerning heat, moisture, pressure, fire and ignition hazards, and ventilation. Contact with incompatible or reactive materials may cause hazardous reactions in some products if indicated. Check information below.

Hazardous Polymerization:

Product will not undergo polymerization.

Conditions to Avoid:

None known

Incompatible Materials:

None known

Hazardous Decomposition Products:

In fire: Oxides of carbon

Possible Hazard Reactions:

None known

SECTION 11: TOXICOLOGICAL INFORMATION

Oral LD50 (Rat):	Acid Blue 9: > 2000 mg/kg
Dermal LD50 (Rabbit):	No data currently available
Eye Effects (Rabbit):	No data currently available
Skin Effects (Rabbit):	No data currently available
Mutagenicity:	No data currently available
Inhalation LC50 (Rat):	No data currently available
Skin Sensitization (Guinea Pig):	No data currently available
Respiratory Sensitization:	No data currently available
Additional Toxicity Data:	No data currently available
Supplemental Test Data:	No data currently available
Other Data:	No data currently available

SECTION 12: ECOLOGICAL DATA

BOD:	No data currently available
COD:	No data currently available
Aquatic Toxicity:	No Data currently available
Biodegradability:	Expected to biodegrade
Persistence:	Biodegradation: Expected to biodegrade
Ecotoxicity:	Freshwater Fish Toxicity: The acute LC50 is >100mg/L based on component data.
Sewage Treatment:	No data currently available
Other Data:	Not expected to bio accumulate
Supplemental Test Data:	No data currently available

SECTION 13: DISPOSAL AND ENVIRONMENTAL CONSIDERATION

Reuse of materials:

Reclaim all uncontaminated material to reuse, recycle or otherwise rework whenever possible.

Contain - Do not release:

Do not release into sewers, water systems, ground systems or ecosystems without proper authorization.

Disposal Methods:

Incinerate, treat, or bury (landfill), after sampling and testing, at facility approved by applicable federal, state, and local authorities.

Empty Containers:

Empty containers may contain residue and/or vapors and should not be reused unless professionally cleaned and reconditioned. Crush if not cleaned, to prevent reuse.

Applicable Regulations:	See Section 15 if regulated
Special Instructions:	See Section 15 if regulated

SECTION 14: SHIPPING AND TRANSPORTATION INFORMATION

DOT Regulations (Ground):

Hazard Label Required:	PROTECT FROM FREEZING
DOT Notes:	Not regulated. PROTECT FROM FREEZING. Label accordingly.

IATA Regulations (Air):

Hazard Label(s):	PROTECT FROM FREEZING
IATA Notes:	Not regulated. PROTECT FROM FREEZING. Label accordingly.

IMDG / IMO Regulations (Water):

Hazard Label(s):	PROTECT FROM FREEZING
IMDG / IMO Notes:	Not regulated. PROTECT FROM FREEZING. Label accordingly.

SECTION 15: REGULATORY INFORMATION

Regulatory List Reference:

NOTE: When no components are shown in space above this note, no federal or state reporting requirements apply to this product. When components are listed above, list numbers shown below indicate applicable regulations.*

List numbers

1-Accidental Release Substance
2-CERCLA 304 Hazardous Substance (RQ)
3-Reserved
4-Clean Air Act-Sec. 111 Volatile Organic Compounds (VOC)
5-Clean Air Act-Sec. 112 Haz. Air Pollutant (HAP, HAP Code)
6-Clean Air Act-Ozone Depleting Chemical (ODC)
7-Clean Water Act-RQ
8-Clean Water Act-Priority Pollutant (PP) RQ
9-Marine Pollutant (MP)
10-PSM Highly Hazardous Chemical
11-RCRA Hazardous Waste (RCRA Code)
12-SARA 302 Extremely Hazardous Substance (EHS) (RQ)
13-SARA 313 Toxic Release Inventory (TRI) (TR Conc., TR Threshold)
14-SOCMI Chemical (CAA)
15-State Lists
CA-California Proposition 65, DE-Delaware, ID-Idaho, ME-Maine, MA-Massachusetts, MI-Michigan, MN-Minnesota, NJ-RTK New Jersey Hazardous Substance List, NJ-TCPA New Jersey Extremely Hazardous Substance List, NY-New York, PA-Pennsylvania, WA-Washington, WV-West Virginia, WI-Wisconsin
16-Supplemental regulatory information (SRI)

* Numbers shown immediately after a List Number indicate additional specific information. Examples: 2: 5000 (2 = CERCLA, 5000 = RQ), 11: D007 (11 = RCRA, D007 = Chromium)

SARA 311/312 Hazard Categories:

Immediate / Acute Health Hazard:	YES
Chronic / Delayed Hazard:	NO
Fire Hazard:	NO
Sudden Release of Pressure Hazard:	NO
Reactivity Hazard:	NO

GLOBAL CHEMICAL REGISTRATION LISTINGS

AICS (Australia):	Components listed
ASIA-PAC (Asia-Pacific):	Components listed
DSL (Canada):	Components listed
ECL (Korea):	Components listed
EINECS (Europe):	Components listed
ENCS (Japan):	Components listed
IECSC (China):	Components listed
PICCS (Philippines):	Components listed
TSCA (US):	Components listed
NZIoC (New Zealand):	Components listed

Material Safety Data Sheet



Baking Soda

Revised: 10/13/2011
Replaces: 02/02/2011
Printed: 10/13/2011

Carolina Biological Supply Company
2700 York Rd | Burlington, NC 27215 • to order: 800.334.5551 • for support: 800.227.1150

CAROLINA
www.carolina.com

Section 1 - Product Description

Product Name: Baking Soda
Product Code(s): 14-1200, 74-4676, 84-0477, 84-0493, 97-2101, 97-2115, C11019, C60050, C70391, C71040
Size: 1 quart, 100 grams, 75 grams, 2 tablespoons
Chemical Name: Sodium Bicarbonate
CAS Number: 144-55-8
Formula: NaHCO3
Synonyms: Sodium Acid Carbonate
Distributor: Carolina Biological Supply Company, 2700 York Road, Burlington, NC 27215
Chemical Information: 800-227-1150 (8am-5pm (ET) M-F) **Chemtrec** 800-424-9300 (Transportation Spill Response 24 hours)

Section 2 - Hazard Identification

Emergency Overview: Irritating to eyes and skin.
Potential Health Effects:
Eyes: May cause irritation.
Skin: May cause irritation to skin.
Ingestion: May cause gastrointestinal discomfort.
Inhalation: May cause irritation to respiratory tract.

Section 3 - Composition / Information on Ingredients

Principal Hazardous Components: Sodium Bicarbonate (CAS#144-55-8) 99-100%
TLV units: N/A
PEL units: N/A

Section 4 - First Aid Measures

Emergency and First Aid Procedures:
Eyes - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Skin - After contact with skin, wash immediately with plenty of water.
Ingestion - If swallowed, rinse mouth with water (only if the person is conscious).
Inhalation - In case of accident by inhalation: remove casualty to fresh air and keep at rest.

Section 5 - Firefighting Procedures

Flash Point (Method Used): N/A
NFPA Rating:

Health: 0
Fire: 0
Reactivity: 0
Extinguisher Media: Use media suitable to extinguish surrounding fire.
Flammable Limits in Air % by Volume: N/A
Autoignition Temperature: N/A
Special Firefighting Procedures: Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.
Unusual Fire and Explosion Hazards: N/A

Section 6 - Spill or Leak Procedures

Steps to Take in Case Material Is Released or Spilled: Ventilate area of spill. Clean-up personnel should wear proper protective equipment. Avoid creating dust. Sweep or scoop up and containerize for disposal.

Section 7 - Special Precautions

Precautions to Take in Handling or Storing: Keep container tightly closed in a cool, well-ventilated place.

Section 8 - Protection Information

Respiratory Protection (Specify Type): None needed under normal conditions of use with adequate ventilation. A NIOSH/MSHA chemical cartridge respirator should be worn if PEL or TLV is exceeded.
Ventilation:
Local Exhaust: Yes
Mechanical(General): Yes
Special: No
Other: No
Protective Gloves: Natural rubber, Neoprene, PVC or equivalent.
Eye Protection: Splash proof chemical safety goggles should be worn.
Other Protective Clothing or Equipment: Lab coat, apron, eye wash, safety shower.

Section 9 - Physical Data

Molecular Weight: 84.01
Boiling Point: N/A
Vapor Density(Air=1): N/A
Percent Volatile by Volume: 0%
Solubility in Water: Soluble
Melting Point: 270 °C (518°F) - Decomposes
Vapor Pressure: N/A
Specific Gravity (H2O=1): 2.159
Evaporation Rate (BuAc=1): N/A
Appearance and Odor: White, odorless crystals.

Section 10 - Reactivity Data

Stability: Stable
Conditions to Avoid: Heat and sources of ignition.
Incompatibility (Materials to Avoid): Acids, Monoammonium Phosphate,
Hazardous Decomposition Products: COx,
Hazardous Polymerization: Will not occur

Section 11 - Toxicity Data

Toxicity Data: orl-rat LD50 4220 mg/kg
Effects of Overexposure:
Acute: See Section 2
Chronic: Not listed as a carcinogen by IARC, NTP or OSHA.
Conditions Aggravated by Overexposure: Skin disorders, Eye disorders,
Target Organs: N/A
Primary Route(s) of Entry: Ingestion, skin and eye contact.

Section 12 - Ecological Data

EPA Waste Numbers: N/A

Section 13 - Disposal Information

Waste Disposal Methods: Dispose in accordance with all applicable Federal, State and Local regulations. Always contact a permitted waste disposer (TSD) to assure compliance.

Section 14 - Transport Information

DOT Proper Shipping Name: N/A

Section 15 - Regulatory Information

EPA TSCA Status: On TSCA Inventory
Hazard Category for SARA Section 311/312 Reporting:

Name List:
No

Chemical Category:
No

CERCLA Section 103 RQ(lb.): No
RCRA Section 261.33: No

Section 16 - Additional Information

The information provided in this Material Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the Material Safety Data Sheet. Any employer must carefully assess the applicability of any information contained herein in regards to the particular use to which the employer puts the material.

Glossary

ACGIH	American Conference of Governmental Industrial Hygienists
CAS Number	Chemical Services Abstract Number
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation
IARC	International Agency of Research on Cancer
N/A	Not Available
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
ppm	Parts per million
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendments and Reauthorization Act
TLV	Threshold Limit Value
TSCA	Toxic Substances Control Act

Pro Form Products Ltd.
604 McGeachie Drive
Milton; Ontario; L9T 3Y5
Canada

PRODUCT: PF 513 GLASS CLEANER



Section 01: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURED FOR.....	Pro Form Products Ltd. 604 McGeachie Drive Milton, Ontario L9T3Y5 Tel (905) 878-4990 Fax (905) 878-1189
PRODUCT NAME.....	PF 513 GLASS CLEANER
MATERIAL USE.....	CLEANING SOLUTION.
CHEMICAL FAMILY.....	MIXTURE.
24 HOUR EMERGENCY NUMBER:.....	IN CANADA CALL CANUTEC (613) 996-6666 - INTHE UNITED STATES CALL CHEMTREC (800) 424-9300.
PREPARATION DATE.....	JUNE 22, 2012.
HAZARD RATE	
NFPA RATING.....	HEALTH: 2 FIRE: 4 REACTIVITY: 0.
HMIS.....	H: 2 F: 4 R: 0.

Section 02: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Ingredients	%	Exposure Limit	C.A.S.#	LD/50, Route,Species	LC/50 Route,Species
ISO BUTANE	1-5	NOT INDICATED	75-28-5	NOT INDICATED	NOT INDICATED
ISOPROPYL ALCOHOL	7-13	400 ppm	67-63-0	5840 MG/KG ORAL RAT	16,000 ppm 8 HOURS INHALATION RAT
2 BUTOXY ETHANOL	3-7	20 ppm ACGIH TWA	111-76-2	1,400 mg/kg RAT ORAL - 400 mg/kg RABBIT DERMAL	486 ppm RAT 4 HOURS
AMMONIA	0.1-1.0	25 mg/m3	7664-41-7	ORAL/RAT 350 mg/kg	2000 PPM/4HR RAT

Section 03: HAZARDS IDENTIFICATION

ROUTE OF ENTRY	EYE CONTACT. SKIN CONTACT. INHALATION.
SKIN CONTACT.....	CAN CAUSE MODERATE IRRITATION, DEFATTING AND DERMATITIS.
SKIN ABSORPTION.....	MAY BE HARMFUL IF ABSORBED THROUGH THE SKIN.
EYE CONTACT.....	CAN CAUSE REDNESS, IRRITATION, TISSUE DESTRUCTION.
INGESTION.....	MAY BE HARMFUL OR FATAL IF SWALLOWED. SWALLOWING CAUSES INEBRIATION, HEADACHE, VOMITING, LEADING TO SEVERE ILLNESS, BLINDNESS, EVEN DEATH. ASPIRATION OF MATERIAL INTO LUNGS CAN CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL.
INHALATION (ACUTE).....	EXCESSIVE INHALATION OF VAPOURS CAN CAUSE RESPIRATORY IRRITATION, DIZZINESS, HEADACHE, VOMITING AND UNCONSCIOUSNESS.
INHALATION (CHRONIC).....	CHRONIC EXPOSURE TO ORGANIC SOLVENT VAPORS HAVE BEEN ASSOCIATED WITH VARIOUS NEUROTOXIC EFFECTS INCLUDING PERMANENT BRAIN AND/OR NERVOUS SYSTEM DAMAGE, KIDNEY, LIVER, BLOOD DAMAGE AND REPRODUCTIVE EFFECTS AMONG WOMEN. SYMPTOMS MAY INCLUDE NAUSEA, VOMITING, ABDOMINAL PAIN, HEADACHE, IMPAIRED MEMORY, LOSS OF COORDINATION, INSOMNIA AND BREATHING DIFFICULTIES.
EFFECTS OF CHRONIC EXPOSURE.....	BREATHING HIGH CONCENTRATIONS OF VAPOUR MAY CAUSE ANESTHETIC EFFECTS AND SERIOUS HEALTH EFFECTS. PROLONGED OR REPEATED SKIN CONTACT MAY CAUSE DRYING OR CRACKING OF SKIN. INTENTIONAL MISUSE BY DELIBERATELY CONCENTRATING AND INHALING THIS PRODUCT MAY BE HARMFUL OR FATAL. .

Section 04: FIRST AID MEASURES

SKIN CONTACT.....	REMOVE ALL CONTAMINATED CLOTHING AND IMMEDIATELY WASH THE EXPOSED AREAS WITH COPIOUS AMOUNTS OF WATER FOR A MINIMUM OF 30 MINUTES OR UP TO 60 MINUTES FOR CRITICAL BODY AREAS. IF IRRITATION PERSISTS, SEEK MEDICAL ATTENTION.
INHALATION.....	IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN, OBTAIN MEDICAL ATTENTION.

PRODUCT: PF 513 GLASS CLEANER

Section 04: FIRST AID MEASURES

INGESTION.....	DO NOT INDUCE VOMITING. IF INGESTION IS SUSPECTED, CONTACT PHYSICIAN OR POISON CONTROL CENTER IMMEDIATELY. IF SPONTANEOUS VOMITING OCCURS HAVE VICTIM LEAN FORWARD WITH HEAD DOWN TO TO PREVENT ASPIRATION OF FLUID INTO THE LUNGS. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.
EYE CONTACT.....	IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES, KEEPING EYELIDS OPEN, WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. OBTAIN MEDICAL ATTENTION.
ADDITIONAL INFORMATION.....	TREAT POISONING VICTIMS SYMPTOMATICALLY . THE MAIN HAZARD FROM INGESTION IS ASPIRATION OF THE LIQUID INTO THE LUNGS. IN EVENT OF AN INCIDENT INVOLVING THIS PRODCUT ENSURE THAT MEDICAL AUTHORITIES ARE PROVIDED A COPY OF THIS MATERIAL SAFETY DATA SHEET.

Section 05: FIRE FIGHTING MEASURES

FLAMMABILITY.....	FLAMMABLE.
FLASH POINT (deg C), METHOD.....	-40.
AUTO IGNITION TEMPERATURE (deg C)...	NOT AVAILABLE.
UPPER FLAMMABLE LIMIT (% VOL).....	8.4.
LOWER FLAMMABLE LIMIT (% VOL).....	1.8.
EXTINGUISHING MEDIA.....	"ALCOHOL" FOAM, CO2, DRY CHEMICAL. IN CASES OF LARGER FIRES, WATER SPRAY SHOULD BE USED.
HAZARDOUS COMBUSTION PRODUCTS..	OXIDES OF CARBON (CO,CO2).
SENSITIVITY TO MECHANICAL IMPACT....	CONTENTS UNDER PRESSURE.
SENSITIVITY TO STATIC DISCHARGE.....	MAY BE SENSITIVE.
SPECIAL FIRE FIGHTING PROCEDURES..	FIREFIGHTER SHOULD BE EQUIPPED WITH SELF-CONTAINED BREATHING APPARATUS AND FULL PROTECTIVE CLOTHING TO PROTECT AGAINST POTENTIALLY TOXIC AND IRRITATING FUMES. COOL FIRE-EXPOSED CONTAINERS WITH COLD WATER SPRAY. HEAT WILL CAUSE PRESSURE BUILDUP AND MAY CAUSE EXPLOSIVE RUPTURE. KEEP RUN-OFF WATER FROM ENTERING SEWERS AND OTHER WATERWAYS. DIKE FOR WATER CONTROL. HEAT WILL CAUSE PRESSURE BUILDUP AND MAY CAUSE EXPLOSIVE RUPTURE.

Section 06: ACCIDENTAL RELEASE MEASURES

LEAK/SPILL.....	VENTILATE. ELIMINATE ALL SOURCES OF IGNITION. CONTAIN THE SPILL. AVOID ALL PERSONAL CONTACT. SPILLED MATERIAL AND WATER RINSES ARE CLASSIFIED AS CHEMICAL WASTE, AND MUST BE DISPOSED OF IN ACCORDANCE WITH CURRENT LOCAL, PROVINCIAL, AND FEDERAL REGULATIONS. EVACUATE ALL NON-ESSENTIAL PERSONNEL. PREVENT RUNOFF INTO DRAINS, SEWERS, AND OTHER WATERWAYS. ABSORB WITH EARTH, SAND, OR ANOTHER DRY INERT MATERIAL. SHOVEL INTO SUITABLE UNSEALED CONTAINERS, TRANSPORT TO WELL-VENTILATED AREA (OUTSIDE) AND TREAT WITH NEUTRALIZING SOLUTION: MIXTURE OF WATER (80%) WITH NON-IONIC SURFACTANT TERGITOL TMN-10 (20%), OR; WATER (90%), CONCENTRATED AMMONIA (3-8%) AND DETERGENT (2%).

Section 07: HANDLING AND STORAGE

HANDLING PROCEDURES.....	AVOID ALL SKIN CONTACT AND VENTILATE ADEQUATELY, OTHERWISE WEAR AN APPROPRIATE BREATHING APPARATUS. ALWAYS ADOPT PRECAUTIONARY MEASURES AGAINST BUILD-UP OF STATIC WHICH MAY ARISE FROM APPLIANCES, HANDLING AND THE CONTAINERS IN WHICH PRODUCT IS PACKED. AVOID BREATHING VAPOURS OR MIST. GROUND HANDLING EQUIPMENT. HANDLE AND OPEN CONTAINER WITH CARE. EMPLOYEES SHOULD WASH HANDS AND FACE BEFORE EATING OR DRINKING. KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME.
STORAGE NEEDS.....	KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAMES. KEEP CONTAINER CLOSED WHEN NOT IN USE. STORE AWAY FROM OXIDIZING AND REDUCING MATERIALS. STORE AWAY FROM SUNLIGHT.

Section 08: EXPOSURE CONTROLS / PERSONAL PROTECTION

PROTECTIVE EQUIPMENT

EYE/TYPE.....	LIQUID CHEMICAL GOGGLES.
RESPIRATORY/TYPE.....	LOCAL EXHAUST VENTILATION IS RECOMMENDED. WEAR AN APPROPRIATE, PROPERLY FITTED RESPIRATOR WHEN CONTAMINANT LEVELS EXCEED THE RECOMENDED EXPOSURE LIMITS.
GLOVES/ TYPE.....	CHEMICAL RESISTANT GLOVES.
CLOTHING/TYPE.....	WEAR ADEQUATE PROTECTIVE CLOTHES.
FOOTWEAR/TYPE.....	SAFETY BOOTS PER LOCAL REGULATIONS.
OTHER/TYPE.....	EMERGENCY SHOWERS AND EYE WASH STATIONS SHOULD BE AVAILABLE.
VENTILATION REQUIREMENTS.....	LOCAL EXHAUST AT POINTS OF EMISSION.

PRODUCT: PF 513 GLASS CLEANER

Section 09: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE	AEROSOL.
ODOUR	AMMONIA.
COLOUR	CLEAR, COLOURLESS.
ODOUR THRESHOLD (ppm)	NOT AVAILABLE.
VAPOUR DENSITY (AIR=1)	> 1.
VAPOUR PRESSURE (mm Hg)	25-35 PSIG @ 70F.
EVAPORATION RATE	SIMILAR TO WATER.
BOILING POINT (deg C)	-40 TO 340.
pH	NOT APPLICABLE.
SOLUBILITY IN WATER (% W/W)	COMPLETE.
COEFFICIENT OF WATER\OIL DISTRIBUTION	NOT AVAILABLE.
SPECIFIC GRAVITY	0.98.
FREEZING POINT (deg C)	NOT AVAILABLE.
% VOLATILE BY VOLUME	100%.
VOC	235.9 g/L - 1.97 lb/USG.

Section 10: STABILITY AND REACTIVITY

HAZARDOUS POLYMERIZATION	HAZARDOUS POLYMERIZATION WILL NOT OCCUR.
STABILITY	STABLE AT NORMAL TEMPERATURES AND PRESSURES.
INCOMPATIBILITY	KEEP AWAY FROM HEAT. INCOMPATIBLE WITH STRONG OXIDIZERS.
REACTIVITY CONDITIONS	AVOID HEAT, SPARKS AND FLAME. EXPLOSIVE REACTIONS CAN OCCUR IN THE PRESENCE OF STRONG OXIDIZING AGENTS.
HAZARDOUS PRODUCTS OF DECOMPOSITION	BY FIRE:. DENSE BLACK SMOKE. OXIDES OF CARBON (CO,CO2).

Section 11: TOXICOLOGICAL INFORMATION

EXPOSURE LIMITS	ISOPROPYL ALCOHOL - ACGIH TLV 200 ppm STEL 400 ppm; OSHA PEL 400 ppm; NIOSH REL 400 ppm STEL 15 MINUTES 500 ppm. AMMONIA: ACGIH TLV 25 ppm - STEL 35 ppm 15 MIN; OSHA PEL 50 ppm - STEL 35 ppm; NIOSH REL 25 ppm STEL 35 ppm 15 MIN. 2-BUTOXY ETHANOL: ACGIH TLV 20 ppm; OSHA PEL 50 ppm (SKIN); NIOSH REL 5 ppm (SKIN).
IRRITANCY OF MATERIAL	IRRITANT.
SENSITIZING CAPABILITY OF MATERIAL.	NONE REPORTED.
CARCINOGENICITY OF MATERIAL	NOT AVAILABLE.
TERATOGENICITY	NOT AVAILABLE.
MUTAGENICITY	NOT AVAILABLE.
REPRODUCTIVE EFFECTS	NOT AVAILABLE.
SYNERGISTIC MATERIALS	NOT AVAILABLE.

Section 12: ECOLOGICAL INFORMATION

ENVIRONMENTAL	DO NOT ALLOW TO ENTER WATERS, WASTEWATER OR SOIL.
BIODEGRADABILITY	NOT AVAILABLE.

Section 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL	THIS MATERIAL AND ITS CONTAINER MUST BE DISPOSED OF AS HAZARDOUS WASTE. AVOID RELEASE TO THE ENVIRONMENT.

Section 14: TRANSPORT INFORMATION

TDG CLASSIFICATION	AEROSOLS; CLASS 2.1; UN1950 - UNDER CLEAR LANGUAGE REGULATIONS REFER TO SECTION 1.17 FOR LIMITED QUANTITY SHIPPING INFORMATION EXEMPTIONS.

Section 15: REGULATORY INFORMATION

WHMIS CLASSIFICATION	A. B5. D2B.
CEPA STATUS	ON DOMESTIC SUBSTANCES LIST (DSL).
OSHA	THIS PRODUCT IS CONSIDERED HAZARDOUS UNDER THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD.
SARA TITLE III	
SECTION 302 - EXTREMELY HAZARDOUS SUBSTANCES	AMMONIA.
SECTION 311/312 - HAZARD CATAGORIES	IMMEDIATE HEALTH, DELAYED HEALTH, FIRE HAZARD.
SARA SECTION 313	ISOPROPYL ALCOHOL. AMMONIA.
EPA HAZARDOUS AIR POLLUTANTS (HAPS) 40CFR63	NONE.
TSCA INVENTORY STATUS	ALL COMPONENTS ARE LISTED.

PRODUCT: PF 513 GLASS CLEANER

Section 15: REGULATORY INFORMATION

CALIFORNIA PROPOSITION 65..... THIS PRODUCT DOES NOT CONTAIN ANY CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER OR REPRODUCTIVE TOXICITY.

Section 16: OTHER INFORMATION

PREPARED BY: ..... REGULATORY AFFAIRS.
TELEPHONE NUMBER:..... (800) 387-7981.
PREPARATION DATE: Jun22/12

Material Safety Data Sheet

24 Hour Assistance:
1-847-367-7700
Rust-Oleum Corp.
www.rustoleum.com

1. Identification

Product Name: IC 5-GL ENAMEL GRAY SHOP COAT PRIMER

Revision Date: 8/29/2012

Identification Number: 206332

Product Use/Class: Primer/Industrial Choice

Supplier: Rust-Oleum Corporation
11 Hawthorn Parkway
Vernon Hills, IL 60061
USA

Manufacturer: Rust-Oleum Corporation
11 Hawthorn Parkway
Vernon Hills, IL 60061
USA

Preparer: Regulatory Department

2. Hazard Identification

EMERGENCY OVERVIEW: Harmful if swallowed. Causes eye irritation. Flammable liquid and vapor. Causes nose and throat irritation. Harmful if inhaled. May affect the brain or nervous system causing dizziness, headache or nausea. High vapor concentrations can irritate eyes, nose and respiratory passages.

EFFECTS OF OVEREXPOSURE - EYE CONTACT: Causes eye irritation.

EFFECTS OF OVEREXPOSURE - SKIN CONTACT: Prolonged or repeated skin contact may cause irritation.

EFFECTS OF OVEREXPOSURE - INHALATION: Harmful if inhaled. Avoid breathing fumes, spray, vapors, or mist. May cause headaches and dizziness. High vapor concentrations are irritating to the eyes, nose, throat and lungs.

EFFECTS OF OVEREXPOSURE - INGESTION: Harmful if swallowed. Aspiration hazard if swallowed; can enter lungs and cause damage.

EFFECTS OF OVEREXPOSURE - CHRONIC HAZARDS: Overexposure to xylene in laboratory animals has been associated with liver abnormalities, kidney, lung, spleen, eye and blood damage as well as reproductive disorders. Effects in humans, due to chronic overexposure, have included liver, cardiac abnormalities and nervous system damage. IARC lists Ethylbenzene as a possible human carcinogen (group 2B). Contains carbon black. Chronic inflammation, lung fibrosis, and lung tumors have been observed in some rats experimentally exposed for long periods of time to excessive concentrations of carbon black and several insoluble fine dust particles. Tumors have not been observed in other animal species (i.e., mouse and hamster) under similar circumstances and study conditions. Epidemiological studies of North American workers show no evidence of clinically significant adverse health effects due to occupational exposure to carbon black.

Carbon black is listed as a Group 2B-"Possibly carcinogenic to humans" by IARC and is proposed to be listed as A4- "not classified as a human carcinogen" by the American Conference of Governmental Industrial Hygienists. Significant exposure is not anticipated during brush application or drying. Risk of overexposure depends on duration and level of exposure to dust from repeated sanding of surfaces or spray mist and the actual concentration of carbon black in the formula. Contains Titanium Dioxide. Titanium Dioxide is listed as a Group 2B-"Possibly carcinogenic to humans" by IARC. Significant exposure is not anticipated during brush application or drying. Risk of overexposure depends on duration and level of exposure to dust from repeated sanding of surfaces or spray mist and the actual concentration of Titanium Dioxide in the formula. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage.

PRIMARY ROUTE(S) OF ENTRY: Eye Contact, Ingestion, Inhalation, Skin Absorption, Skin Contact

3. Composition/Information On Ingredients

Chemical Name	CAS-No.	Weight % Less Than	ACGIH TLV-TWA	ACGIH TLV-STEL	OSHA PEL-TWA	OSHA PEL-CEILING
Limestone	1317-65-3	45.0	10 mg/m3 [Total Dust]	N.E.	5 mg/m3 [Respirable]	N.E.
Talc	14807-96-6	20.0	2 mg/m3	N.E.	0.1 mg/m3 [Respirable]	N.E.
Aliphatic Hydrocarbon	64742-89-8	10.0	100 ppm	N.E.	100 ppm	N.E.
Mineral Spirits	64742-88-7	10.0	100 ppm	N.E.	100 ppm	N.E.
n-Butyl Acetate	123-86-4	5.0	150 ppm	200 ppm	150 ppm	N.E.
Titanium Dioxide	13463-67-7	5.0	10 mg/m3	N.E.	15 mg/m3 [Total Dust]	N.E.
Butyl Benzyl Phthalate	85-68-7	5.0	N.E.	N.E.	N.E.	N.E.
Xylene	1330-20-7	1.0	100 ppm	150 ppm	100 ppm	N.E.
Amorphous Silica	7631-86-9	1.0	N.E.	N.E.	0.8 mg/m3	N.E.
Ethylbenzene	100-41-4	1.0	20 ppm	125 ppm	100 ppm	N.E.
Carbon Black	1333-86-4	1.0	3.5 mg/m3	N.E.	3.5 mg/m3	N.E.
Crystalline Silica	14808-60-7	1.0	0.025 mg/m3 [Respirable]	N.E.	0.1 mg/m3 [Respirable]	N.E.
Neodecanoic Acid, Cobalt Salt	27253-31-2	0.1	0.2 mg/m3	N.E.	N.E.	N.E.

4. First-aid Measures

FIRST AID - EYE CONTACT: Immediately flush eyes with plenty of water for at least 15 minutes holding eyelids open. Get medical attention. Do NOT allow rubbing of eyes or keeping eyes closed.

FIRST AID - SKIN CONTACT: Wash with soap and water. Get medical attention if irritation develops or persists.

FIRST AID - INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention. Do NOT use mouth-to-mouth resuscitation.

FIRST AID - INGESTION: Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. Get immediate medical attention.

5. Fire-fighting Measures

Flash Point, °F 78 (Setaflash)

EXTINGUISHING MEDIA: Alcohol Foam, Carbon Dioxide, Dry Chemical, Foam, Water Fog

UNUSUAL FIRE AND EXPLOSION HAZARDS: Vapors may form explosive mixtures with air. Vapors can travel to a source of ignition and flash back. Isolate from heat, electrical equipment, sparks and open flame.

SPECIAL FIREFIGHTING PROCEDURES: Water may be used to cool closed containers to prevent pressure buildup and possible autoignition or explosion. Evacuate area and fight fire from a safe distance.

6. Accidental Release Measures

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Eliminate all ignition sources; use explosion-proof equipment. Place material in a container and dispose of according to local, provincial, state and federal regulations.

7. Handling and Storage

HANDLING: Wash thoroughly after handling. Wash hands before eating. Use only with adequate ventilation. Follow all MSDS/label precautions even after container is emptied because it may retain product residues.

STORAGE: Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame. Keep away from heat, sparks, flame and sources of ignition. Keep container closed when not in use.

8. Exposure Controls/Personal Protection

ENGINEERING CONTROLS: Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Prevent build-up of vapors by opening all doors and windows to achieve cross-ventilation.

RESPIRATORY PROTECTION: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. A NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits.

Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or in any other circumstances where air purifying respirators may not provide adequate protection.

SKIN PROTECTION: Use impervious gloves to prevent skin contact and absorption of this material through the skin. Nitrile or Neoprene gloves may afford adequate skin protection.

EYE PROTECTION: Use safety eyewear designed to protect against splash of liquids.

OTHER PROTECTIVE EQUIPMENT: Refer to safety supervisor or industrial hygienist for further information regarding personal protective equipment and its application.

HYGIENIC PRACTICES: Wash thoroughly with soap and water before eating, drinking or smoking.

9. Physical and Chemical Properties

Vapor Density	Heavier than Air	**Odor:**	Solvent Like
Appearance:	Gray Liquid	**Evaporation Rate:**	Slower than Ether
Solubility in Water:	None	**Freeze Point:**	N.D.
Specific Gravity:	1.579	**pH:**	N.A.
Physical State:	Liquid		

(See section 16 for abbreviation legend)

10. Stability and Reactivity

CONDITIONS TO AVOID: Avoid all possible sources of ignition.

INCOMPATIBILITY: Incompatible with strong oxidizing agents, strong acids and strong alkalies.

HAZARDOUS DECOMPOSITION: By open flame, carbon monoxide and carbon dioxide. When heated to decomposition, it emits acrid smoke and irritating fumes.

HAZARDOUS POLYMERIZATION: Will not occur under normal conditions.

STABILITY: This product is stable under normal storage conditions.

11. Toxicological Information

Chemical Name	LD50	LC50
Limestone	>5000 mg/kg (Rat, Oral)	N.E.
Talc	N.E.	TCLo: 11 mg/m3 (Inhalation)
Aliphatic Hydrocarbon	>5000 mg/kg (Rat, Oral)	N.E.
Mineral Spirits	>5000 mg/kg (Rat, Oral)	>1400 ppm (Rat, Inhalation, 4Hr)
n-Butyl Acetate	13100 mg/kg (Rat, Oral)	2000 ppm (Rat, Inhalation, 4 Hr)

Titanium Dioxide	>7500 mg/kg (Rat, Oral)	N.E.
Butyl Benzyl Phthalate	2330 mg/kg (Rat, Oral)	>6.7 mg/L (Rat, Inhalation, 4Hr)
Xylene	4300 mg/kg (Rat, Oral)	5000 ppm (Rat, Inhalation, 4Hr)
Amorphous Silica	>7500 mg/kg (Rat)	>250 mg/m3 (Rat, 6Hr)
Ethylbenzene	3500 mg/kg (Rat, Oral)	N.E.
Carbon Black	>8000 mg/kg (Rat, Oral)	N.E.
Crystalline Silica	N.E.	N.E.
Neodecanoic Acid, Cobalt Salt	N.E.	N.E.

12. Ecological Information

ECOLOGICAL INFORMATION: Product is a mixture of listed components.

13. Disposal Information

DISPOSAL INFORMATION: Dispose of material in accordance to local, state and federal regulations and ordinances. Do not allow to enter waterways, wastewater. soil, storm drains or sewer systems.

14. Transport Information

	Domestic (USDOT)	International (IMDG)	Air (IATA)
Proper Shipping Name:	Paint	Paint	Paint
Hazard Class:	3	3	3
UN Number:	1263	UN1263	UN1263
Packing Group:	III	III	III
Limited Quantity:	No	No	No

15. Regulatory Information

U.S. Federal Regulations:

CERCLA - SARA Hazard Category

This product has been reviewed according to the EPA ‘ Hazard Categories ’ promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

SARA SECTION 313:

This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

No Sara 313 components exist in this product.

TOXIC SUBSTANCES CONTROL ACT:

This product contains the following chemical substances subject to the reporting requirements of TSCA 12(B) if exported from the United States:

No TSCA 12(b)components exist in this product.

International Regulations:

CANADIAN WHMIS:

This MSDS has been prepared in compliance with Controlled Product Regulations except for the use of the 16 headings.

Canadian WHMIS Class: B2 D2A D2B

16. Other Information

HMIS Ratings:

Health:	2*	**Flammability:**	3	**Physical Hazard:**	0	**Personal Protection:**	X

NFPA Ratings:

Health:	2	**Flammability:**	3	**Instability**	0

VOLATILE ORGANIC COMPOUNDS, g/L: 336

REASON FOR REVISION: Regulatory Update

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

Rust-Oleum Corporation believes, to the best of its knowledge, information and belief, the information contained herein to be accurate and reliable as of the date of this material safety data sheet. However, because the conditions of handling, use, and storage of these materials are beyond our control, we assume no responsibility or liability for personal injury or property damage incurred by the use of these materials. Rust-Oleum Corporation makes no warranty, expressed or implied, regarding the accuracy or reliability of the data or results obtained from their use. All materials may present unknown hazards and should be used with caution. The information and recommendations in this material safety data sheet are offered for the users' consideration and examination. It is the responsibility of the user to determine the final suitability of this information and to comply with all applicable international, federal, state, and local laws and regulations.

Material Safety Data Sheet

According to the Controlled Product Regulations

1. MATERIAL AND COMPANY IDENTIFICATION

Material Name	:	**Shell Rotella T6 5W-40**
Uses	:	Engine oil.
Product Code	:	001D5438
Manufacturer/Supplier	:	**Shell Canada Products** 400 - 4th Avenue S.W Calgary AB T2P 0J4 Canada
Telephone	:	(+1) 8006611600
Fax	:	(+1) 4033848345
Emergency Telephone Number	:	CHEMTREC (24 hr): (+1) 800-424-9300 CANUTEC (24 hr): (+1) 613-996-6666

2. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture Description: : Blend of polyolefins, highly-refined mineral oil and additives.

The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

Refer to Chapter 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

WHMIS Class/Description	:	THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
Routes of Exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Health Hazards	:	Not expected to be a health hazard when used under normal conditions. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. Used oil may contain harmful impurities.
Signs and Symptoms	:	Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.
Safety Hazards	:	Not classified as flammable but will burn.
Environmental Hazards	:	Not classified as dangerous for the environment.

4. FIRST AID MEASURES

General Information	:	Not expected to be a health hazard when used under normal conditions.

Inhalation	:	No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
Skin Contact	:	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.
Eye Contact	:	Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
Ingestion	:	In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
Advice to Physician	:	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point	:	> 230 °C / 446 °F (COC)
Upper / lower Flammability or Explosion limits	:	Typical 1 - 10 %(V)
Auto ignition temperature	:	> 320 °C / 608 °F
Hazardous Combustion Products and Specific Hazards	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
Suitable Extinguishing Media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	:	Do not use water in a jet.
Protective Equipment for Firefighters	:	Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

Protective Measures	:	Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Clean Up Methods	:	Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
Additional Advice	:	Local authorities should be advised if significant spillages cannot be contained.

7. HANDLING AND STORAGE

General Precautions	:	Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use the information in this data sheet as input to a risk

assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

Handling : Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.

Storage : Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Store at ambient temperature.

Recommended Materials : For containers or container linings, use mild steel or high density polyethylene.

Unsuitable Materials : PVC.

Additional Information : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Oil mist, mineral	ACGIH	TWA(Inhalable fraction.)		5 mg/m3	

Consult local authorities for acceptable exposure limits within their jurisdiction.

Exposure Controls : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

Personal Protective Equipment : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory Protection : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate

		combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].
Hand Protection	:	Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Eye Protection	:	Wear safety glasses or full face shield if splashes are likely to occur.
Protective Clothing	:	Skin protection not ordinarily required beyond standard issue work clothes.
Monitoring Methods	:	Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Environmental Exposure Controls	:	Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Amber. Liquid at room temperature.
Odour	:	Slight hydrocarbon.
Odour threshold	:	Data not available
pH	:	Not applicable.
Initial Boiling Point and Boiling Range	:	> 280 °C / 536 °F estimated value(s)
Pour point	:	Typical -20 °C / -4 °F
Vapour pressure	:	< 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Specific gravity	:	
Density	:	Typical 895 kg/m3
Water solubility	:	Negligible.
n-octanol/water partition coefficient (log Pow)	:	> 6 (based on information on similar products)
Kinematic viscosity	:	Typical 87 mm2/s at 40 °C / 104 °F (ASTM D 445) Typical 14.2 mm2/s at 100 °C / 212 °F (ASTM D 445)
Vapour density (air=1)	:	> 1 (estimated value(s))
Evaporation rate (nBuAc=1)	:	Data not available

10. STABILITY AND REACTIVITY

Stability	:	Stable.
Conditions to Avoid	:	Extremes of temperature and direct sunlight.
Materials to Avoid	:	Strong oxidising agents.
Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage.
Hazardous Polymerisation	:	No
Sensitivity to Mechanical Impact	:	No
Sensitivity to Static Discharge	:	No

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	:	Information given is based on data on the components and the toxicology of similar products.
Routes of Exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Acute Oral Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat.
Acute Dermal Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit.
Acute Inhalation Toxicity	:	Not considered to be an inhalation hazard under normal conditions of use.
Skin Irritation	:	Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Eye Irritation	:	Expected to be slightly irritating.
Respiratory Irritation	:	Inhalation of vapours or mists may cause irritation.
Sensitisation	:	Not expected to be a skin sensitiser.
Repeated Dose Toxicity	:	Not expected to be a hazard.
Mutagenicity	:	Not considered a mutagenic hazard.
Carcinogenicity	:	Components are not known to be associated with carcinogenic effects.
Reproductive and Developmental Toxicity	:	Not expected to be a hazard.
Additional Information	:	Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible. Continuous contact with used engine oils has caused skin cancer in animal tests.

12. ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Acute Toxicity : Poorly soluble mixture.May cause physical fouling of aquatic organisms.Expected to be practically non toxic:LL/EL/IL50 > 100 mg/l(to aquatic organisms)(LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).

Mobility : Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.

Persistence/degradability : Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.

Bioaccumulation : Contains components with the potential to bioaccumulate.

Other Adverse Effects : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

13. DISPOSAL CONSIDERATIONS

Material Disposal : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.

Container Disposal : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Local Legislation : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification

This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Class/Description : THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

Inventory Status

EINECS	:	All components listed or polymer exempt.
TSCA	:	All components listed.
DSL	:	All components listed.

16. OTHER INFORMATION

MSDS Version Number : 1.1

MSDS Effective Date : 12-09-2011

MSDS Revisions : A vertical bar (|) in the left margin indicates an amendment from the previous version.

MSDS Regulation : The content and format of this (M)SDS is in accordance with the Controlled Product Regulations.

MSDS Prepared By : Shell Product Stewardship; 1-800-661-1600

MSDS Distribution : The information in this document should be made available to all who may handle the product.

Disclaimer : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

MATERIAL SAFETY DATA SHEET

S02007
03 00

DATE OF PREPARATION
Sep 10, 2012

SECTION 1 — PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NUMBER
S02007
PRODUCT NAME
SPRAYON® NF Duster
MANUFACTURER'S NAME
THE SHERWIN-WILLIAMS COMPANY
KRYLON PRODUCTS GROUP
Cleveland, OH 44115

Telephone Numbers and Websites

Product Information	(800) 251-2486 www.kpg-industrial.com
Regulatory Information	(216) 566-2902 www.paintdocs.com
Medical Emergency	(216) 566-2917
Transportation Emergency*	(800) 424-9300
**for Chemical Emergency ONLY (spill, leak, fire, exposure, or accident)*	

SECTION 2 — COMPOSITION/INFORMATION ON INGREDIENTS

% by Weight	CAS Number	Ingredient	Units		Vapor Pressure
100	**811-97-2**	**1,1,1,2-Tetrafluoroethane**			
			ACGIH TLV	Not Available	760 mm
			OSHA PEL	Not Available	

SECTION 3 — HAZARDS IDENTIFICATION

ROUTES OF EXPOSURE
INHALATION of vapor or spray mist.
EYE or SKIN contact with the product, vapor or spray mist.
EFFECTS OF OVEREXPOSURE
EYES: Irritation.
SKIN: Prolonged or repeated exposure may cause irritation.
INHALATION: Irritation of the upper respiratory system.

In a confined area vapors in high concentration may cause headache, nausea or dizziness.
SIGNS AND SYMPTOMS OF OVEREXPOSURE
Redness and itching or burning sensation may indicate eye or excessive skin exposure.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
None generally recognized.
CANCER INFORMATION
For complete discussion of toxicology data refer to Section 11.

HMIS Codes

Health	1
Flammability	0
Reactivity	0

SECTION 4 — FIRST AID MEASURES

EYES: Flush eyes with large amounts of water for 15 minutes. Get medical attention.
SKIN: Wash affected area thoroughly with soap and water.
Remove contaminated clothing and launder before re-use.
INHALATION: If affected, remove from exposure. Restore breathing. Keep warm and quiet.
INGESTION: Do not induce vomiting. Get medical attention immediately.

SECTION 5 — FIRE FIGHTING MEASURES

FLASH POINT	LEL	UEL	EXTINGUISHING MEDIA
Not Applicable	N.A.	N.A.	Carbon Dioxide, Dry Chemical, Foam

UNUSUAL FIRE AND EXPLOSION HAZARDS

Closed containers may explode (due to the build-up of pressure) when exposed to extreme heat.

During emergency conditions overexposure to decomposition products may cause a health hazard. Symptoms may not be immediately apparent. Obtain medical attention.

SPECIAL FIRE FIGHTING PROCEDURES

Full protective equipment including self-contained breathing apparatus should be used.

Water spray may be ineffective. If water is used, fog nozzles are preferable. Water may be used to cool closed containers to prevent pressure build-up and possible autoignition or explosion when exposed to extreme heat.

SECTION 6 — ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Remove all sources of ignition. Ventilate the area.

Remove with inert absorbent.

SECTION 7 — HANDLING AND STORAGE

STORAGE CATEGORY

Not Applicable

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Contents under pressure. Do not puncture, incinerate, or expose to temperature above 120F. Heat from sunlight, radiators, stoves, hot water, and other heat sources could cause container to burst. Do not take internally. Keep out of the reach of children.

SECTION 8 — EXPOSURE CONTROLS/PERSONAL PROTECTION

PRECAUTIONS TO BE TAKEN IN USE

Use only with adequate ventilation.

Avoid contact with skin and eyes. Avoid breathing vapor and spray mist.

Wash hands after using.

VENTILATION

Local exhaust preferable. General exhaust acceptable if the exposure to materials in Section 2 is maintained below applicable exposure limits. Refer to OSHA Standards 1910.94, 1910.107, 1910.108.

RESPIRATORY PROTECTION

If personal exposure cannot be controlled below applicable limits by ventilation, wear a properly fitted organic vapor/particulate respirator approved by NIOSH/MSHA for protection against materials in Section 2.

PROTECTIVE GLOVES

None required for normal application of aerosol products where minimal skin contact is expected. For long or repeated contact, wear chemical resistant gloves.

EYE PROTECTION

Wear safety spectacles with unperforated sideshields.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

PRODUCT WEIGHT	10.05 lb/gal	1204 g/l
SPECIFIC GRAVITY	1.21	
BOILING POINT	<0 - -14 °F	<-18 - -25 °C
MELTING POINT	Not Available	
VOLATILE VOLUME	100%	
EVAPORATION RATE	Faster than ether	
VAPOR DENSITY	Heavier than air	
SOLUBILITY IN WATER	Not Available	

VOLATILE ORGANIC COMPOUNDS (VOC Theoretical - As Packaged)

Volatile Weight 0.00% Less Water and Federally Exempt Solvents

SECTION 10 — STABILITY AND REACTIVITY

STABILITY — Stable

CONDITIONS TO AVOID

None known.

INCOMPATIBILITY

None known.

HAZARDOUS DECOMPOSITION PRODUCTS

By fire: Carbon Dioxide, Carbon Monoxide

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 — TOXICOLOGICAL INFORMATION

CHRONIC HEALTH HAZARDS

No ingredient in this product is an IARC, NTP or OSHA listed carcinogen.

TOXICOLOGY DATA

CAS No.	Ingredient Name			
811-97-2	**1,1,1,2-Tetrafluoroethane**			
		LC50 RAT	4HR	Not Available
		LD50 RAT		Not Available

SECTION 12 — ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

No data available.

SECTION 13 — DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Waste from this product is not hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.
Do not incinerate. Depressurize container. Dispose of in accordance with Federal, State/Provincial, and Local regulations regarding pollution.

SECTION 14 — TRANSPORT INFORMATION

Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (ocean, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport.

US Ground (DOT)

May be classed as LTD. QTY. OR ORM-D
UN3159, 1,1,1,2-TETRAFLUOROETHANE, 2.2, (ERG#126), DOT-SP10232

Canada (TDG)

May be classed as LTD. QTY. OR ORM-D
UN3159, 1,1,1,2-TETRAFLUOROETHANE, CLASS 2.2, (ERG#126), DOT-SP10232

IMO

May be shipped as Limited Quantity
UN3159, 1,1,1,2-TETRAFLUOROETHANE, CLASS 2.2, EmS F-C, S-V, ADR
(C/E)

IATA/ICAO

UN3159, 1,1,1,2-TETRAFLUOROETHANE, 2.2

SECTION 15 — REGULATORY INFORMATION

SARA 313 *(40 CFR 372.65C)* SUPPLIER NOTIFICATION

CAS No.	CHEMICAL/COMPOUND	% by WT	% Element

No ingredients in this product are subject to SARA 313 (40 CFR 372.65C) Supplier Notification.

TSCA CERTIFICATION

All chemicals in this product are listed, or are exempt from listing, on the TSCA Inventory.

SECTION 16 — OTHER INFORMATION

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

The above information pertains to this product as currently formulated, and is based on the information available at this time. Addition of reducers or other additives to this product may substantially alter the composition and hazards of the product. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

Milne Port

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Material Safety Data Sheets

Revision Number: 008.0

Issue date: 01/09/2014

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: 262 Threadlocker Permanent Strength
Product type: Anaerobic Sealant

IDH number: 231922
Item number: 26205
Region: United States

Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

Contact information:
Telephone: 860.571.5100
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS:

Physical state: Liquid
Color: Red
Odor: Mild

HEALTH: *2
FLAMMABILITY: 1
PHYSICAL HAZARD: 1
Personal Protection: See MSDS Section 8

WARNING: CAUSES EYE IRRITATION.
MAY CAUSE ALLERGIC SKIN REACTION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.
MAY CAUSE SKIN IRRITATION.

Relevant routes of exposure: Skin, Inhalation, Eyes, Respiratory system

Potential Health Effects

Inhalation: May cause respiratory tract irritation.
Skin contact: May cause allergic skin reaction. May cause skin irritation with discomfort or rash.
Eye contact: Contact with eyes will cause irritation.
Ingestion: May be harmful if swallowed.

Existing conditions aggravated by exposure: Eye, skin, and respiratory disorders.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Polyglycol dimethacrylate	25852-47-5	60 - 100
Bisphenol A fumarate resin	39382-25-7	10 - 30
Saccharin	81-07-2	1 - 5
Cumene hydroperoxide	80-15-9	1 - 5
N,N-Diethyl-p-toluidine	613-48-9	1 - 5
Cumene	98-82-8	0.1 - 1

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If symptoms develop and persist, get medical attention.

Skin contact: Wash with soap and water. Remove contaminated clothing and footwear. Wash clothing before reuse. If symptoms develop and persist, get medical attention.

Eye contact: Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time. Get medical attention.

Ingestion: Do not induce vomiting. Keep individual calm. Get medical attention.

5. FIRE FIGHTING MEASURES

Flash point: > 93.3 °C (> 199.94 °F) Tagliabue closed cup

Autoignition temperature: Not available.

Flammable/Explosive limits - lower: Not available.

Flammable/Explosive limits - upper: Not available.

Extinguishing media: If product is involved in fire extinguish with dry powder, foam or carbon dioxide.

Special firefighting procedures: Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

Unusual fire or explosion hazards: None

Hazardous combustion products: Thermal decomposition can lead to release of irritating gases and vapors. Oxides of carbon. Oxides of nitrogen.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Do not allow product to enter sewer or waterways.

Clean-up methods: Ensure adequate ventilation. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Scrape up spilled material and place in a closed container for disposal.

7. HANDLING AND STORAGE

Handling: Avoid contact with eyes, skin and clothing. Avoid breathing vapors or mists of this product. Wash thoroughly after handling.

Storage: For safe storage, store between 0 °C (32°F) and 32 °C (89.6 °F)
Keep in a cool, well ventilated area away from heat, sparks and open flame.
Keep container tightly closed until ready for use.

For information on product shelf life contact Henkel Customer Service at (800) 243-4874.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Polyglycol dimethacrylate	None	None	None	None
Bisphenol A fumarate resin	None	None	None	None
Saccharin	None	None	None	None
Cumene hydroperoxide	None	None	1 ppm (6 mg/m3) TWA (SKIN)	None
N,N-Diethyl-p-toluidine	None	None	None	None
Cumene	50 ppm TWA	50 ppm (245 mg/m3) PEL (SKIN)	None	None

Engineering controls: No specific ventilation requirements noted, but forced ventilation may still be required if concentrations exceed occupational exposure limits.

Respiratory protection: Use a NIOSH approved supplied air respirator with an organic cartridge if the potential to exceed established exposure limits exists.

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use impermeable gloves and protective clothing as necessary to prevent skin contact. Natural rubber gloves. Neoprene gloves. Butyl rubber gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid
Color: Red
Odor: Mild
Odor threshold: Not available.
pH: Not applicable
Vapor pressure: < 5 mm hg (27 °C (80.6 °F))
Boiling point/range: > 149 °C (> 300.2 °F)
Melting point/ range: Not available.
Specific gravity: 1.05
Vapor density: Not available.
Flash point: > 93.3 °C (> 199.94 °F) Tagliabue closed cup
Flammable/Explosive limits - lower: Not available.
Flammable/Explosive limits - upper: Not available.
Autoignition temperature: Not available.
Evaporation rate: Not available.
Solubility in water: Slight
Partition coefficient (n-octanol/water): Not available.
VOC content: 0 %; 0 g/l

10. STABILITY AND REACTIVITY

Stability: Stable

Hazardous reactions: Will not occur.

Hazardous decomposition products: Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Phenolics. Irritating organic vapours.

Incompatible materials: Iron. Copper. Rust. Aluminum. Zinc. Reducing agents. Strong acids and oxidizing agents. Oxygen scavengers. Strong alkalis.

Conditions to avoid: See "Handling and Storage" (Section 7) and "Incompatibility" (Section 10).

11. TOXICOLOGICAL INFORMATION

Acute oral product toxicity: LD50 (rat) > 10,000 mg/kg

Acute dermal product toxicity: LD50 (rabbit) > 5,000 mg/kg

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Polyglycol dimethacrylate	No	No	No
Bisphenol A fumarate resin	No	No	No
Saccharin	No	No	No
Cumene hydroperoxide	No	No	No
N,N-Diethyl-p-toluidine	No	No	No
Cumene	No	Group 2B	No

Hazardous components	Health Effects/Target Organs
Polyglycol dimethacrylate	Allergen, Irritant
Bisphenol A fumarate resin	No Target Organs
Saccharin	No Target Organs
Cumene hydroperoxide	Allergen, Central nervous system, Corrosive, Irritant, Mutagen
N,N-Diethyl-p-toluidine	No Target Organs
Cumene	Central nervous system, Irritant, Lung

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

The shipping classifications in this sections are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

International Air Transportation (ICAO/IATA)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

Water Transportation (IMO/IMDG)

Proper shipping name: Not regulated
Hazard class or division: None
Identification number: None
Packing group: None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12 (b) Export Notification:	None above reporting de minimis
CERCLA/SARA Section 302 EHS:	None above reporting de minimis
CERCLA/SARA Section 311/312:	Immediate Health, Delayed Health
CERCLA/SARA Section 313:	This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Saccharin (CAS# 81-07-2). Cumene hydroperoxide (CAS# 80-15-9).
CERCLA Reportable quantity:	Cumene hydroperoxide (CAS# 80-15-9) 10 lbs. (4.54 kg) Saccharin (CAS# 81-07-2)
California Proposition 65:	This product contains a chemical known in the State of California to cause cancer.

Canada Regulatory Information

CEPA DSL/NDSL Status:	All components are listed on or are exempt from listing on the Canadian Domestic Substances List.
WHMIS hazard class:	D.2.A, D.2.B

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: 3, 8, 11, 15 and 16

Prepared by: Diane Annis, Sr. Regulatory Affairs Specialist

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Material Safety Data Sheet

The Armor All/STP Products Company
44 Old Ridgebury Road
Suite 300
Danbury, CT 06810
Tel. 1-203-205-2900

1. Product And Company Identification

Product Name: ARMOR ALL® Original Protectant Wipes

Responsible Party: The Armor All/STP Products Company
44 Old Ridgebury Road
Suite 300
Danbury, CT 06810

Information Phone Number: +1 203-205-2900
Emergency Phone Number:
For Medical Emergencies, call 1-866-949-6465 / +1 303-389-1332 (Outside US and Canada)
For Transportation Emergencies, call 1-800-424-9300 (Chemtrec) +1-703-527-3887 for Outside US and Canada (call collect)
MSDS Date Of Preparation: 01/15/2013
Product Use: Automotive maintenance product – For consumer and professional use

2. Hazards Identification

EMERGENCY OVERVIEW

May cause mild eye irritation. This product is not classified as hazardous as defined by 29 CFR 1910.1200 (OSHA Hazard Communication Standard) or Canada WHMIS.

3. Composition/Information On Ingredients

Component	CAS No.	Amount
Non-Hazardous Ingredients	Mixture	100%

4. First Aid Measures

Inhalation: If symptoms of exposure develop, remove to fresh air. Seek medical attention if symptoms persist.

Skin Contact: Rinse eyes with plenty of water. If skin irritation or redness develops, seek medical attention.

Eye Contact: Flush eyes with plenty of water. If irritation or other symptoms persist, seek medical attention.

Ingestion: If the victim is fully conscious, have them drink a glass of water. Get medical assistance by calling a doctor or poison center. Never give anything by mouth to a person who is unconscious or drowsy.

5. Firefighting Measures

Extinguishing Media: Use dry chemical, carbon dioxide, foam, or water spray.

Special Fire Fighting Procedures: Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires in areas where chemicals are used or stored.

Unusual Fire Hazards: None known.

Hazardous Combustion Products: Thermal decomposition will generate oxides of carbon and silicon and formaldehyde.

The Armor All/STP Products Company
44 Old Ridgebury Road
Suite 300
Danbury, CT 06810
Tel. 1-203-205-2900

6: Accidental Release Measures

Personal Precautions: Wear appropriate protective equipment.

Environmental Precautions: Prevent entry in storm sewers and waterways. Report spill as required by local and national regulations.

Methods for Containment and Clean-Up: Pick up and place in a suitable container for disposal. Rinse area with water.

7. Handling and Storage

Avoid contact with eyes. Avoid prolonged contact with skin and clothing. Wash hands after use. Not for personal cleansing. Keep out of the reach of children.

No special storage required.

8. Exposure Controls / Personal Protection

CHEMICAL	EXPOSURE LIMIT
Non-Hazardous Ingredients	None Established

Ventilation: General ventilation should be adequate for all normal use.

Respiratory Protection: None required under normal use conditions.

Gloves: None normally required.

Eye Protection: None required for normal use. Avoid eye contact.

Other Protective Equipment/Clothing: None required under normal use conditions.

9. Physical and Chemical Properties

Appearance And Odor: Wipes moistened with an opaque, white slightly viscous liquid with a mild odor.

pH: 7.5 – 9.0 (liquid)		**Specific Gravity:** ~ 1.0 (liquid)
Boiling Point: Not determined		**Vapor Pressure:** Not determined
Freezing Point: Not determined		**Vapor Density:** Not determined
Solubility In Water: Easily Soluble (liquid)		**Percent Volatile:** > 85 (liquid)
Coefficient Of Water/Oil Distribution: Not determined		**Evaporation Rate:** Not determined
Flash Point: >200°F (93.3°C) (liquid)		**Viscosity:** ~ 175 cP (liquid)
Autoignition Temp: Not determined		
Flammability Limits:	LEL: Not determined	UEL: Not determined

The Armor All/STP Products Company
44 Old Ridgebury Road
Suite 300
Danbury, CT 06810
Tel. 1-203-205-2900

10. Stability and Reactivity

Stability: Stable
Conditions To Avoid: None.
Incompatibility: Strong oxidizers.
Hazardous Decomposition Products: Thermal decomposition will generate oxides of carbon and silicon and formaldehyde.

11. Toxicological Information

Acute Hazards:

Inhalation: No adverse effects expected from the normal use of this product.

Skin Contact: Prolonged or repeated contact may cause mild irritation in some individuals.

Eye Contact: Direct contact may cause mild eye irritation with redness and tearing.

Ingestion: Swallowing may cause gastrointestinal disturbances.

Chronic Hazards: None currently known.

Medical Conditions Aggravated By Exposure: None currently known.

Carcinogen: None of the components is listed as a carcinogen or potential carcinogen by IARC, NTP, ACGIH or OSHA.

Acute Toxicity Values:

No toxicity data is currently available.

12. Ecological Information

No ecotoxicity data is currently available.

13. Disposal Considerations

Dispose of in accordance with all local, state/provincial and federal regulations. Offer empty containers for recycling.

14. Transport Information

DOT Hazardous Materials Description: Not Regulated

Canadian TDG Hazardous Materials Description: Not Regulated

IMDG Dangerous Goods Description: Not Regulated

The Armor All/STP Products Company
44 Old Ridgebury Road
Suite 300
Danbury, CT 06810
Tel. 1-203-205-2900

15. Regulatory Information

United States:

EPA TSCA INVENTORY: All of the components of this material are listed on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory.

CERCLA Section 103: This product has no RQ. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

SARA Hazard Category (311/312): Not hazardous

SARA 313: This product contains the following chemicals subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372): None

Canada:

Canadian WHMIS Classification: Not a controlled product.

Canadian Environmental Protection Act: All of the ingredients are listed on the Canadian DSL.

This MSDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

16. Other Information

NFPA Rating (NFPA 704):	Health: 0	Fire: 0	Instability: 0
HMIS Rating:	Health: 0	Fire: 0	Reactivity: 0

REVISION SUMMARY: Change in Section 9, 10.

DATA SUPPLIED IS FOR USE ONLY IN CONNECTION WITH OCCUPATIONAL SAFETY AND HEALTH

Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing
	Class D-2B: Material causing other toxic effects (TOXIC).	

Section I. Chemical Product and Company Identification

Product Name/ Trade Name	**ECOPURE EP70 Washroom Cleaner**
Supplier	AVMOR LTD 950 Michelin Laval (QC) Tel : (450)-629-8074 www.avmorgreen.com
Synonym	Not available.
Chemical Name	Not applicable.
Chemical Family	Mixture
Chemical Formula	Not applicable.

Code	1993
CAS#	Not applicable.
DSL	All ingredients are listed.
CI#	Not applicable

In case of Emergency

Emergency phone:
CANUTEC : 1-613-996-6666
If information about this product is required, please contact Avmor Ltd at (450) 629-3800.

Manufacturer	AVMOR LTD 950 Michelin Laval (QC) Tel : (450)-629-8074 www.avmorgreen.com
Material Uses	washroom cleaner

Section II. Composition and Information on Ingredients

			Exposure Limits	
Name	**CAS #**	**% by Weight**	**TLV/PEL**	**LC_{50}/LD_{50}**
Ethoxylated C7-C21 alcohols	68991-48-0	10-30	Not available.	ORAL (LD50): Acute: 2000 mg/kg [Rat].
Hydrogen peroxide	7722-84-1	1 - 5	Not available.	Not available.

Section III. Hazards Identification.

Potential Acute Health Effects	May cause severe eye irritation. Incidental skin contact is not expected to cause any significant irritation. If ingested might cause disconfort, diarrhea and nausea.
Potential Chronic Health Effects	No ingredient in this product is currently listed as carcinogens by IARC, NTP or OSHA. Prolonged contact without washing may cause skin rash or redness.

Section IV. First Aid Measures

Eye Contact	Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open.If irritation persists, get medical attention.
Skin Contact	Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. If irritation persists, seek medical attention.
Hazardous Skin Contact	Not applicable.

Continued on Next Page

Inhalation	Allow to rest in a well ventilated area. If discomfort persists seek medical attention.
Hazardous Inhalation	Not applicable.
Ingestion	DO NOT induce vomiting. Have conscious person drink several glasses of water. Seek medical attention. NEVER give an unconscious person anything to ingest.
Hazardous Ingestion	Not applicable.

Section V. Fire and Explosion Data

The Product is:	Non-flammable.
Auto-Ignition Temperature	Not applicable.
Flash Points	Not applicable.
Flammable Limits	Not applicable.
Products of Combustion	Not applicable.
Fire Hazards in Presence of Various Substances	Not applicable.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product : Not explosive.
Fire Fighting Media and Instructions	Use dry chemical or CO_2 or water spray or fog.
Special Remarks on Fire Hazards	Not applicable.
Special Remarks on Explosion Hazards	Not applicable.

Section VI. Accidental Release Measures

Small Spill	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.
Large Spill	No additional information.

Section VII. Handling and Storage

Precautions	Avoid contact with skin and eyes.In case of contact with eyes, rinse with plenty of water.In case of contact, flush skin with plenty of water.
Storage	Store in a cool, well-ventilated area away from incompatible materials.Store between 10 -30 °C

Continued on Next Page

Section VIII. Exposure Controls/Personal Protection

Engineering Controls	No special measures required for normal use conditions.
Personal Protection	Safety glasses. Gloves (impervious) are recommanded for prolonged contact with bulk quantities.
Personal Protection in Case of a Large Spill	Wear suitable protective clothing, gloves and eye/face protection.
Exposure Limits	US OSHA Hydrogene peroxyde : 1 ppm TWA

Section IX. Physical and Chemical Properties

Physical State and Appearance	Liquid. (Clear.)	**Odor**	Fragrance free.
Molecular Weight	Not applicable.	**Taste**	Not available.
pH (1% soln/water)	5 to 6.5 (Conc. (% w/w): 100) [Acidic.]	**Color**	Pinkish / Red.
Boiling Point	Weighted average: 113.43°C (236.2°F)		
Melting Point	Weighted average: 1.24°C (34.2°F)		
Critical Temperature	Not available.		
Specific Gravity	1.01 to 1.02 (Water = 1)		
Vapor Pressure	Not applicable.		
Vapor Density	Weighted average: 1.01 (Air = 1)		
Volatility	Not available.		
Odor Threshold	Not available.		
Evaporation rate	Not available.		
Viscosity	Not available.		
Water/Oil Dist. Coeff.	The product is much more soluble in water.		
Ionicity (in Water)	Not available.		
Dispersion Properties	See solubility in water.		
Solubility	Easily soluble in water		

Section X. Stability and Reactivity Data

Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Not available.
Incompatibility with various substances	Incompatible with strong oxydizing materials and combustible materials
Corrosivity	Not considered to be corrosive.
Special Remarks on Reactivity	No additional information.
Special Remarks on Corrosivity	No additional information.

Continued on Next Page

Section XI. Toxicological Information

Routes of Entry	Eye contact. Ingestion. Inhalation. Skin.
Toxicity to Animals	See section II
Chronic Effects on Humans	No ingredient in this product is currently listed as carcinogens by IARC, NTP or OSHA. Prolonged contact without washing may cause skin rash or redness.
Other Toxic Effects on Humans	May cause severe eye irritation. Incidental skin contact is not expected to cause any significant irritation. If ingested might cause disconfort, diarrhea and nausea.
Special Remarks on Toxicity to Animals	Not available.
Special Remarks on Chronic Effects on Humans	Not available.
Special Remarks on Other Toxic Effects on Humans	Not available.

Section XII. Ecological Information

Ecotoxicity	Not determined.
BOD5 and COD	Not determined.
Products of Biodegradation	All surfactants of this product are readily biodegradable as per OECD 301
Toxicity of the Products of Biodegradation	The products of biodegradation are less toxic than the original product.
Special Remarks on the Products of Biodegradation	No additional information.

Section XIII. Disposal Considerations

Waste Disposal	Dispose of material according to regional, provincial and federal regulations. Consult your local or regional authorities.

Section XIV. Transport Information

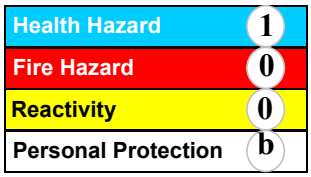
TDG Classification	Not a TDG controlled material.
PIN	Not applicable.
Special Provisions for Transport	No additional remark.
TDG (Pictograms)	

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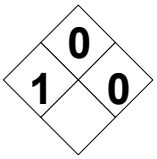
Section XV. Other Regulatory Information and Pictograms

Other Regulations	Not determined.	
Other Classifications	**HCS (U.S.A.)**	Not determined.
	DSCL (EEC)	R41- Risk of serious damage to eyes.

Hazardous Material Information System (U.S.A.)



National Fire Protection Association (U.S.A.)

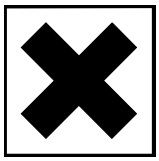


Health
Fire Hazard
Reactivity
Specific Hazard

DOT (U.S.A) (Pictograms)



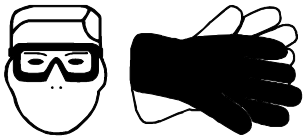
DSCL (Europe) (Pictograms)



ADR (Europe) (Pictograms)



Protective Equipment (Pictograms)



Section XVI. Other Information

References	-Manufacturer's Material Safety Data Sheet. -Material safety data sheet issued by: la Commission de la Santé et de la Sécurité du Travail du Québec.
Other Special Considerations	This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations. Always follow label directions carefully when using this or any other chemical product. Keep MSDSs filed and organized in an area accessible to workers.

Validated by Regulatory Affairs on 23/12/2008.

Verified by Regulatory Affairs.

Printed 23/12/2008.

Information Contact **If information about this product is required, please contact Avmor Ltd. at (450) 629-3800 or visit us at www.ecopure.ca.**

Notice to Reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Code: BLACK-FLUX
Date: 17 DEC 1999
Revised: 17 JUN 2013
Printed: 17 JUN 2013

Lucas-Milhaupt Warwick, LLC.

MATERIAL SAFETY DATA SHEET

Product: BLACK FLUX

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Common Name : BRAZING FLUX
Chemical Name : CHEMICAL MIXTURE
Formula : CHEMICAL MIXTURE
Product CAS No.: CHEMICAL MIXTURE
Product Use : Welding/Brazing/Soldering

Supplier : Lucas-Milhaupt Warwick, LLC.
Address : 235 KILVERT STREET
City, St, Zip : WARWICK, RI 02886
Phone : 1-401-739-9550

FOR CHEMICAL EMERGENCY CALL CHEMTREC (24 HOURS):
1-800-424-9300 (US, Canada, Puerto Rico, Virgin Islands)
1-703-527-3887 (Outside Above Area)

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO.	% Wt.
POTASSIUM TETRABORATE	1332-77-0	30-40
BORIC ACID	10043-35-3	20-30
POTASSIUM BIFLUORIDE	7789-29-9	20-30
POTASSIUM PENTABORATE	11128-29-3	1-5
SODIUM DODECYL SULFATE	151-21-3	0-0.5
BORON	7440-42-8	1-5
WATER	7732-18-5	10-20

NOTE: The percentage by weight values reported for the ingredients in this product represent approximate formulation values. See Section 8 for

exposure Limits and Section 11 for Toxicological Information.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Black creamy paste

Odorless

Flash Point: Not Applicable

Prolonged or repeated exposure may cause gastrointestinal and neuromuscular effects, as well as injury to the kidneys and reproductive system.
May cause eye, skin and respiratory tract irritation.
Causes burns which are not immediately visible or painful.
Harmful if inhaled, swallowed or absorbed through skin. May cause abdominal pain, diarrhea, vomiting, excess salivation, thirst, perspiration and spasms. Large amounts may be fatal.
Inhalation may cause nasal discharge, nosebleed, cough, sore throat, labored breathing, bronchospasm, pulmonary edema and systemic toxicity.
Not a fire or explosion hazard. However, toxic and corrosive fluoride compounds may be released in a fire situation.

ROUTES OF ENTRY

Eyes? YES Skin? YES Inhalation? YES Ingestion? YES

POTENTIAL HEALTH EFFECTS

EYE CONTACT causes irritation and may cause burns.

SKIN CONTACT may cause fluoride burns which may not be immediately painful or evident, especially on prolonged contact. This material may be absorbed through the skin resulting in systemic poisoning. Symptoms of poisoning are similar to those that occur with ingestion.

INHALATION may cause respiratory tract and mucous membrane irritation. Symptoms include nasal discharge and nosebleeds, coughing, sore throat and labored breathing. Severe exposure may cause bronchospasm and pulmonary edema. Absorption may cause systemic poisoning similar to that which occurs with ingestion.

INGESTION may cause abdominal pain, diarrhea, vomiting, excess salivation, thirst, perspiration and painful spasms of the limbs. Large amounts may be fatal.

CARCINOGENICITY

NTP? NO IARC? NO OSHA? NO

CHRONIC HEALTH HAZARDS

Exposure to FLUORIDES over years may produce mottling of tooth enamel, embrittlement and calcification of bones, and increased calcification of ligaments and vertebrae resulting in spinal stiffness (fluorosis).

Prolonged absorption of BORON COMPOUNDS may cause mild gastrointestinal irritation, loss of appetite, nausea and erythematous rash. Dryness of the skin and mucous membranes, loss of hair, conjunctivitis and kidney injury have also been observed. Reproductive effects have been observed in laboratory animals.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE

May adversely affect existing medical conditions such as eye, skin, respiratory, liver and/or kidney ailments, and central nervous system disorders.

NOTE: See Section 8 for Exposure Limits, Section 11 for Toxicological Information and Section 12 for Ecological Information.

SECTION 4: FIRST AID MEASURES

EYE CONTACT: Immediately flush eyes with plenty of water for at least 30 minutes. Hold eyelids open during this flushing with water. Call a physician immediately.

SKIN CONTACT: Flush area with water while removing contaminated clothing and shoes. Follow by washing with soap and large amounts of water until no evidence of chemical remains (15-20 minutes). Get medical attention if needed.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician.

INGESTION: If swallowed,"DO NOT INDUCE VOMITING", give 3-4 glasses of water. Do not give anything by mouth to an unconscious or convulsing person. Get immediate medical attention.

SECTION 5: FIRE-FIGHTING MEASURES

Flash Point: Not Applicable
Auto-Ignition: Not Applicable
LEL: Not Applicable
UEL: Not Applicable

NFPA HAZARD CLASSIFICATION

Health: 3	**Flammable: 0**	**Reactivity: 0**

HMIS HAZARD CLASSIFICATION

Health: 3*	**Flammable: 0**	**Reactivity: 0**

*** Indicates the possibility of chronic health effects. See**

Chronic Health Hazards in Section 3 for more information.

EXTINGUISHING MEDIA

Use water spray, dry chemical, alcohol foam, or carbon dioxide. Use water to keep fire-exposed containers cool.

SPECIAL FIRE FIGHTING PROCEDURES

Wear NIOSH/MSHA approved positive-pressure self-contained breathing apparatus and protective clothing as specified in 29 CFR 1910.156.

UNUSUAL FIRE AND EXPLOSION HAZARDS

Not a fire or explosion hazard. However, toxic and corrosive fluoride compounds may be released in a fire situation.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Wearing full protective clothing, control spill source, contain by diking and ventilate area. Soak up spill using an absorbent. Scoop into container. Notification of the National Response Center (800/424-8802) may be required. Refer to EPA, DOT and applicable state and local regulations for current response information.

It is recommended that each user establish a spill prevention, control and countermeasure plan (SPCC). Such plan should include procedures applicable to proper storage, control and clean-up of spills, including reuse or disposal as appropriate (see Section 13: Disposal Considerations).

****NOTE**** **In the event of an accidental release of this material, the above procedures should be followed. Additionally, proper exposure controls and personal protection equipment should be used (see Section 8: Exposure Control/Personal Protection), and disposal of the material should be in accordance with Section 13: Disposal Considerations.**

SECTION 7: HANDLING AND STORAGE

Wash thoroughly after handling.
Keep container closed.
Store in a cool, dry location away from incompatible materials.

Avoid contact with any dusts, mists or fumes resulting from the use of this product.

Do not eat, drink, or smoke in work area.

Use with adequate ventilation.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS

INGREDIENT	PEL-OSHA	TLV-ACGIH
POTASSIUM TETRABORATE CAS NO.: 1332-77-0	None Established	None Established
BORIC ACID CAS NO.: 10043-35-3	None Established	None Established
POTASSIUM BIFLUORIDE CAS NO.: 7789-29-9	2.5 mg/m3 (as F)	2.5 mg/m3 (as F)
POTASSIUM PENTABORATE CAS NO.: 11128-29-3	None Established	None Established
SODIUM DODECYL SULFATE CAS NO.: 151-21-3	None Established	None Established
BORON CAS NO.: 7440-42-8	None Established	None Established
WATER CAS NO.: 7732-18-5	None Established	None Established

Unless otherwise noted, all values are reported as 8-hour Time-Weighted Averages (TWAs) and total dust (particulates only). All ACGIH TLVs refer to the 1999 Standards. All OSHA PELs refer to 29 CFR Part 1910 Air Contaminants: Final Rule, January 19, 1989.

RESPIRATORY PROTECTION

If there is a potential to exceed the TLV, NIOSH/MSHA approved respiratory protection is required. For airborne levels up to 10 times the appropriate TLV's, an air purifying acid gas cartridge respirator would be suitable. If used in a manner that generates a mist, a dust/mist cartridge as well as the acid gas cartridge would be necessary. Above 10 times the TLV, an air supplied full facepiece respirator would be required. If respiratory protection is used, follow all the requirements for respirator programs set forth in the OSHA regulations (29 CFR 1910.139).

VENTILATION

General; local exhaust ventilation as necessary to control any air contaminants to within their PELs or TLVs during the use of this product.

PROTECTIVE EQUIPMENT

Chemical goggles.
Rubber or neoprene gloves.
Body protection as necessary to prevent skin contact.
Refer to ANSI/ASC Z49.1-94 (Safety in Welding, Cutting and Allied Processes), published by the American Welding Society, for further

information on the selection of personal protective equipment.

PERSONNEL SAMPLING PROCEDURE

For FLUORIDE COMPOUNDS: Refer to NIOSH Manual of Analytical Methods (NMAM), 4th Edition, Methods 7902, 7906.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Black creamy paste
Odor: Odorless
Boiling Point: Not Applicable
Specific Gravity (H2O=1): 1.5
Melting Point: 422.4 °C
Vapor Pressure (mm Hg): Not Applicable
Vapor Density (Air=1): Not Applicable
Evaporation Rate: Not Applicable
% Solubility In Water: 100 %
pH: 8 to 9

SECTION 10: STABILITY AND REACTIVITY

Stability: Generally considered stable.
Avoid: Temperatures at or above 225°C.

INCOMPATIBILITY (Materials to Avoid)

Strong acids, combustibles and alkalies.

HAZARDOUS DECOMPOSITION OR BY-PRODUCTS

Emits toxic and corrosive fluoride compounds. May also emit oxides of boron and potassium when heated to decomposition.

Polymerization: Polymerization is not expected to occur.
Avoid: Not applicable.

SECTION 11: TOXICOLOGICAL INFORMATION

CHEMICAL NAME	% Wt.	LD50	LC50
POTASSIUM TETRABORATE CAS NO.: 1332-77-0	30-40	Not Available	Not Available
BORIC ACID CAS NO.: 10043-35-3	20-30	3,450 mg/kg MOUSE, oral	9,600 ug/m3/4 hr RAT
POTASSIUM BIFLUORIDE CAS NO.: 7789-29-9	20-30	Not Available	Not Available

POTASSIUM PENTABORATE **CAS NO.: 11128-29-3**	**1-5**	**Not Available**	**Not Available**
SODIUM DODECYL SULFATE **CAS NO.: 151-21-3**	**0-0.5**	**1,288 mg/m3 RAT, oral**	**Not Available**
BORON **CAS NO.: 7440-42-8**	**1-5**	**2,000 mg/kg MOUSE, oral**	**Not Available**
WATER **CAS NO.: 7732-18-5**	**10-20**	**Not Available**	**Not Available**

NOTE: See Sections 3, 8 and 12 for additional information.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY

No data available.

ENVIRONMENTAL FATE

No data available.

SECTION 13: DISPOSAL CONSIDERATIONS

US EPA Waste Number: Not Regulated

Federal, state and local disposal laws and regulations will determine the proper waste disposal/recycling/reclamation procedure. All waste materials should be reviewed to determine the applicable hazards (testing may be necessary). Disposal requirements are dependent on the hazard classification and will vary by location and the type of disposal selected.

****NOTE** Chemical additions, processing or otherwise altering this material may make the waste management information presented above incomplete, inaccurate or otherwise inappropriate.**

As local regulations may vary; all waste must be disposed/recycled/reclaimed in accordance with federal, state, and local environmental control regulations.

SECTION 14: TRANSPORT INFORMATION

INTERNATIONAL
UN Number: UN3266

UNITED STATES

EPA Waste Number: Not Regulated
DOT Classification: 8 Corrosive material
DOT Proper Shipping Name: Corrosive liquid, basic, inorganic, n.o.s. (Contains Potassium Bifluoride) Consumer quantity, ORM-D, in inner packagings not over 4L (1 gal) net capacity each for liquids, packed in strong outer packagings.)
Packing Group: III

CANADA
PIN Number: UN3266
TDG Class: 8 Corrosive material

EC
DGL: Corrosive substance

SECTION 15: REGULATORY INFORMATION

US FEDERAL REGULATIONS

TSCA: IN TSCA

SARA 311 AND 312 HAZARD CATEGORIES

IMMEDIATE (Acute) Health Hazard: YES
DELAYED (Chronic) Health Hazard: YES
FIRE Hazard: NO
REACTIVITY Hazard: NO
Sudden Release of PRESSURE: NO

SARA SECTION 313 NOTIFICATION

This product does not contain toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

OZONE DEPLETING SUBSTANCES (ODS)

This product neither contains nor is manufactured with an ozone depleting substance subject to the labeling requirements of the Clean Air Act Amendments 1990 and 40 CFR Part 82.

VOLATILE ORGANIC COMPOUNDS (VOC)

None

US STATE REGULATIONS

VOLATILE ORGANIC COMPOUND (CARB): Not Determined

CANADIAN REGULATIONS

"This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* and the MSDS contains all the information required by the *Controlled Products Regulations*."

DSL/NDSL: DSL
WHMIS Classification: Class D Division 2 Subdivision B

EUROPEAN REGULATIONS

EINECS: Yes

OTHER REGULATIONS

MITI (Japan): No **AICS (Australia): Yes**

SECTION 16: OTHER INFORMATION

REVISIONS
Revision Number: 18

This Material Data Sheet is offered pursuant to OSHA's Hazard Communication Standard (29 CRF 1910.1200). Other government regulations must be reviewed for applicability to these products. The information in this Material Safety Data Sheet should be provided to all who will use, handle, store, transport, or otherwise be exposed to this product. This information has been prepared for the guidance of plant engineering, operations, and management and for persons working with or handling these products. The information presented in the MSDS is premised upon proper handling and anticipated uses and is for the material without chemical additions/alterations. We believe this information to be reliable and up-to-date as of the date of publication, but make no warranty that it is. Additionally, if this Material Safety Data Sheet is more than three years old, please contact the supplier at the phone number listed in Section 1 to make certain that this sheet is the most current. Copyright Lucas-Milhaupt Warwick, LLC. License granted to make unlimited copies for internal use only.

The Procter & Gamble Company
P&G Professional
Fabric & Home Care Innovation Center
5299 Spring Grove Avenue
Cincinnati, OH 45217-1087

MATERIAL SAFETY DATA SHEET

MSDS #: RQ0908940 Issue Date: February 18, 2010
Supersedes: New Issue Date:

SECTION I - CHEMICAL PRODUCT

Identity: **Deodorizing Powder Cleanser** **Finished Product**

Brands: **COMET Deodorizing Cleanser with Chlorinol (Professional Line)**

Emergency Telephone Number: - 1-800-332-7787 or call Local Poison Control Center

SECTION II - HAZARDS IDENTIFICATION

Health Hazards (Acute and Chronic):

Ingestion:	Mild mucous membrane irritant.
Eye Contact:	Mild eye irritant.
Skin:	Mild skin irritant.
Inhalation:	Mild respiratory irritant.

Signs and Symptoms of Exposure:

Ingestion:	May result in gastrointestinal irritation with nausea, vomiting and diarrhea.
Eye Contact:	Direct contact with eye may result in superficial, temporary irritation similar to those produced by other household detergents.
Skin:	Prolonged skin contact or direct contact with eye may result in superficial, temporary irritation similar to those produced by other household detergents.
Inhalation:	Unusually high exposures may cause coughing or irritation of nose and throat.

SECTION III - COMPOSITION AND INGREDIENTS

Ingredients/Chemical Name: Calcium Carbonate (CAS # 1317-65-3); Sodium Carbonate (CAS # 497-19-8); Calcium Hydroxide (CAS # 1305-62-0); Sodium Dichloro-s-triazinetrione Dihydrate (CAS # 2893-78-9), Confidential Ingredient (NJTSRN 370001001)

Hazardous Ingredients as defined by OSHA, 29 CFR 1910.1200 and/or WHMIS under the HPA.

Chemical Name	Common Name	CAS No.	Concentration Range	LD50
Calcium Carbonate	Limestone	1317-65-3	60-100%	6.5 g/kg (Oral, rats)
Calcium Hydroxide	Hydrated Lime	1305-62-0	1 -1.5%	N/A
Silica, quartz	Quartz (naturally occurring component of limestone)	14808-60-7	0.1 -1%	9 g/kg

SECTION IV - FIRST AID INFORMATION

Emergency and First Aid Procedures:

Ingestion:	Dilute with fluids and treat symptomatically.
Eye Contact:	For accidental eye contact, hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
Skin:	Wash with soap and water and discontinue use.
Inhalation:	For accidental, high level inhalation, remove to fresh air. Get medical attention if coughing persists.

Other: Product package has caution statements on the front and back panel:
Front panel: **KEEP OUT OF REACH OF CHILDREN. CAUTION: MAY CAUSE EYE IRRITATION. Read back panel carefully.**
Back panel: **CAUTION: MAY CAUSE EYE IRRITATION. In case of contact with eye, flush thoroughly with water. If irritation persists, see a physician. If swallowed, drink a glass of water to dilute. For sensitive skin or prolonged contact, wear gloves**.

SECTION V - FIRE FIGHTING INFORMATION

Flash Point (Method Used): N/A **Explosive Limits**: *LEL:* N/A *UEL*: N/A

Extinguishing Media: Use CO_2, water, or dry chemical.

Special Fire Fighting Procedures: None required.

Unusual Fire Hazards: None known.

SECTION VI - ACCIDENTAL RELEASE MEASURES

Personal Precautions: Avoid dust formation. Use ventilation to minimize exposure to high levels of airborne dust. Exposure to high levels of airborne dust may require respiratory protection as approved by local regulatory agencies (e.g., NIOSH).

Environmental Precautions: DISPOSAL IS TO BE PERFORMED IN COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS. Product contains biodegradable surfactant. Small (household) quantities may be disposed of via sewer with large quantities of water. Discard empty container in trash.

Steps To Be Taken in Case Material is Released or Spilled: Vacuum to remove spill and place in trash container for disposal or flush with water. Do not dry sweep.

SECTION VII - HANDLING AND STORAGE

Precautions To Be Taken in Handling: Avoid dust formation.

Precautions To Be Taken in Storage: Store in cool dry place with adequate ventilation..

SECTION VIII - EXPOSURE CONTROLS, PERSONAL PROTECTION

Exposure Guidelines:

Ingredient	Exposure Limit Type*	Exposure Limit	Regulatory Agency
Calcium Carbonate (Limestone) (CAS # 1317-65-3)	PEL (Total Dust) PEL (Respirable Dust)	15 mg/m^3 5 mg/m^3	OSHA OSHA
Calcium Hydroxide (CAS # 1305-62-0)	PEL TLV-TWA	5 mg/m^3 5 mg/m^3	OSHA ACGIH
Silica, Quartz (CAS # 1808-60-7)	TWA (Total Dust) TWA (Respirable) TWA (α-Quartz, Respirable Fraction)	0.3 mg/m^3 0.1 mg/m^3 0.025 mg/m^3	OSHA OSHA ACGIH

Engineering Controls: Use mechanical ventilation (dilution and local exhaust) to control exposure.

Personal Protective Equipment (PPE):

Eye/Face Protection: None required for normal use. Avoid contact with eyes. Wash hands after handling shades. If eye contact occurs, rinse with plenty of water for 20 minutes.

Industrial setting: If a splash of solution is likely, chemical goggles may be needed.

Skin Protection: None required for normal use.

Industrial setting: Minimize prolonged skin contact with protective gloves (rubber or neoprene).

Respiratory Protection: None required with normal use.

Industrial setting: Use ventilation to minimize exposure to high levels of airborne dust. Exposure to high levels of airborne dust may require respiratory protection as approved by local regulatory agencies (e.g., NIOSH).

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point °F: N/A

Vapor Pressure (mm Hg): N/A

Vapor Density (Air=1): N/A

Odor Threshold: N/A

Coefficient of Water/Oil Distribution: N/A

Scooped Density: N/A

Appearance and Odor: Green powder, cedar pine scent.

Specific Gravity @ 25°C (H_2O=1): ca. 1

Percent Volatile by Volume (%): ca. 1

Evaporation Rate (nBuOAc=1): N/A

Freezing Point: N/A

pH (1% solution): 11.7 – 12.9

Solubility in Water: Moderately

Reserve Alkalinity: N/A

SECTION X - STABILITY AND REACTIVITY

Possible Hazardous Reactions/Conditions: None known

Conditions to Avoid: None

Materials to Avoid: Ammonia and acids

Hazardous Decomposition Products: Chlorine gas

Stability Stable

Hazardous Polymerization: Will not occur

Other Recommendations: None

SECTION XI - TOXICOLOGICAL INFORMATION

Calcium carbonate, an ingredient of this product, contains small amounts of crystalline silica (quartz) as a naturally occurring impurity. Prolonged, excessively high exposures to respirable crystalline silica may result in reduced lung function in some individuals. IARC has found sufficient evidence to classify crystalline silica as a carcinogen in animals, but there is limited evidence in humans.

LD50 (rats oral): 9 g/kg

ED50: 0.23 g/kg

Product as a whole:

CARCINOGENICITY: None known

SENSITIZATION EFFECTS: None known

REPRODUCTIVE EFFECTS: None known

SYNERGISTIC EFFECTS: None known

SECTION XII - ECOLOGICAL INFORMATION

The product is intended for wide dispersive use and is compatible with the down-the-drain disposal route.
The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

SECTION XIII - DISPOSAL CONSIDERATIONS

Waste Disposal Method: DISPOSAL IS TO BE PERFORMED IN COMPLIANCE WITH FEDERAL, STATE/PROVINCIAL AND LOCAL REGULATIONS. The product waste is not considered RCRA hazardous.

Industrial Setting: Incineration is preferred. Do not landfill liquids. Discard empty container in trash.

Non-Household Setting (Federal): Products covered by this MSDS, in their original form, when disposed as waste, are considered non hazardous waste according to Federal RCRA regulations (40 CFR 261). Disposal should be in accordance with local, state and federal regulations.

Non-Household Setting (California): Hazardous, in accordance with 22 CCR 66261.20 through 22 CCR 66261.24.

SECTION XIV - TRANSPORT INFORMATION

Ground Transport (US DOT): Not regulated.

Air Transport (IATA): Not regulated

Marine/Water Transport (IMDG): Not regulated

SECTION XV - ADDITIONAL REGULATORY INFORMATION

United States

All intentionally-added components of this product are listed on the US TSCA Inventory.

EPA Registration Number: Not Applicable

SARA 313/302/304/311/312 chemicals: None.

California: This product has been evaluated and does not require warning labeling under California Proposition 65.

California Registration Number: Not Applicable

State Right-to-Know and CERCLA:
The following ingredients present in this finished product are listed on state right-to-know lists or state worker exposure lists:

Ingredient	CAS #	Concentration Range	CERCLA RQ	State				
				IL	MA	NJ	PA	RI
Calcium carbonate	1317-65-3	60 - 100%	-				X	X
Calcium hydroxide	1305-62-0	1 - 1.5%	-		X	X	X	X
Sodium dicholo-s-triazinetrione dihydrate	2893-78-9	1 - 1.5%	-		X	X	X	X
Crystalline Silica, Quartz	14808-60-7	0.1 – 1%	-		X	X	X	

All ingredients are CEPA approved for import to Canada by Procter & Gamble. This product has been classified with Hazard Criteria of the Canadian Control Products Regulation (CPR) and this MSDS contains all information required by the Canadian Products Regulation.

SECTION XVI - OTHER INFORMATION

Perfumes contained within the products covered by this MSDS comply with appropriate IFRA guidance.

P&G Hazard Rating:			
	Health:	1	4=EXTREME
	Flammability:	0	3=HIGH
	Reactivity:	0	2=MODERATE
			1=SLIGHT
			0=NOT SIGNIFICANT

*N/A. - Not Applicable *N/K. - Not Known

Data supplied is for use only in connection with occupational safety and health.

The submission of this MSDS may be required by law, but this is not an assertion that the substance is hazardous when used in accordance with proper safety practices and normal handling procedures. Data supplied is for use only in connection with occupational safety and health.

The information contained herein has been compiled from sources considered by Procter & Gamble to be dependable and is accurate to the best of the Company's knowledge. The information relates to the specific material designated herein, and does not relate to the use in combination with any other material or any other process. Procter & Gamble assumed no responsibility for injury to the recipient or third persons, for any damage to any property resulting from misuse of the controlled product.

SECTION 1 : PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**CLEANER BLEND 300**
Stock No.:	19510
Manufacturer Name:	ITW Polymers Adhesives, North America
Address:	30 Endicott Street Danvers, MA 01923
General Phone Number:	(978) 777-1100
Emergency Phone Number:	(800) 424-9300
CHEMTREC:	For emergencies in the US, call CHEMTREC: 800-424-9300
MSDS Revision Date:	December 30, 2012
(M)SDS Format:	

HMIS

Health Hazard	2*
Fire Hazard	2
Reactivity	1
Personal Protection	X

* Chronic Health Effects

SECTION 2 : COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Ingredient Percent
1-methoxy-2-propanol acetate	108-65-6	10 - 30 by weight
2-methoxy-1-propanol	1589-47-5	1 - 5 by weight
d-Limonene	5989-27-5	5 - 10 by weight
Non-hazardous ingredients.	N/A	10 - 30 by weight
Propylene glycol monomethyl ether	107-98-2	30 - 60 by weight

SECTION 3 : HAZARDS IDENTIFICATION

Emergency Overview:	WARNING! Flammable. Irritant.
Route of Exposure:	Eyes. Skin. Inhalation. Ingestion.
Potential Health Effects:	
Eye:	Can cause moderate irritation, burning sensation, tearing, redness, and swelling. Overexposure may cause lacrimation, conjunctivitis, corneal damage and permanent injury.
Skin:	Can cause skin irritation; itching, redness, rashes, hives, burning, and swelling.
Inhalation:	Respiratory tract irritant. High concentration may cause dizziness, headache, and anesthetic effects.
Ingestion:	Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.
Chronic Health Effects:	Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction.
Signs/Symptoms:	Overexposure can cause headaches, dizziness, nausea, and vomiting.
Target Organs:	Eyes. Skin. Respiratory system. Digestive system.
Aggravation of Pre-Existing Conditions:	Individuals with pre-existing skin disorders, asthma, allergies or known sensitization may be more susceptible to the effects of this product.

SECTION 4 : FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.
Skin Contact:	Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.
Other First Aid:	Due to possible aspiration into the lungs, DO NOT induce vomiting if ingested. Provide a glass of water to dilute the material in the stomach. If vomiting occurs naturally, have the person lean forward to reduce the risk of aspiration.

SECTION 5 : FIRE FIGHTING MEASURES

Flammable Properties:	Flammable.
Flash Point:	104°F (40°C)
Flash Point Method:	Tag closed cup (TCC)
Auto Ignition Temperature:	Not determined.
Lower Flammable/Explosive Limit:	3.0%
Upper Flammable/Explosive Limit:	12%
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.
Extinguishing Media:	Use carbon dioxide (CO2) or dry chemical when fighting fires involving this material.
Protective Equipment:	As in any fire, wear Self-Contained Breathing Apparatus (SCBA), MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

Personnel Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Spill Cleanup Measures:	Absorb spill with inert material (e,g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Collect spill with a non-sparking tool. Place into a suitable container for disposal. Clean up spills immediately observing precautions in the protective equipment section. After removal, flush spill area with soap and water to remove trace residue. Flammable, eliminate ignition sources. Vapors can form an ignitable mixture with air. Vapors can flow along surfaces to distant ignition sources and flash back. Ventilate area. Use proper personal protective equipment as listed in section 8.
Other Precautions:	Pump or shovel to storage/salvage vessels.

SECTION 7 : HANDLING and STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist. Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures. Do not reuse containers without proper cleaning or reconditioning.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat, combustible materials, direct sunlight, and incompatible substances. Keep container tightly closed when not in use.
Special Handling Procedures:	Hazardous liquid or vapor residue may remain in emptied container. Do not reuse, heat, burn, pressurize, cut, weld, braze, solder, drill, grind, expose to sparks, flame, or ignition sources of empty containers without proper commercial cleaning or reconditioning.
Hygiene Practices:	Wash thoroughly after handling.

SECTION 8 : EXPOSURE CONTROLS, PERSONAL PROTECTION - EXPOSURE GUIDELINES

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.

EXPOSURE GUIDELINES

Propylene glycol monomethyl ether :

Guideline ACGIH:	100 ppm TLV-STEL: 150 ppm TLV-TWA: 100 ppm
Notes :	Only established PEL and TLV values for the ingredients are listed.

SECTION 9 : PHYSICAL and CHEMICAL PROPERTIES

Physical State Appearance:	Liquid.
Color:	Pale Amber.
Odor:	Ethereal.
Boiling Point:	212°F (100°C) initial

Melting Point:	Not determined.
Specific Gravity:	0.95
Solubility:	Appreciable.
Vapor Density:	>1 (air = 1)
Vapor Pressure:	12 mmHg @68°F
Percent Volatile:	100
Evaporation Rate:	<1 (butyl acetate = 1)
pH:	Not determined.
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Flash Point:	104°F (40°C)
Flash Point Method:	Tag closed cup (TCC)
Auto Ignition Temperature:	Not determined.
VOC Content:	840 g/L
Percent Solids by Weight	0

SECTION 10 : STABILITY and REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Hazardous Polymerization:	Not reported.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions.
Incompatible Materials:	Oxidizing agents. Strong acids and alkalis.

SECTION 11 : TOXICOLOGICAL INFORMATION

1-methoxy-2-propanol acetate :

RTECS Number:	AI8925000
Skin:	Administration onto the skin - Rabbit : >5 gm/kg [Details of toxic effects not reported other than lethal dose value]
Ingestion:	Oral - Rat LD50: 8532 mg/kg [Details of toxic effects not reported other than lethal dose value]

2-methoxy-1-propanol :

RTECS Number:	UB7645000

d-Limonene :

RTECS Number:	GW6360000
Skin:	Administration onto the skin - : >5 gm/kg [Details of toxic effects not reported other than lethal dose value] Administration onto the skin - Rabbit : >5000 mg/kg [Details of toxic effects not reported other than lethal dose value] Administration onto the skin - Rabbit : 10 %/24H Administration onto the skin - Rat : 100 %/1H
Ingestion:	Oral - Rat LD50: 4400 mg/kg [Behavioral - Changes in motor activity (specific assay) Lungs, Thorax, or Respiration - Respiratory depression Skin and Appendages - Hair] Oral - Mouse LD50: 5600 mg/kg [Behavioral - Changes in motor activity (specific assay) Lungs, Thorax, or Respiration - Respiratory depression Skin and Appendages - Hair]

Propylene glycol monomethyl ether :

RTECS Number:	UB7700000
Eye:	Eye - Rabbit Standard Draize test.: 500 mg/24H
Skin:	Administration onto the skin - Rabbit : 13 gm/kg [Details of toxic effects not reported other than lethal dose value] Administration onto the skin - Rabbit : 455 mL/kg/13W (Intermittent) [Behavioral - General anesthetic Nutritional and Gross Metabolic - Weight loss or decreased weight gain Related to Chronic Data - death] Administration onto the skin - Rabbit : 900 mL/kg/90D (Intermittent) [Related to Chronic Data - death] Administration onto the skin - Rabbit : 500 mg
Inhalation:	Inhalation - Rat LC50: 10000 ppm/5H [Details of toxic effects not reported other than lethal dose value]
Ingestion:	Oral - Mouse LD50: 11700 mg/kg [Behavioral - Convulsions or effect on seizure threshold Behavioral - Ataxia Lungs, Thorax, or Respiration - Dyspnea] Oral - Rat LD50: 6600 mg/kg [Brain and Coverings - Other degenerative changes Behavioral - General anesthetic Lungs, Thorax, or Respiration - Dyspnea]

SECTION 12 : ECOLOGICAL INFORMATION

Ecotoxicity:	No ecotoxicity data was found for the product.
Environmental Fate:	No environmental information found for this product.

SECTION 13 : DISPOSAL CONSIDERATIONS

Waste Disposal:	Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
RCRA Number:	D001
Important Disposal Information:	DANGER! Rags, steel wool and waste soaked with this product may spontaneously catch fire if improperly discarded or stored. To avoid a spontaneous combustion fire, immediately after use, place rags, steel wool or waste in a sealed, water-filled, metal container.

SECTION 14 : TRANSPORT INFORMATION

DOT Shipping Name:	Refer to Bill of Lading
DOT UN Number:	Refer to Bill of Lading
IATA Shipping Name:	Refer to Bill of Lading
IATA UN Number:	Refer to Bill of Lading

SECTION 15 : REGULATORY INFORMATION

1-methoxy-2-propanol acetate :

TSCA Inventory Status:	Listed
Canada DSL:	Listed

2-methoxy-1-propanol :

TSCA Inventory Status:	Listed
Canada DSL:	Listed

d-Limonene :

TSCA Inventory Status:	Listed
Canada DSL:	Listed

Propylene glycol monomethyl ether :

TSCA Inventory Status:	Listed
Massachusetts:	Listed: Massachusetts Oil and Hazardous List
Pennsylvania:	Listed
Canada DSL:	Listed
Canadian Regulations.	WHMIS Hazard Class(es): B3; D2B All components of this product are on the Canadian Domestic Substances List.
WHMIS Pictograms:	

SECTION 16 : ADDITIONAL INFORMATION

MSDS Revision Date:	December 30, 2012
MSDS Author:	Actio Corporation

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MSDS Name:	**DEVCON® Flexane® High Performance Putty**
Manufacturer Name:	ITW Devcon
Stock No.:	15330

Components:	
	FLEXANE HIGH PERFORMANCE PUTTY CURING AGENT
	FLEXANE HIGH PERFORMANCE PUTTY RESIN
ITW Performance Polymers (Finished Goods) Product Code : 15330	

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**FLEXANE HIGH PERFORMANCE PUTTY CURING AGENT**
Manufacturer Name:	ITW Devcon
Address:	30 Endicott Street Danvers, MA 01923
MSDS Revision Date:	10/10/2006
Emergency telephone number	(800) 424-9300

HMIS

Health Hazard	2*
Fire Hazard	1
REACTIVITY	0
Personal Protection	x

* Chronic Health Effects:

In the US, call CHEMTREC: (800) 424-9300

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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	
Diethyltoluenediamine	68479-98-1	60 - 100 by Weight
Carbon black	1333-86-4	5 - 10 by Weight
Dipropylene glycol dibenzoate	27138-31-4	10 - 30 by Weight
Epoxidized soybean oil	8013-07-8	10 - 30 by Weight

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SECTION 3: HAZARDS IDENTIFICATION

Emergency Overview:	WARNING! Harmful. Irritant.
Primary Routes of Exposure:	Eyes. Skin. Inhalation. Ingestion.
Potential Health Effects:	
Eye Contact:	Can cause severe eye irritation and burns. Eye contact may cause permanent damage or blindness.
Skin Contact:	Causes severe skin irritation. May cause permanent skin damage.
Inhalation:	Vapor or mist may cause severe respiratory system irritation.
Ingestion:	Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.

Chronic Health Effects:	Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction
Signs/Symptoms:	Overexposure may cause eye watering or discomfort, redness and swelling.
Target Organs:	Eyes. Skin. Respiratory system. Digestive system.
Aggravation of Pre-Existing Conditions:	May aggravate pre-existing respiratory disorders, allergy, eczema, or skin conditions.

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SECTION 4: FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.
Skin Contact:	Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

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SECTION 5: FIRE FIGHTING MEASURES

Flammable Properties :	Material supports combustion.
Auto Ignition Temp :	Not determined.
Flash Point:	>275°F (135°C)
Flash Point Method:	Tag Closed Cup (TCC)
Lower Explosive Limit (LEL)	Not determined.
Upper Explosive Limit (UEL)	Not determined.
Extinguishing Media:	Use carbon dioxide (CO2) or dry chemical when fighting fires involving this material.
Protective Equipment:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.
Unsuitable Media:	Water or foam may cause frothing.

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SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Spill Cleanup Measures:	Absorb spill with inert material (e,g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Clean up spills immediately observing precautions in the protective equipment section. After removal, flush spill area with soap and water to remove trace residue. Avoid personal contact and breathing vapors or mists. Ventilate area. Use proper personal protective equipment as listed in section 8.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Other Precautions:	Pump or shovel to storage/salvage vessels.

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SECTION 7: HANDLING AND STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat and incompatible materials. Keep container tightly closed when not in use. Do not store in reactive metal containers. Keep away from acids, oxidizers.
Hygiene Practices:	Wash thoroughly after handling.
Special Handling Procedures:	Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product.

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SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust

	ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.
Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.
Carbon black:	
Guideline ACGIH :	ACGIH TLV-TWA 3.5 mg/m3
Notes :	Only established PEL and TLV values for the ingredients are listed below.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State/Appearance:	Liquid.
Color:	Mobile Black.
Odor:	mild ammonia like.
Boiling Point:	>450°F (232.2°C)
Melting / Freezing Point :	Not determined.
Solubility:	negligible
Specific Gravity:	1.05
pH:	7-8 @ 5 Percent Solution
Vapor Density:	>1 (air = 1)
Vapor Pressure:	<1 mmHg @70°F
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Percent Volatile:	0
VOC Data :	0 g/L
Percent Solids by Weight	100

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SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions.
Incompatibilities with Other Materials:	Oxidizers, acids, and chlorinated organic compounds. Reactive metals (e.g. sodium, calcium, zinc). Sodium/calcium hypochlorite. Nitrous acid/ oxide, nitrites. Peroxides. Materials reactive with hydroxyl compounds.
Hazardous Polymerization:	Not reported.

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SECTION 11: TOXICOLOGICAL INFORMATION

Diethyltoluenediamine:	
Ingestion Effects:	Oral - Rat LD50: 472 mg/kg - [Sense Organs and Special Senses (Eye) - lacrimation oral - somnolence (general depressed activity) Musculoskeletal - other changes] (RTECS)
Carbon black:	
Skin Effects:	Skin - Rat LD50: >3 gm/kg - [Details of toxic effects not reported other than lethal dose value](RTECS)
Inhalation Effects:	Inhalation - Rat TCLo - Lowest published toxic concentration: 7 mg/m3 - [Lungs, Thorax, or Respiration - other changes Biochemical - Metabolism (Intermediary) - effect on inflammation or mediation of inflammation] (RTECS)
Ingestion Effects:	Oral - Rat LD50: >15400 mg/kg - [oral - somnolence (general depressed activity)] (RTECS)
Carcinogenicity:	IARC: Group 2B: Possibly carcinogenic to humans
Epoxidized soybean oil:	

Skin Effects:	Skin - Rat Open irritation test -: 500 mg - [mild](RTECS) Skin - Rat LD50: >20 mL/kg - [Details of toxic effects not reported other than lethal dose value](RTECS)
Ingestion Effects:	Oral - Rat LD50: 22500 uL/kg - [Details of toxic effects not reported other than lethal dose value] (RTECS)

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SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:	No ecotoxicity data was found for the product.
Environmental Fate:	No environmental information found for this product.

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SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal:	Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
RCRA Number :	None

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SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name:	Non regulated.
DOT UN Number:	N/A
DOT Hazard Class:	Not applicable.
DOT Packing Group:	Not applicable.

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SECTION 15: REGULATORY INFORMATION

Carbon black:

TSCA Inventory Status	Listed
State:	Listed in the State of Massachusetts Hazardous Substance List. Listed in the Pennsylvania State Hazardous Substances List.
Canadian Regulations.	WHMIS Hazard Class(es): D2B All components of this product are on the Canadian Domestic Substances List.

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SECTION 16: ADDITIONAL INFORMATION

HMIS Health Hazard:	2*
HMIS Fire Hazard:	1
HMIS Reactivity:	0
HMIS Personal Protection:	x
MSDS Revision Date:	10/10/2006
Disclaimer:	"This Health and Safety Information is correct to the best of our knowledge and belief at the date of its publication but we cannot accept liability for any loss, injury or damage which may result from its use. The information given in the Data Sheet is designed only as a guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment."

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SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**FLEXANE HIGH PERFORMANCE PUTTY RESIN**
Manufacturer Name:	ITW Devcon
Address:	30 Endicott Street

HMIS

Danvers, MA 01923

MSDS Revision Date: 10/10/2006

Emergency telephone number (800) 424-9300

Health Hazard	3*
Fire Hazard	3
REACTIVITY	1
Personal Protection	x

* Chronic Health Effects:

In the US, call CHEMTREC: (800) 424-9300

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SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	
Proprietary	N/A	60 - 100 by Weight
Methyl ethyl ketone	78-93-3	10 - 30 by Weight
2,6-Di-tertiary-butyl-para-cresol	128-37-0	1 - 5 by Weight
4,4'-Diphenylmethane diisocyanate	101-68-8	1 - 5 by Weight
2,4-Toluene diisocyanate	584-84-9	1 - 5 by Weight

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SECTION 3: HAZARDS IDENTIFICATION

Emergency Overview: WARNING! Flammable. Suspect Carcinogen. Potential Sensitizer. Irritant.

Primary Routes of Exposure: Eyes. Skin. Inhalation. Ingestion.

Potential Health Effects:

Eye Contact: Can cause moderate irritation, burning sensation, tearing, redness, and swelling. Overexposure may cause lacrimation, conjunctivitis, corneal damage and permanent injury..

Skin Contact: Can cause skin irritation; itching, redness, rashes, hives, burning, and swelling. Allergic reactions are possible.
May cause skin sensitization, an allergic reaction, which becomes evident on reexposure to this material.

Inhalation: Respiratory tract irritant. High concentration may cause dizziness, headache, and anesthetic effects. May cause respiratory sensitization with asthma-like symptoms in susceptible individuals.

Ingestion: Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.

Chronic Health Effects: Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction

Signs/Symptoms: Overexposure can cause headaches, dizziness, nausea, and vomiting.

Target Organs: Eyes. Skin. Respiratory system. Digestive system. Central nervous system.

Aggravation of Pre-Existing Conditions: Individuals with pre-existing skin disorders, asthma, allergies or known sensitization may be more susceptible to the effects of this product.
Isocyanate exposure levels must be monitored. Medical supervision of all employees who handle or come in contact with isocyanates is recommended (i.e. FEV, FVC). This should include pre-employment and periodic medical examinations.
Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases, recurrent skin eczema or sensitization should be excluded from working with this product. Once sensitized no further exposure can be permitted.

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SECTION 4: FIRST AID MEASURES

Eye Contact: Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.

Skin Contact: Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration or give

	oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.
Other First Aid:	Due to possible aspiration into the lungs, DO NOT induce vomiting if ingested. Provide a glass of water to dilute the material in the stomach. If vomiting occurs naturally, have the person lean forward to reduce the risk of aspiration.
Note to Physicians:	Asthmatic type symptoms may develop, which may be immediate or delayed for several hours.

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SECTION 5: FIRE FIGHTING MEASURES

Flammable Properties :	Flammable. Flammable liquid Class I B.
Auto Ignition Temp :	Not determined.
Flash Point:	24°F (-4.4°C)
Flash Point Method:	Tag Closed Cup (TCC)
Lower Explosive Limit (LEL)	1.8%
Upper Explosive Limit (UEL)	11.5%
Extinguishing Media:	Use carbon dioxide (CO2) or dry chemical when fighting fires involving this material.
Protective Equipment:	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.

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SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Spill Cleanup Measures:	Absorb spill with inert material (e,g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Collect spill with a non-sparking tool. Place into a suitable container for disposal. Clean up spills immediately observing precautions in the protective equipment section. Neutralize residue with appropriate neutralizer. Do not attempt to neutralize large quantities of material unless measures to control reactivity and heat generation have been taken. Absorb spill with inert material (e.g.., dry sand or earth), then place in a chemical waste container. Provide ventilation. After removal, flush spill area with soap and water to remove trace residue. Flammable, eliminate ignition sources. Vapors can form an ignitable mixture with air. Vapors can flow along surfaces to distant ignition sources and flash back. Ventilate area. Use proper personal protective equipment as listed in section 8. A blanket of protein foam may be placed over spill for temporary control of isocyanate vapor.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Other Precautions:	Pump large quantities into closed but not sealed metal containers. Isocyanates will react with water and generate carbon dioxide, this could result in the rupture of any closed containers. Neutralize using 10 parts neutralizer to 1 part isocyanate solution. Mix and allow to stand for 48 hrs in containers, letting evolved carbon dioxide to vent. Neutralizer consist of 90% water, 3-8% concentrated ammonia (or sodium carbonate), 2% detergent.

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SECTION 7: HANDLING AND STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist. Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures. Do not reuse containers without proper cleaning or reconditioning.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat, combustible materials, direct sunlight, and incompatible substances. Keep container tightly closed when not in use. Do not reseal container If moisture or water contamination is suspected. Water contaminated material in a sealed container may rupture due to pressure buildup.
Hygiene Practices:	Wash thoroughly after handling.
Special Handling Procedures:	Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product. Hazardous liquid or vapor residue may remain in emptied container. Do not reuse, heat, burn, pressurize, cut, weld, braze, solder, drill, grind, expose to sparks, flame, or ignition sources of empty containers without proper commercial cleaning or reconditioning.

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SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.
Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.
Methyl ethyl ketone:	
Guideline ACGIH :	ACGIH TLV-TWA 200 ppm
Guideline OSHA :	OSHA PEL-TWA 200 ppm
2,6-Di-tertiary-butyl-para-cresol:	
Guideline ACGIH :	ACGIH TLV-TWA 2 mg/m3
4,4'-Diphenylmethane diisocyanate:	
Guideline ACGIH :	ACGIH TLV-TWA 0.005 ppm
Guideline OSHA :	OSHA PEL-STEL 0.02 ppm Ceiling/Peak
2,4-Toluene diisocyanate:	
Guideline ACGIH :	ACGIH TLV-TWA 0.005 ppm
Guideline OSHA :	OSHA PEL-STEL 0.02 ppm Ceiling/Peak
Notes :	Only established PEL and TLV values for the ingredients are listed below.

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State/Appearance:	Liquid.
Color:	Clear Yellow.
Odor:	Sweet.
Boiling Point:	152°F (66.6°C)
Melting / Freezing Point :	Not determined.
Solubility:	Slight; reacts
Specific Gravity:	0.99
pH:	5 @ 5 Percent Solution
Vapor Density:	3.94 (air = 1)
Vapor Pressure:	65 mmHg @68°F
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Percent Volatile:	20
VOC Data :	198 g/L
Percent Solids by Weight	80

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SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions. Moisture and extended exposure over 85 F.
Incompatibilities with Other Materials:	Alcohols, amines, strong bases (alkali, ammonia), acids, metal compounds, moisture or water. Resin reacts with water to give off carbon dioxide.
Hazardous Polymerization:	Polymerization may occur under certain conditions.

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SECTION 11: TOXICOLOGICAL INFORMATION

Methyl ethyl ketone:

Eye Effect:	Eye - Human Standard Draize Test : 350 ppm(RTECS)
Skin Effects:	Skin - Rat Open irritation test: 14 mg/24H - [mild](RTECS) Skin - Rat LD50: 6480 mg/kg - [Details of toxic effects not reported other than lethal dose value](RTECS)
Inhalation Effects:	Inhalation - Rat LC50: 23500 mg/m3/8H - [Details of toxic effects not reported other than lethal dose value] (RTECS) Inhalation - Mouse LC50: 32 gm/m3/4H - [Details of toxic effects not reported other than lethal dose value] (RTECS)
Ingestion Effects:	Oral - Rat LD50: 2737 mg/kg - [Details of toxic effects not reported other than lethal dose value] (RTECS) Oral - Mouse LD50: 3000 mg/kg - [Details of toxic effects not reported other than lethal dose value] (RTECS)

2,6-Di-tertiary-butyl-para-cresol:

Eye Effect:	Eye - Rabbit Standard Draize Test : 100 mg/24H - [Moderate](RTECS)
Skin Effects:	Skin - Rat Standard Draize Test : 500 mg/48H - [Moderate](RTECS)
Ingestion Effects:	Oral - Rat LD50: 890 mg/kg - [Details of toxic effects not reported other than lethal dose value] (RTECS) Oral - Mouse LD50: 650 mg/kg - [oral - tremor Lungs, Thorax, or rat - chronic pulmonary edema] (RTECS) Oral - Mouse LD50: 1040 mg/kg - [Details of toxic effects not reported other than lethal dose value] (RTECS) Oral - Mouse LD50: 650 mg/kg - [oral - tremor oral - ataxia Lungs, Thorax, or rat - other changes] (RTECS)

4,4'-Diphenylmethane diisocyanate:

Eye Effect:	Eye - Rabbit Standard Draize Test : 100 mg - [Moderate](RTECS)
Skin Effects:	Skin - Rat Standard Draize Test : 500 mg/24H(RTECS)
Inhalation Effects:	Inhalation - Rat LC50: 178 mg/m3 - [Details of toxic effects not reported other than lethal dose value] (RTECS)
Ingestion Effects:	Oral - Rat LD50: 9200 mg/kg - [oral - somnolence (general depressed activity) oral - ataxia Nutritional and Gross Metabolic - body rat decrease] (RTECS) Oral - Mouse LD50: 2200 mg/kg - [Details of toxic effects not reported other than lethal dose value] (RTECS)

2,4-Toluene diisocyanate:

Eye Effect:	Eye - Rabbit Standard Draize Test : 100 mg - [severe](RTECS)
Skin Effects:	Skin - Rat Standard Draize Test : 500 mg/24H - [Moderate](RTECS) Skin - Rat LD50: >16 mL/kg - [Details of toxic effects not reported other than lethal dose value](RTECS)
Inhalation Effects:	Inhalation - Rat LC50: 14 ppm/4H - [Sense Organs and Special Senses (Eye) - lacrimation Behavioral - excitement Lungs, Thorax, or Respiration - dyspnea] (RTECS) Inhalation - Mouse LC50: 10 ppm/4H - [Lungs, Thorax, or Respiration - structural or functional change in trachea or bronchi Lungs, Thorax, or Respiration - changes in pulmonary vascular resistance] (RTECS)
Ingestion Effects:	Oral - Rat LD50: 5800 mg/kg - [Gastrointestinal - other changes] (RTECS)

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SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity:	No ecotoxicity data was found for the product.
Environmental Fate:	No environmental information found for this product.

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SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal:	Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
RCRA Number :	D001, D035
Important Disposal Information:	DANGER! Rags, steel wool and waste soaked with this product may spontaneously catch fire if improperly discarded or stored. To avoid a spontaneous combustion fire, immediately after use, place rags, steel wool or waste in a sealed, water-filled, metal con

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SECTION 14: TRANSPORT INFORMATION

DOT Shipping Name:	Resin solution
DOT UN Number:	1866
DOT Hazard Class:	3
DOT Packing Group:	II

DOT Exemption	ORM-D Small quantity exemption

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SECTION 15: REGULATORY INFORMATION

Methyl ethyl ketone:

State:	Listed in the State of Massachusetts Hazardous Substance List. Listed in the New Jersey State Right to Know List. Listed in the Pennsylvania State Hazardous Substances List.
EC Num :	606-002-00-3

2,6-Di-tertiary-butyl-para-cresol:

State:	Listed in the State of Massachusetts Hazardous Substance List. Listed in the Pennsylvania State Hazardous Substances List.

4,4'-Diphenylmethane diisocyanate:

State:	Listed in the State of Massachusetts Hazardous Substance List. Listed in the New Jersey State Right to Know List. Listed in the Pennsylvania State Hazardous Substances List.
EC Num :	615-005-00-9

2,4-Toluene diisocyanate:

State:	Listed in the State of Massachusetts Hazardous Substance List. Listed in the New Jersey State Right to Know List. Listed in the Pennsylvania State Hazardous Substances List.
EC Num :	615-006-00-4
Canadian Regulations.	WHMIS Hazard Class(es): B2; D2A; D2B All components of this product are on the Canadian Domestic Substances List.

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SECTION 16: ADDITIONAL INFORMATION

HMIS Health Hazard:	3*
HMIS Fire Hazard:	3
HMIS Reactivity:	1
HMIS Personal Protection:	x
MSDS Revision Date:	10/10/2006
Disclaimer:	"This Health and Safety Information is correct to the best of our knowledge and belief at the date of its publication but we cannot accept liability for any loss, injury or damage which may result from its use. The information given in the Data Sheet is designed only as a guidance for safe handling, storage and the use of the substance. It is not a specification nor does it guarantee any specific properties. All chemicals should be handled only by competent personnel, within a controlled environment."

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(M)SDS Format : ANSI

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MSDS Name	**DEVCON® Flexane® High Performance Putty**
Manufacturer Name	ITW Polymers Adhesives, North America
Stock No.:	15330
Kit MSDS Revision Date	12/30/2012

Components	
	FLEXANE HIGH PERFORMANCE PUTTY CURING AGENT
	FLEXANE HIGH PERFORMANCE PUTTY RESIN
ITW Polymers Adhesives, North America Product Code : 15330	

SECTION 1 : PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**FLEXANE HIGH PERFORMANCE PUTTY CURING AGENT**
Manufacturer Name:	ITW Polymers Adhesives, North America
Address:	30 Endicott Street Danvers, MA 01923
General Phone Number:	(978) 777-1100
Emergency Phone Number:	(800) 424-9300
CHEMTREC:	For emergencies in the US, call CHEMTREC: 800-424-9300
MSDS Revision Date:	12/30/2012

HMIS

Health Hazard	2*
Fire Hazard	1
Reactivity	0
Personal Protection	x

* Chronic Health Effects

SECTION 2 : COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Ingredient Percent
Diethyltoluenediamine	68479-98-1	60 - 100 by weight
Carbon black	1333-86-4	5 - 10 by weight
Dipropylene glycol dibenzoate	27138-31-4	10 - 30 by weight
Epoxidized soybean oil	8013-07-8	10 - 30 by weight

SECTION 3 : HAZARDS IDENTIFICATION

Emergency Overview:	WARNING! Harmful. Irritant.
Route of Exposure:	Eyes. Skin. Inhalation. Ingestion.
Potential Health Effects:	
Eye:	Can cause severe eye irritation and burns. Eye contact may cause permanent damage or blindness.
Skin:	Causes severe skin irritation. May cause permanent skin damage.
Inhalation:	Vapor or mist may cause severe respiratory system irritation.
Ingestion:	Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.
Chronic Health Effects:	Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction.
Signs/Symptoms:	Overexposure may cause eye watering or discomfort, redness and swelling.
Target Organs:	Eyes. Skin. Respiratory system. Digestive system.
Aggravation of Pre-Existing Conditions:	May aggravate pre-existing respiratory disorders, allergy, eczema, or skin conditions.

SECTION 4 : FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.
Skin Contact:	Immediately wash skin with plenty of soap and water for 15 to 20

	minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.

SECTION 5 : FIRE FIGHTING MEASURES

Flammable Properties:	Material supports combustion.
Flash Point:	>275°F (135°C)
Flash Point Method:	Tag Closed Cup (TCC)
Auto Ignition Temperature:	Not determined.
Lower Flammable/Explosive Limit:	Not determined.
Upper Flammable/Explosive Limit:	Not determined.
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.
Extinguishing Media:	Use carbon dioxide (CO2) or dry chemical when fighting fires involving this material.
Unsuitable Media:	Water or foam may cause frothing.
Protective Equipment:	As in any fire, wear Self-Contained Breathing Apparatus (SCBA), MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

Spill Cleanup Measures:	Absorb spill with inert material (e,g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Clean up spills immediately observing precautions in the protective equipment section. After removal, flush spill area with soap and water to remove trace residue. Avoid personal contact and breathing vapors or mists. Ventilate area. Use proper personal protective equipment as listed in section 8.
Personnel Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Other Precautions:	Pump or shovel to storage/salvage vessels.

SECTION 7 : HANDLING and STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat and incompatible materials. Keep container tightly closed when not in use. Do not store in reactive metal containers. Keep away from acids, oxidizers.
Special Handling Procedures:	Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product.
Hygiene Practices:	Wash thoroughly after handling.

SECTION 8 : EXPOSURE CONTROLS, PERSONAL PROTECTION - EXPOSURE GUIDELINES

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.

EXPOSURE GUIDELINES

Carbon black:

Guideline ACGIH:	3.5 mg/m3 TLV-TWA: 3.5 mg/m3
Notes :	Only established PEL and TLV values for the ingredients are listed.

SECTION 9 : PHYSICAL and CHEMICAL PROPERTIES

Physical State Appearance:	Liquid..
Color:	Mobile Black..
Odor:	mild ammonia like.
Boiling Point:	>450°F (232.2°C)
Melting Point:	Not determined.
Specific Gravity:	1.05
Solubility:	negligible
Vapor Density:	>1 (air = 1)
Vapor Pressure:	<1 mmHg @70°F
Percent Volatile:	0
Evaporation Rate:	<<1 (butyl acetate = 1)
pH:	7-8 @ 5 Percent Solution
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Flash Point:	>275°F (135°C)
Flash Point Method:	Tag Closed Cup (TCC)
Auto Ignition Temperature:	Not determined.
VOC Content:	0 g/L
Percent Solids by Weight	100

SECTION 10 : STABILITY and REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Hazardous Polymerization:	Not reported.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions.
Incompatible Materials:	Oxidizers, acids, and chlorinated organic compounds. Reactive metals (e.g. sodium, calcium, zinc). Sodium/calcium hypochlorite. Nitrous acid/ oxide, nitrites. Peroxides. Materials reactive with hydroxyl compounds.

SECTION 11 : TOXICOLOGICAL INFORMATION

Diethyltoluenediamine:

RTECS Number:	CZ1583125
Ingestion:	Oral - Rat LD50 : 472 mg/kg [Sense Organs and Special Senses (Eye) - Lacrimation Behavioral - Somnolence (general depressed activity) Musculoskeletal - Other changes]

Carbon black:

RTECS Number:	FF5800000
Skin:	Administration onto the skin - Rabbit : >3 gm/kg [Details of toxic effects not reported other than lethal dose value] Administration onto the skin - Rat : 11 gm/kg/4W (Intermittent) [Blood - Pigmented or nucleated red blood cells Liver - Changes in liver weight Nutritional and Gross Metabolic - Weight loss or decreased weight gain]
Ingestion:	Oral - Rat LD50: >15400 mg/kg [Behavioral - Somnolence (general depressed activity)]
Carcinogenicity:	IARC: Group 2B: Possibly carcinogenic to humans.

Epoxidized soybean oil:

RTECS Number:	LL1100000
Skin:	Administration onto the skin - Rabbit LD50 : >20 mL/kg [Details of toxic effects not reported other than lethal dose value] Administration onto the skin - Rabbit Open irritation test: 500 mg [mild]
Ingestion:	Oral - Rat LD50 : 22500 uL/kg [Details of toxic effects not reported other than lethal dose value]

SECTION 12 : ECOLOGICAL INFORMATION

Ecotoxicity:	No ecotoxicity data was found for the product.
Environmental Fate:	No environmental information found for this product.

SECTION 13 : DISPOSAL CONSIDERATIONS

Waste Disposal:	Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
RCRA Number:	None.

SECTION 14 : TRANSPORT INFORMATION

DOT Shipping Name:	Non regulated.
DOT UN Number:	N/A
DOT Hazard Class:	Not applicable.
DOT Packing Group:	Not applicable.

SECTION 15 : REGULATORY INFORMATION

Diethyltoluenediamine :	
TSCA Inventory Status:	Listed
Canada DSL:	Listed
Carbon black :	
TSCA Inventory Status:	Listed
California PROP 65:	Listed: cancer
Massachusetts:	Listed
Pennsylvania:	Listed
Canada DSL:	Listed
Dipropylene glycol dibenzoate :	
TSCA Inventory Status:	Listed
Canada DSL:	Listed
Epoxidized soybean oil :	
TSCA Inventory Status:	Listed
Canada DSL:	Listed
Canadian Regulations.	WHMIS Hazard Class(es): D2B All components of this product are on the Canadian Domestic Substances List.

SECTION 16 : ADDITIONAL INFORMATION

HMIS Fire Hazard:	1
HMIS Health Hazard:	2*
HMIS Reactivity:	0
HMIS Personal Protection:	x
MSDS Revision Date:	12/30/2012
MSDS Author:	Actio Corporation

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SECTION 1 : PRODUCT AND COMPANY IDENTIFICATION

Product Name:	**FLEXANE HIGH PERFORMANCE PUTTY RESIN**
Manufacturer Name:	ITW Polymers Adhesives, North America
Address:	30 Endicott Street Danvers, MA 01923
General Phone Number:	(978) 777-1100
Emergency Phone Number:	(800) 424-9300
CHEMTREC:	For emergencies in the US, call CHEMTREC: 800-424-9300
MSDS Revision Date:	12/30/2012

HMIS

Health Hazard	3*
Fire Hazard	3
Reactivity	1
Personal Protection	x

* Chronic Health Effects

SECTION 2 : COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS#	Ingredient Percent
Proprietary	N/A	60 - 100 by weight
Methyl ethyl ketone	78-93-3	10 - 30 by weight
2,6-Di-tertiary-butyl-para-cresol	128-37-0	1 - 5 by weight
4,4'-Diphenylmethane diisocyanate	101-68-8	1 - 5 by weight
2,4-Toluene diisocyanate	584-84-9	1 - 5 by weight

SECTION 3 : HAZARDS IDENTIFICATION

Emergency Overview:	WARNING! Flammable. Suspect Carcinogen. Potential Sensitizer. Irritant.
Route of Exposure:	Eyes. Skin. Inhalation. Ingestion.
Potential Health Effects:	
Eye:	Can cause moderate irritation, burning sensation, tearing, redness, and swelling. Overexposure may cause lacrimation, conjunctivitis, corneal damage and permanent injury..
Skin:	Can cause skin irritation; itching, redness, rashes, hives, burning, and swelling. Allergic reactions are possible.

	May cause skin sensitization, an allergic reaction, which becomes evident on reexposure to this material.
Inhalation:	Respiratory tract irritant. High concentration may cause dizziness, headache, and anesthetic effects. May cause respiratory sensitization with asthma-like symptoms in susceptible individuals.
Ingestion:	Causes irritation, a burning sensation of the mouth, throat and gastrointestinal tract and abdominal pain.
Chronic Health Effects:	Prolonged skin contact may lead to burning associated with severe reddening, swelling, and possible tissue destruction.
Signs/Symptoms:	Overexposure can cause headaches, dizziness, nausea, and vomiting.
Target Organs:	Eyes. Skin. Respiratory system. Digestive system. Central nervous system.
Aggravation of Pre-Existing Conditions:	Individuals with pre-existing skin disorders, asthma, allergies or known sensitization may be more susceptible to the effects of this product. Isocyanate exposure levels must be monitored. Medical supervision of all employees who handle or come in contact with isocyanates is recommended (i.e. FEV, FVC). This should include pre-employment and periodic medical examinations. Persons with asthmatic-type conditions, chronic bronchitis, other chronic respiratory diseases, recurrent skin eczema or sensitization should be excluded from working with this product. Once sensitized no further exposure can be permitted.

SECTION 4 : FIRST AID MEASURES

Eye Contact:	Immediately flush eyes with plenty of water for at least 15 to 20 minutes. Ensure adequate flushing of the eyes by separating the eyelids with fingers. Get immediate medical attention.
Skin Contact:	Immediately wash skin with plenty of soap and water for 15 to 20 minutes, while removing contaminated clothing and shoes. Get medical attention if irritation develops or persists.
Inhalation:	If inhaled, remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.
Ingestion:	If swallowed, do NOT induce vomiting. Call a physician or poison control center immediately. Never give anything by mouth to an unconscious person.
Note to Physicians:	Asthmatic type symptoms may develop, which may be immediate or delayed for several hours.
Other First Aid:	Due to possible aspiration into the lungs, DO NOT induce vomiting if ingested. Provide a glass of water to dilute the material in the stomach. If vomiting occurs naturally, have the person lean forward to reduce the risk of aspiration.

SECTION 5 : FIRE FIGHTING MEASURES

Flammable Properties:	Flammable. Flammable liquid Class I B.
Flash Point:	24°F (-4.4°C)
Flash Point Method:	Tag Closed Cup (TCC)
Auto Ignition Temperature:	Not determined.
Lower Flammable/Explosive Limit:	1.8%
Upper Flammable/Explosive Limit:	11.5%
Fire Fighting Instructions:	Evacuate area of unprotected personnel. Use cold water spray to cool fire exposed containers to minimize risk of rupture. Do not enter confined fire space without full protective gear. If possible, contain fire run-off water.
Extinguishing Media:	Use carbon dioxide (CO2) or dry chemical when fighting fires involving this material.
Protective Equipment:	As in any fire, wear Self-Contained Breathing Apparatus (SCBA), MSHA/NIOSH (approved or equivalent) and full protective gear.
Unusual Fire Hazards:	Do not reseal containers if contaminated with water, resin will react with water to release carbon dioxide. As a result of the water contamination, pressure will build up in the sealed container causing it to rupture.

SECTION 6 : ACCIDENTAL RELEASE MEASURES

Spill Cleanup Measures:	Absorb spill with inert material (e,g., dry sand or earth), then place in a chemical waste container. Provide ventilation. Collect spill with a non-sparking tool. Place into a suitable container for disposal. Clean up spills immediately observing precautions in the protective equipment section. Neutralize residue with appropriate neutralizer. Do not attempt to neutralize large quantities of material unless measures to control reactivity and heat generation have been taken. Absorb spill with inert material (e.g.., dry sand or earth), then place in a chemical waste container. Provide ventilation. After removal, flush spill area with soap and water to remove trace residue. Flammable, eliminate ignition sources. Vapors can form an ignitable mixture with air. Vapors can flow along surfaces to distant ignition sources and flash back. Ventilate area. Use proper personal protective equipment as listed in section 8. A blanket of protein foam may be placed over spill for temporary control of isocyanate vapor.
Personnel Precautions:	Evacuate area and keep unnecessary and unprotected personnel from entering the spill area.
Environmental Precautions:	Avoid runoff into storm sewers, ditches, and waterways.
Other Precautions:	Pump large quantities into closed but not sealed metal containers. Isocyanates will react with water and generate carbon dioxide, this could result in the rupture of any closed containers. Neutralize using 10 parts neutralizer to 1 part isocyanate solution. Mix

and allow to stand for 48 hrs in containers, letting evolved carbon dioxide to vent. Neutralizer consist of 90% water, 3-8% concentrated ammonia (or sodium carbonate), 2% detergent.

SECTION 7 : HANDLING and STORAGE

Handling:	Use with adequate ventilation. Avoid breathing vapor, aerosol or mist. Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures. Do not reuse containers without proper cleaning or reconditioning.
Storage:	Store in a cool, dry, well ventilated area away from sources of heat, combustible materials, direct sunlight, and incompatible substances. Keep container tightly closed when not in use. Do not reseal container If moisture or water contamination is suspected. Water contaminated material in a sealed container may rupture due to pressure buildup.
Special Handling Procedures:	Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product. Hazardous liquid or vapor residue may remain in emptied container. Do not reuse, heat, burn, pressurize, cut, weld, braze, solder, drill, grind, expose to sparks, flame, or ignition sources of empty containers without proper commercial cleaning or reconditioning.
Hygiene Practices:	Wash thoroughly after handling.

SECTION 8 : EXPOSURE CONTROLS, PERSONAL PROTECTION - EXPOSURE GUIDELINES

Engineering Controls:	Use appropriate engineering control such as process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Good general ventilation should be sufficient to control airborne levels. Where such systems are not effective wear suitable personal protective equipment, which performs satisfactorily and meets OSHA or other recognized standards. Consult with local procedures for selection, training, inspection and maintenance of the personal protective equipment.
Eye/Face Protection:	Wear appropriate protective glasses or splash goggles as described by 29 CFR 1910.133, OSHA eye and face protection regulation, or the European standard EN 166.
Skin Protection Description:	Wear appropriate protective gloves and other protective apparel to prevent skin contact. Consult manufacturer's data for permeability data.
Respiratory Protection:	A NIOSH approved air-purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.
Other Protective:	Facilities storing or utilizing this material should be equipped with an eyewash and a deluge shower safety station.

EXPOSURE GUIDELINES

Methyl ethyl ketone:

Guideline ACGIH:	200 ppm TLV-STEL: 300 ppm TLV-TWA: 200 ppm
Guideline OSHA:	200 ppm PEL-TWA: 200 ppm

2,6-Di-tertiary-butyl-para-cresol:

Guideline ACGIH:	2 mg/m3 TLV-TWA: 2 mg/m3 Inhalable vapor fraction (IVF)

4,4'-Diphenylmethane diisocyanate:

Guideline ACGIH:	0.005 ppm TLV-TWA: 0.005 ppm
Guideline OSHA:	PEL-Ceiling/Peak: 0.02 ppm

2,4-Toluene diisocyanate:

Guideline ACGIH:	0.005 ppm Sensitizer.: Sen Skin: Yes TLV-STEL: 0.003 ppm Inhalable vapor fraction (IVF) TLV-STEL: 0.02 ppm TLV-TWA: 0.001 ppm Inhalable vapor fraction (IVF) TLV-TWA: 0.005 ppm
Guideline OSHA:	PEL-Ceiling/Peak: 0.02 ppm
Notes :	Only established PEL and TLV values for the ingredients are listed.

SECTION 9 : PHYSICAL and CHEMICAL PROPERTIES

Physical State Appearance:	Liquid..
Color:	Clear Yellow.
Odor:	Sweet.
Boiling Point:	152°F (66.6°C)
Melting Point:	Not determined.
Specific Gravity:	0.99
Solubility:	Slight; reacts
Vapor Density:	3.94 (air = 1)
Vapor Pressure:	65 mmHg @68°F
Percent Volatile:	20

Evaporation Rate:	>1 (butyl acetate = 1)
pH:	5 @ 5 Percent Solution
Molecular Formula:	Mixture
Molecular Weight:	Mixture
Flash Point:	24°F (-4.4°C)
Flash Point Method:	Tag Closed Cup (TCC)
Auto Ignition Temperature:	Not determined.
VOC Content:	198 g/L
Percent Solids by Weight	80

SECTION 10 : STABILITY and REACTIVITY

Chemical Stability:	Stable under normal temperatures and pressures.
Hazardous Polymerization:	Polymerization may occur under certain conditions.
Conditions to Avoid:	Extreme heat, sparks, and open flame. Incompatible materials, oxidizers and oxidizing conditions. Moisture and extended exposure over 85 F.
Incompatible Materials:	Alcohols, amines, strong bases (alkali, ammonia), acids, metal compounds, moisture or water. Resin reacts with water to give off carbon dioxide.

SECTION 11 : TOXICOLOGICAL INFORMATION

Methyl ethyl ketone:

RTECS Number:	EL6475000
Eye:	Eye - Human Standard Draize test.: 350 ppm Eye - Rabbit Standard Draize test.: 80 mg
Skin:	Administration onto the skin - Rabbit : 6480 mg/kg [Details of toxic effects not reported other than lethal dose value] Administration onto the skin - Rabbit : 500 mg/24H Administration onto the skin - Rabbit : 402 mg/24H Administration onto the skin - Rabbit : 14 mg/24H
Inhalation:	Inhalation - Rat LC50: 23500 mg/m3/8H [Details of toxic effects not reported other than lethal dose value] Inhalation - Mouse LC50: 32 gm/m3/4H [Details of toxic effects not reported other than lethal dose value] Inhalation - Rat LC50: 23500 mg/m3 [Details of toxic effects not reported other than lethal dose value] Inhalation - Mouse LC50: 32 mg/m3 [Details of toxic effects not reported other than lethal dose value]
Ingestion:	Oral - Mouse LD50: 3000 mg/kg [Details of toxic effects not reported other than lethal dose value] Oral - Rat LD50: 2737 mg/kg [Details of toxic effects not reported other than lethal dose value]

2,6-Di-tertiary-butyl-para-cresol:

RTECS Number:	GO7875000
Eye:	Eye - Rabbit Standard Draize test.: 100 mg/24H
Skin:	Administration onto the skin - Rat : >2000 mg/kg [Details of toxic effects not reported other than lethal dose value] Administration onto the skin - Mouse : 5 gm/kg/4W (Intermittent) [Lungs, Thorax, or Respiration - Changes in lung weight Related to Chronic Data - death] Administration onto the skin - Human : 500 mg/48H Administration onto the skin - Rabbit : 500 mg/48H
Ingestion:	Oral - Mouse LD50: 650 mg/kg [Behavioral - Tremor Lungs, Thorax, or Respiration - Chronic pulmonary edema] Oral - Mouse LD50: 650 mg/kg [Behavioral - Tremor Behavioral - Ataxia Lungs, Thorax, or Respiration - Other changes] Oral - Rat LD50: 890 mg/kg [Details of toxic effects not reported other than lethal dose value] Oral - Mouse LD50: 1040 mg/kg [Details of toxic effects not reported other than lethal dose value]

4,4'-Diphenylmethane diisocyanate:

RTECS Number:	NQ9350000
Eye:	Eye - Rabbit Standard Draize test.: 100 mg
Skin:	Administration onto the skin - Mouse : 0.09 pph/2D (Intermittent) [Blood - Other changes Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure)] Administration onto the skin - Mouse : 220 mg/kg/12D (Intermittent) [Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure) Biochemical - Metabolism (Intermediary) - Other proteins Biochemical - Metabolism (Intermediary) - Effect on inflammation or mediation of inflammation] Administration onto the skin - Mouse : 2 pph/2W (Intermittent) [Immunological Including Allergic - Increase in humoral immune response] Administration onto the skin - Mouse : 2 pph/4W (Intermittent) [Immunological Including Allergic - Increase in humoral immune response] Administration onto the skin - Mouse : 280 mg/kg/14D (Intermittent) [Immunological Including Allergic - Increase in humoral immune response] Administration onto the skin - Rabbit : 500 mg/24H
Inhalation:	Inhalation - Rat LC50: 178 mg/m3 [Details of toxic effects not reported other than lethal dose value]
Ingestion:	Oral - Rat LD50: 9200 mg/kg [Behavioral - Somnolence (general depressed activity) Behavioral - Ataxia Nutritional and Gross Metabolic - Body temperature decrease] Oral - Mouse LD50: 2200 mg/kg [Details of toxic effects not reported other than lethal dose value]

2,4-Toluene diisocyanate:

RTECS Number:	CZ6300000
Eye:	Eye - Rabbit Standard Draize test.: 100 mg
Skin:	Administration onto the skin - Rabbit : >16 mL/kg [Details of toxic

	effects not reported other than lethal dose value] Administration onto the skin - Mouse : 240 mg/kg/28D (Intermittent) [Immunological Including Allergic - Increase in humoral immune response] Administration onto the skin - Mouse : 0.03 mL/kg/3D (Intermittent) [Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure)] Administration onto the skin - Mouse : 1.8 ul/kg/3D (Intermittent) [Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure)] Administration onto the skin - Mouse : 18 ul/kg/17D (Intermittent) [Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure)] Administration onto the skin - Mouse : 18.2 ul/kg/31D (Intermittent) [Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure) Immunological Including Allergic - Increased immune response] Administration onto the skin - Mouse : 1.7 mg/kg/17D (Intermittent) [Immunological Including Allergic - Increase in cellular immune response Immunological Including Allergic - Increase in humoral immune response] Administration onto the skin - Mouse : 90 mg/kg/3D (Intermittent) [Immunological Including Allergic - Increase in humoral immune response Biochemical - Metabolism (Intermediary) - Other proteins Biochemical - Metabolism (Intermediary) - Effect on inflammation or mediation of inflammation] Administration onto the skin - Mouse : 4.8 mg/kg/8D (Intermittent) [Lungs, Thorax, or Respiration - Other changes Biochemical - Metabolism (Intermediary) - Effect on inflammation or mediation of inflammation] Administration onto the skin - Mouse : 800 mg/kg/4D (Intermittent) [Immunological Including Allergic - Increased immune response Biochemical - Metabolism (Intermediary) - Effect on inflammation or mediation of inflammation] Administration onto the skin - Mouse : 15 mg/kg/3D (Intermittent) [Skin and Appendages - Cutaneous sensitization, experimental (After topical exposure) Biochemical - Metabolism (Intermediary) - Effect on inflammation or mediation of inflammation] Administration onto the skin - Rabbit : 500 mg Administration onto the skin - Rabbit : 500 mg/24H
Inhalation:	Inhalation - Rat LC50: 14 ppm/4H [Sense Organs and Special Senses (Eye) - Lacrimation Behavioral - Excitement Lungs, Thorax, or Respiration - Dyspnea] Inhalation - Mouse LC50: 10 ppm/4H [Lungs, Thorax, or Respiration - Structural or functional change in trachea or bronchi Lungs, Thorax, or Respiration - Changes in pulmonary vascular resistance] Inhalation - Rat LC50: 14 ppm/4H [Details of toxic effects not reported other than lethal dose value] Inhalation - Mouse LC50: 10 ppm/4H [Details of toxic effects not reported other than lethal dose value]
Ingestion:	Oral - Rat LD50: 5800 mg/kg [Gastrointestinal - Other changes]

SECTION 12 : ECOLOGICAL INFORMATION

Ecotoxicity:	No ecotoxicity data was found for the product.
Environmental Fate:	No environmental information found for this product.

SECTION 13 : DISPOSAL CONSIDERATIONS

Waste Disposal:	Consult with the US EPA Guidelines listed in 40 CFR Part 261.3 for the classifications of hazardous waste prior to disposal. Furthermore, consult with your state and local waste requirements or guidelines, if applicable, to ensure compliance. Arrange disposal in accordance to the EPA and/or state and local guidelines.
RCRA Number:	D001, D035
Important Disposal Information:	DANGER! Rags, steel wool and waste soaked with this product may spontaneously catch fire if improperly discarded or stored. To avoid a spontaneous combustion fire, immediately after use, place rags, steel wool or waste in a sealed, water-filled, metal container.

SECTION 14 : TRANSPORT INFORMATION

DOT Shipping Name:	Refer to Bill of Lading
DOT UN Number:	Refer to Bill of Lading

SECTION 15 : REGULATORY INFORMATION

Methyl ethyl ketone :	
TSCA Inventory Status:	Listed
SARA:	EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
New Jersey:	Listed: NJ Hazardous EHS List
Massachusetts:	Listed: Massachusetts Oil and Hazardous List
Pennsylvania:	Listed
Canada DSL:	Listed
2,6-Di-tertiary-butyl-para-cresol :	
TSCA Inventory Status:	Listed
Massachusetts:	Listed
Pennsylvania:	Listed
Canada DSL:	Listed

4,4'-Diphenylmethane diisocyanate :

TSCA Inventory Status:	Listed
SARA:	EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
New Jersey:	Listed: NJ Hazardous List; Substance Number: 3757
Massachusetts:	Listed
Pennsylvania:	Listed
Canada DSL:	Listed

2,4-Toluene diisocyanate :

TSCA Inventory Status:	Listed
SARA:	EPCRA - 40 CFR Part 372 - (SARA Title III) Section 313 Listed Chemical.
Section 302 EHS:	EPCRA (SARA Title III) Section 302 (40 CFR Part 355) Extremely Hazardous Substances (EHS) Threshold Planning Quantity (TPQ) in pounds: 500 Lbs.
Section 302 RQ:	EPCRA (SARA Title III) Section 302 Extremely Hazardous Substances (EHS) Reportable Quantities (RQ) in pounds: 100 Lbs.
New Jersey:	Listed: NJ Hazardous EHS List
Massachusetts:	Listed: Massachusetts Oil and Hazardous List
Pennsylvania:	Listed
Canada DSL:	Listed
Canadian Regulations.	WHMIS Hazard Class(es): B2; D2A; D2B All components of this product are on the Canadian Domestic Substances List.

SECTION 16 : ADDITIONAL INFORMATION

HMIS Fire Hazard:	3
HMIS Health Hazard:	3*
HMIS Reactivity:	1
HMIS Personal Protection:	x
MSDS Revision Date:	12/30/2012
MSDS Author:	Actio Corporation

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DOW CORNING

DOW CORNING CORPORATION
Material Safety Data Sheet

Version: 1.13
Revision Date: 2013/06/26

DOW CORNING(R) 732 MULTI-PURPOSE SEALANT WHITE

1. PRODUCT AND COMPANY IDENTIFICATION

MSDS No.: 01890581

SUPPLIER:
Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

Prepared by Product Safety: (800) 248-2481
NEWALTA: (800) 567-7455
Revision Date: 2013/06/26

MANUFACTURER:
Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

24 Hour Emergency Telephone: (989) 496-5900

WHMIS CLASSIFICATION: **Class D, Division 1, Subdivision B.**
Class D, Division 2, Subdivision A.
Class D, Division 2, Subdivision B.

Material Usage: **Sealant and adhesive**

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Generic Description: **Silicone elastomer**
Physical Form: **Paste**
Colour: **White**
Odour: **Acetic acid**

Acetic acid is formed upon contact with water or humid air. Provide adequate ventilation to control exposures within guidelines of OSHA PEL: TWA 10 ppm and ACGIH TLV: TWA 10 ppm, STEL 15 ppm.

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POTENTIAL HEALTH EFFECTS

Acute Effects

Eye: Direct contact may cause mild irritation.

Skin: May cause mild irritation.

Inhalation: Irritates respiratory passages very slightly.

Oral: Low ingestion hazard in normal use.

Prolonged/Repeated Exposure Effects

Skin: No known applicable information.

Inhalation**:** No known applicable information.

Oral: No known applicable information.

Other Health Effects

This product contains a chemical(s) that has the following effect(s):
Reproductive Toxicity

See Section 11 for specific details.

Signs and Symptoms of Overexposure

No known applicable information.

Medical Conditions Aggravated by Exposure

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS Number	Wt %	Component Name
7631-86-9	7.0 - 13.0	Silicon dioxide
17689-77-9	1.0 - 5.0	Ethyltriacetoxysilane
4253-34-3	1.0 - 5.0	Methyltriacetoxysilane
13463-67-7	0.5 - 1.5	Titanium dioxide
556-67-2	0.1 - 1.0	Octamethylcyclotetrasiloxane

The ingredients listed above are controlled products as defined in CPR, am. SOR/88-555.

4. FIRST AID MEASURES

Eye: Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes while holding the eyelid(s) open. Obtain medical attention.

Skin:	No health effects expected. If irritation does occur flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice.
Inhalation:	If symptoms are experienced remove source of contamination or move victim to fresh air. If irritation persists, obtain medical advice.
Oral:	If irritation or discomfort occur, obtain medical advice.
Notes to Physician:	Treat according to person's condition and specifics of exposure.

5. FIRE-FIGHTING MEASURES

Flash Point:	Not applicable.
Autoignition Temperature:	Not available.
Flammability Limits in Air:	Not available.
Extinguishing Media:	On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO2), dry chemical or water spray. Water can be used to cool fire exposed containers.
Fire Fighting Measures:	Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.
Unusual Fire Hazards:	None.

6. ACCIDENTAL RELEASE MEASURES

Containment/Clean up:	Observe all personal protection equipment recommendations described in Sections 5 and 8. Wipe up or scrape up and contain for salvage or disposal. Clean area as appropriate since spilled materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, provincial, federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases.

Note: See Section 8 for Personal Protective Equipment for Spills. Refer to Section 1 to obtain telephone numbers, if additional information is required.

7. HANDLING AND STORAGE

Use with adequate ventilation. Product evolves acetic acid (HOAc) when exposed to water or humid air. Provide ventilation during use to control HOAc within exposure guidelines or use respiratory protection. Avoid eye contact. Avoid skin contact.

Keep container closed and store away from water or moisture.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Consult local authorities for acceptable provincial values.

CAS Number	Component Name	Exposure Limits
7631-86-9	Silicon dioxide	OSHA PEL (final rule): TWA 80mg/m3 SiO2. NIOSH REL: TWA 6mg/m3. LC50: > 2.08 mg/l - Inhalation Rat ; 4hr dust/mist LD50: > 3,300 mg/kg - Oral Rat LD50: > 5,000 mg/kg - Dermal Rabbit
17689-77-9	Ethyltriacetoxysilane	See acetic acid comments. LD50: 380 mg/kg - Oral Rat
4253-34-3	Methyltriacetoxysilane	See acetic acid comments. LD50: 1,550 mg/kg - Oral Rat
556-67-2	Octamethylcyclotetrasiloxane	Dow Corning guide: TWA 10 ppm. LC50: 2975 PPM - Inhalation Rat ; 4hr vapor LD50: > 4,800 mg/kg - Oral Rat LD50: > 2.5 ML/KG - Dermal Rabbit

Acetic acid is formed upon contact with water or humid air. Provide adequate ventilation to control exposures within guidelines of OSHA PEL: TWA 10 ppm and ACGIH TLV: TWA 10 ppm, STEL 15 ppm.

Engineering Controls

Local Ventilation:	Recommended.
General Ventilation:	Recommended.

Personal Protective Equipment for Routine Handling

Eyes:	Use proper protection - safety glasses as a minimum.
Skin:	Wash at mealtime and end of shift. Contaminated clothing and shoes should be removed as soon as practical and thoroughly cleaned before reuse. Chemical protective gloves are recommended.
Suitable Gloves:	Handle in accordance with good industrial hygiene and safety practices.
Inhalation:	No respiratory protection should be needed.

Suitable Respirator:	None should be needed.

Personal Protective Equipment for Spills

Eyes:	Use proper protection - safety glasses as a minimum.
Skin:	Wash at mealtime and end of shift. Contaminated clothing and shoes should be removed as soon as practical and thoroughly cleaned before reuse. Chemical protective gloves are recommended.
Inhalation/Suitable Respirator:	No respiratory protection should be needed.
Precautionary Measures:	Avoid eye contact. Avoid skin contact. Use reasonable care.
Comments:	Product evolves acetic acid (HOAc) when exposed to water or humid air. Provide ventilation during use to control HOAc within exposure guidelines or use respiratory protection.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Paste
Color:	White
Odor:	Acetic acid
Odor Threshold:	Not available.
Specific Gravity @ 25°C:	1.04
Viscosity:	Not available.
Freezing/Melting Point:	Not available.
Boiling Point:	Not available.
Vapor Pressure @ 25°C:	Not available.
Vapor Density:	Not available.
Evaporation Rate:	Not available.
Solubility in Water:	Not available.
Coefficient of Water/Oil Distribution:	Not available.
pH:	Not available.
Volatile Content:	Not available.
Flash Point:	Not applicable.
Autoignition Temperature:	Not available.
Flammability Limits in Air:	Not available.

Note: The above information is not intended for use in preparing product specifications. Contact Dow Corning before writing specifications.

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable.
Hazardous Polymerization:	Hazardous polymerization will not occur.
Conditions to Avoid:	None.
Materials to Avoid:	Oxidizing material can cause a reaction. Water, moisture, or humid air can cause hazardous vapors to form as described in Section 8.

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Formaldehyde. Metal oxides.

11. TOXICOLOGICAL INFORMATION

Acute Toxicology Data for Product

	Species	Test Results
Oral LD50:	Rat	> 5,000 mg/kg
Dermal LD50:	Rabbit	> 2,000 mg/kg

Component Toxicology Information

Octamethylcyclotetrasiloxane administered to rats by inhalation at concentrations of 500 and 700 ppm resulted in statistically significant decreases in the number of pups born and the live litter size in both the first and second generations. Prolonged estrous cycles, and decreased mating and fertility indices were observed following 700 ppm exposure in the second generation only. There were also increases in the incidence of deliveries of offspring extending over an unusually long time period (dystocia).

Results from a 2 year repeated vapour inhalation exposure study to rats of octamethylcyclotetrasiloxane (D4) indicate effects (benign uterine adenomas) in the uterus of female animals. This finding occurred at the highest exposure dose (700 ppm) only.

Studies to date have not demonstrated if these effects occur through pathways that are relevant to humans.

Based on the available information on its potential to cause harm to human health, Health Canada, in a 2008 screening assessment, has concluded that octamethylcyclotetrasiloxane is not entering the environment in a quantity or concentration or under conditions that constitute or may constitute a danger in Canada to human life or health (http://www.ec.gc.ca/substances/ese/eng/challenge/batch2/batch2_556-67-2.cfm).

Repeated exposure in rats to D4 resulted in what appears to be protoporphyrin accumulation in the liver. Without knowledge of the specific mechanism leading to the protoporphyrin accumulation the relevance of this finding to humans

is unknown.

Special Hazard Information on Components

Reproductive Toxicity

CAS Number	Wt %	Component Name	
556-67-2	0.1 - 1.0	Octamethylcyclotetrasiloxane	Evidence of reproductive effects in laboratory animals.

12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

Complete information is not yet available.

Environmental Effects

Complete information is not yet available.

Fate and Effects in Waste Water Treatment Plants

Complete information is not yet available.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

13. DISPOSAL CONSIDERATIONS

Can be incinerated in accordance with local regulations.

Call local hazardous waste disposal company or provincial waste authorities for more information. Refer to Section 1 to obtain telephone numbers, if additional information is required.

14. TRANSPORT INFORMATION

Canada Road (Based on IMDG Regulations)

Not subject to local road regulations.

Ocean Shipment (IMDG)

Not subject to IMDG code.

Air Shipment (IATA)

Not subject to IATA regulations.

Refer to Section 1 to obtain telephone numbers, if additional information is required.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

WHMIS CLASSIFICATION:	Class D, Division 1, Subdivision B. Class D, Division 2, Subdivision A. Class D, Division 2, Subdivision B.
DSL Status:	All chemical substances in this material are included on or exempted from the DSL.
TSCA Status:	All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

16. OTHER INFORMATION

Prepared by: Dow Corning Corporation

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

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DOW CORNING

DOW CORNING CORPORATION
Material Safety Data Sheet

Version: 2.6
Revision Date: 2012/08/09

DOW CORNING(R) 736 HEAT RESISTANT/SEALANT

1. PRODUCT AND COMPANY IDENTIFICATION

MSDS No.: 01890590

SUPPLIER:
Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

Prepared by Product Safety: (800) 248-2481
NEWALTA: (800) 567-7455
Revision Date: 2012/08/09

MANUFACTURER:
Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

24 Hour Emergency Telephone: (989) 496-5900

WHMIS CLASSIFICATION: Class D, Division 2, Subdivision A.
Class D, Division 2, Subdivision B.

Material Usage: Sealant and adhesive

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Generic Description: Silicone elastomer
Physical Form: Paste
Colour: Red
Odour: Acetic acid

Acetic acid is formed upon contact with water or humid air. Provide adequate ventilation to control exposures within guidelines of OSHA PEL: TWA 10 ppm and ACGIH TLV: TWA 10 ppm, STEL 15 ppm.

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POTENTIAL HEALTH EFFECTS

Acute Effects

Eye: Direct contact may cause mild irritation.

Skin: May cause mild irritation.

Inhalation: No significant effects expected from a single short-term exposure.

Oral: Low ingestion hazard in normal use.

Prolonged/Repeated Exposure Effects

Skin: No known applicable information.

Inhalation**:** No known applicable information.

Oral: No known applicable information.

Other Health Effects

This product contains a chemical(s) that has the following effect(s):
Reproductive Toxicity

See Section 11 for specific details.

Signs and Symptoms of Overexposure

No known applicable information.

Medical Conditions Aggravated by Exposure

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

CAS Number	Wt %	Component Name
7631-86-9	7.0 - 13.0	Silicon dioxide
17689-77-9	1.0 - 5.0	Ethyltriacetoxysilane
4253-34-3	1.0 - 5.0	Methyltriacetoxysilane
556-67-2	0.1 - 1.0	Octamethylcyclotetrasiloxane

The ingredients listed above are controlled products as defined in CPR, am. SOR/88-555.

4. FIRST AID MEASURES

Eye: Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes while holding the eyelid(s) open. Obtain medical attention.

Skin: No health effects expected. If irritation does occur flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice.

Inhalation:	If symptoms are experienced remove source of contamination or move victim to fresh air. If irritation persists, obtain medical advice.
Oral:	If irritation or discomfort occur, obtain medical advice.
Notes to Physician:	Treat according to person's condition and specifics of exposure.

5. FIRE-FIGHTING MEASURES

Flash Point:	
Autoignition Temperature:	Not available.
Flammability Limits in Air:	Not available.
Extinguishing Media:	On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO2), dry chemical or water spray. Water can be used to cool fire exposed containers.
Fire Fighting Measures:	Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.
Unusual Fire Hazards:	None.

6. ACCIDENTAL RELEASE MEASURES

Containment/Clean up:	Observe all personal protection equipment recommendations described in Sections 5 and 8. Wipe up or scrape up and contain for salvage or disposal. Clean area as appropriate since spilled materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, provincial, federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases.

Note: See Section 8 for Personal Protective Equipment for Spills. Refer to Section 1 to obtain telephone numbers, if additional information is required.

7. HANDLING AND STORAGE

Use with adequate ventilation. Product evolves acetic acid (HOAc) when exposed to water or humid air. Provide ventilation during use to control HOAc within exposure guidelines or use respiratory protection. Avoid eye contact. Avoid skin contact.

Use reasonable care and store away from oxidizing materials. Keep container closed and store away from water or moisture. This material in its finely divided form presents an explosion hazard. Follow NFPA 654 (for chemical dusts) or

484 (for metal dusts) as appropriate for managing dust hazards to minimize secondary explosion potential.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Consult local authorities for acceptable provincial values.

CAS Number	Component Name	Exposure Limits
7631-86-9	Silicon dioxide	OSHA PEL (final rule): TWA 80mg/m3 SiO2. NIOSH REL: TWA 6mg/m3. LC50: > 2.08 mg/l - Inhalation Rat ; 4hr dust/mist LD50: > 3,300 mg/kg - Oral Rat LD50: > 5,000 mg/kg - Dermal Rabbit
17689-77-9	Ethyltriacetoxysilane	See acetic acid comments. LD50: 380 mg/kg - Oral Rat
4253-34-3	Methyltriacetoxysilane	See acetic acid comments. LD50: 1,550 mg/kg - Oral Rat
556-67-2	Octamethylcyclotetrasiloxane	Dow Corning guide: TWA 10 ppm. LC50: 2975 PPM - Inhalation Rat ; 4hr vapor LD50: > 4,800 mg/kg - Oral Rat LD50: > 2.5 ML/KG - Dermal Rabbit

Acetic acid is formed upon contact with water or humid air. Provide adequate ventilation to control exposures within guidelines of OSHA PEL: TWA 10 ppm and ACGIH TLV: TWA 10 ppm, STEL 15 ppm.

Engineering Controls

Local Ventilation:	None should be needed.
General Ventilation:	Recommended.

Personal Protective Equipment for Routine Handling

Eyes:	Use proper protection - safety glasses as a minimum.
Skin:	Wash at mealtime and end of shift. Contaminated clothing and shoes should be removed as soon as practical and thoroughly cleaned before reuse. Chemical protective gloves are recommended.
Suitable Gloves:	Handle in accordance with good industrial hygiene and safety practices.
Inhalation:	No respiratory protection should be needed.

Suitable Respirator:	None should be needed.

Personal Protective Equipment for Spills

Eyes:	Use proper protection - safety glasses as a minimum.
Skin:	Wash at mealtime and end of shift. Contaminated clothing and shoes should be removed as soon as practical and thoroughly cleaned before reuse. Chemical protective gloves are recommended.
Inhalation/Suitable Respirator:	No respiratory protection should be needed.
Precautionary Measures:	Avoid eye contact. Avoid skin contact. Use reasonable care.
Comments:	Product evolves acetic acid (HOAc) when exposed to water or humid air. Provide ventilation during use to control HOAc within exposure guidelines or use respiratory protection.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Paste
Color:	Red
Odor:	Acetic acid
Odor Threshold:	Not available.
Specific Gravity @ 25°C:	1.04
Viscosity:	Not available.
Freezing/Melting Point:	Not available.
Boiling Point:	Not available.
Vapor Pressure @ 25°C:	Not available.
Vapor Density:	Not available.
Evaporation Rate:	Not available.
Solubility in Water:	Not available.
Coefficient of Water/Oil Distribution:	Not available.
pH:	Not available.
Volatile Content:	Not available.
Flash Point:	
Autoignition Temperature:	Not available.
Flammability Limits in Air:	Not available.

Note: The above information is not intended for use in preparing product specifications. Contact Dow Corning before writing specifications.

DOW CORNING(R) 736 HEAT RESISTANT/SEALANT

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable.
Hazardous Polymerization:	Hazardous polymerization will not occur.
Conditions to Avoid:	None.
Materials to Avoid:	Oxidizing material can cause a reaction. Water, moisture, or humid air can cause hazardous vapors to form as described in Section 8.

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Formaldehyde. Metal oxides.

11. TOXICOLOGICAL INFORMATION

Component Toxicology Information

Octamethylcyclotetrasiloxane administered to rats by inhalation at concentrations of 500 and 700 ppm resulted in statistically significant decreases in the number of pups born and the live litter size in both the first and second generations. Prolonged estrous cycles, and decreased mating and fertility indices were observed following 700 ppm exposure in the second generation only. There were also increases in the incidence of deliveries of offspring extending over an unusually long time period (dystocia).

Results from a 2 year repeated vapour inhalation exposure study to rats of octamethylcyclotetrasiloxane (D4) indicate effects (benign uterine adenomas) in the uterus of female animals. This finding occurred at the highest exposure dose (700 ppm) only.

Studies to date have not demonstrated if these effects occur through pathways that are relevant to humans.

Based on the available information on its potential to cause harm to human health, Health Canada, in a 2008 screening assessment, has concluded that octamethylcyclotetrasiloxane is not entering the environment in a quantity or concentration or under conditions that constitute or may constitute a danger in Canada to human life or health (http://www.ec.gc.ca/substances/ese/eng/challenge/batch2/batch2_556-67-2.cfm).

Repeated exposure in rats to D4 resulted in what appears to be protoporphyrin accumulation in the liver. Without knowledge of the specific mechanism leading to the protoporphyrin accumulation the relevance of this finding to humans is unknown.

Special Hazard Information on Components

Reproductive Toxicity

CAS Number	Wt %	Component Name

556-67-2	0.1 - 1.0	Octamethylcyclotetrasiloxane	Evidence of reproductive effects in laboratory animals.

12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

Complete information is not yet available.

Environmental Effects

Complete information is not yet available.

Fate and Effects in Waste Water Treatment Plants

Complete information is not yet available.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

13. DISPOSAL CONSIDERATIONS

Can be incinerated in accordance with local regulations.

Call local hazardous waste disposal company or provincial waste authorities for more information. Refer to Section 1 to obtain telephone numbers, if additional information is required.

14. TRANSPORT INFORMATION

Canada Road (Based on IMDG Regulations)

Not subject to local road regulations.

Ocean Shipment (IMDG)

Not subject to IMDG code.

Air Shipment (IATA)

Not subject to IATA regulations.

Refer to Section 1 to obtain telephone numbers, if additional information is required.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

WHMIS CLASSIFICATION:	Class D, Division 2, Subdivision A. Class D, Division 2, Subdivision B.
DSL Status:	All chemical substances in this material are included on or exempted from the DSL.
TSCA Status:	All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

16. OTHER INFORMATION

Prepared by: Dow Corning Corporation

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

(R) indicates Registered Trademark

DOW CORNING CORPORATION
Material Safety Data Sheet

DOW CORNING(R) 832 MULTI-SURFACE ADHESIVE SEALANT, OFF-WHITE

1. PRODUCT AND COMPANY IDENTIFICATION

Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

24 Hour Emergency Telephone: (989) 496-5900
Customer Service: (989) 496-6000
Product Disposal Information: (989) 496-6315
CHEMTREC: (800) 424-9300

MSDS No.: 02468492 Revision Date: 2013/06/05

Generic Description: Sealant.
Physical Form: Paste
Color: White
Odor: Alcoholic odor

NFPA Profile: Health 1 Flammability 1 Instability/Reactivity 0

Note: NFPA = National Fire Protection Association

2. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Acute Effects

Eye: Direct contact may cause mild irritation. Vapor may cause eye irritation.

Skin: No significant irritation expected from a single short-term exposure.

Inhalation: Irritates respiratory passages very slightly.

Oral: Low ingestion hazard in normal use.

Prolonged/Repeated Exposure Effects

Skin: No known applicable information.

Inhalation: No known applicable information.

Oral: No known applicable information.

Signs and Symptoms of Overexposure

No known applicable information.

Medical Conditions Aggravated by Exposure

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

None present. This is not a hazardous material as defined in the OSHA Hazard Communication Standard.

4. FIRST AID MEASURES

Eye:	Remove from the source of contamination or move to fresh air Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes while holding the eyelid(s) open. Obtain medical attention.
Skin:	No health effects expected. If irritation does occur flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice.
Inhalation:	If symptoms are experienced remove source of contamination or move victim to fresh air. If irritation persists, obtain medical advice.
Oral:	If irritation or discomfort occur, obtain medical advice.
Notes to Physician:	Treat according to person's condition and specifics of exposure.

5. FIRE FIGHTING MEASURES

Flash Point:	Not applicable.
Autoignition Temperature:	Not determined.
Flammability Limits in Air:	Not determined.
Extinguishing Media:	On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO2), dry chemical or water spray. Water can be used to cool fire exposed containers.
Fire Fighting Measures:	Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.
Unusual Fire Hazards:	None.

6. ACCIDENTAL RELEASE MEASURES

Containment/Clean up:	Observe all personal protection equipment recommendations described in Sections 5 and 8. Wipe up or scrape up and contain for salvage or disposal. Clean area as appropriate since spilled materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, state and federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which federal, state and local laws and regulations are applicable. Sections 13 and 15 of this MSDS provide information regarding certain federal and state requirements.

Note: See Section 8 for Personal Protective Equipment for Spills. Call (989) 496-5900, if additional information is required.

7. HANDLING AND STORAGE

Use with adequate ventilation. Product evolves isopropyl alcohol when exposed to water or humid air. Provide ventilation during use to control exposure within guidelines or use respiratory protection. Avoid eye exposure.

Keep container closed and store away from water or moisture.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

Isopropyl alcohol is formed on contact with water or humid air. Provide adequate ventilation to control exposures to within exposure guidelines of OSHA PEL (final rule): TWA 400 ppm, 980 mg/m3 and ACGIH TLV: TWA 200 ppm, STEL 400 ppm.

Engineering Controls

Local Ventilation:	Recommended.
General Ventilation:	Recommended.

Personal Protective Equipment for Routine Handling

Eyes:	Use chemical worker's goggles.
Skin:	Washing at mealtime and end of shift is adequate.
Suitable Gloves:	Handle in accordance with good industrial hygiene and safety practices.
Inhalation:	No respiratory protection should be needed.
Suitable Respirator:	None should be needed.

Personal Protective Equipment for Spills

Eyes:	Use chemical worker's goggles.
Skin:	Washing at mealtime and end of shift is adequate.
Inhalation/Suitable Respirator:	No respiratory protection should be needed.
Precautionary Measures:	Avoid eye exposure. Use reasonable care.
Comments:	Product evolves isopropyl alcohol when exposed to water or humid air. Provide ventilation during use to control exposure within guidelines or use respiratory protection.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Paste
Color:	White
Odor:	Alcoholic odor
Specific Gravity @ 25°C:	Not determined.
Viscosity:	Not determined.
Freezing/Melting Point:	Not determined.
Boiling Point:	Not determined.
Vapor Pressure @ 25°C:	Not determined.
Vapor Density:	Not determined.
Solubility in Water:	Not determined.
pH:	Not determined.
Volatile Content:	Not determined.
Flash Point:	Not applicable.
Autoignition Temperature:	Not determined.
Flammability Limits in Air:	Not determined.

Note: The above information is not intended for use in preparing product specifications. Contact Dow Corning before writing specifications.

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable.
Hazardous Polymerization:	Hazardous polymerization will not occur.
Conditions to Avoid:	None.
Materials to Avoid:	Oxidizing material can cause a reaction. Water, moisture, or humid air can cause hazardous vapors to form as described in Section 8.

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Formaldehyde. Metal oxides. Sulfur oxides.

11. TOXICOLOGICAL INFORMATION

Special Hazard Information on Components

No known applicable information.

12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

Complete information is not yet available.

Environmental Effects

Complete information is not yet available.

Fate and Effects in Waste Water Treatment Plants

Complete information is not yet available.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the section concerning the overall ecological safety of this material.

13. DISPOSAL CONSIDERATIONS

RCRA Hazard Class (40 CFR 261)

When a decision is made to discard this material, as received, is it classified as a hazardous waste? No

State or local laws may impose additional regulatory requirements regarding disposal. Call (989) 496-6315, if additional information is required.

14. TRANSPORT INFORMATION

DOT Road Shipment Information (49 CFR 172.101)

Not subject to DOT.

Ocean Shipment (IMDG)

Not subject to IMDG code.

Air Shipment (IATA)

Not subject to IATA regulations.

Call Dow Corning Transportation, (989) 496-8577, if additional information is required.

15. REGULATORY INFORMATION

Contents of this MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

TSCA Status: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

EPA SARA Title III Chemical Listings

Section 302 Extremely Hazardous Substances (40 CFR 355):
None.

Section 304 CERCLA Hazardous Substances (40 CFR 302):
None.

Section 311/312 Hazard Class (40 CFR 370):

Acute:	No
Chronic:	No
Fire:	No
Pressure:	No
Reactive:	No

Section 313 Toxic Chemicals (40 CFR 372):
None present or none present in regulated quantities.

Note: Chemicals are listed under the 313 Toxic Chemicals section only if they meet or exceed a reporting threshold.

Supplemental State Compliance Information

California

Warning: This product contains the following chemical(s) listed by the State of California under the Safe Drinking Water

and Toxic Enforcement Act of 1986 (Proposition 65) as being known to cause cancer, birth defects or other reproductive harm.

CAS Number	Wt %	Component Name	
67-56-1	<0.1000	Methyl alcohol	Developmental toxin.

New Jersey

CAS Number	Wt %	Component Name
P871176	40.0 - 60.0	Dimethyl siloxane, trimethoxysilyl-terminated
471-34-1	40.0 - 60.0	Calcium carbonate
68083-19-2	5.0 - 10.0	Dimethyl siloxane, dimethylvinyl-terminated
27858-32-8	1.0 - 5.0	Diisopropoxy di(ethoxyacetoacetyl) titanate
57-11-4	1.0 - 5.0	Stearic acid

Pennsylvania

CAS Number	Wt %	Component Name
P871176	40.0 - 60.0	Dimethyl siloxane, trimethoxysilyl-terminated
471-34-1	40.0 - 60.0	Calcium carbonate
68083-19-2	5.0 - 10.0	Dimethyl siloxane, dimethylvinyl-terminated

16. OTHER INFORMATION

Prepared by: Dow Corning Corporation

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

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World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

MSDS No: M00109

Material Safety Data Sheet

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: DPD Free Chlorine Reagent
Catalog Number: 2105569

Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00109
Chemical Name: Not applicable
CAS No.: Not applicable
Chemical Formula: Not applicable
Chemical Family: Not applicable
Hazard: May cause sensitizaton. May cause irritation.
Date of MSDS Preparation:
Day: 26
Month: 03
Year: 2003

2. COMPOSITION / INFORMATION ON INGREDIENTS

Salt of N,N-Diethyl-p-Phenylenediamine
CAS No.: Confidential
TSCA CAS Number: Confidential
Percent Range: 1.0 - 5.0
Percent Range Units: weight / weight
LD50: Oral rat LD_{50} = 970 mg/kg.
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: May cause sensitizaton. May cause irritation.

Carboxylate Salt
CAS No.: Confidential
TSCA CAS Number: Confidential
Percent Range: 55.0 - 65.0
Percent Range Units: weight / weight
LD50: None reported
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: May cause irritation. Toxic properties unknown.

Sodium Phosphate, Dibasic
CAS No.: 7782856
TSCA CAS Number: 7558-79-4
Percent Range: 30.0 - 40.0
Percent Range Units: weight / weight
LD50: Oral rat LD_{50} = 12930 mg/kg.
LC50: None reported
TLV: Not established
PEL: Not established

Hazard: May cause irritation.

Ethylenediaminetetraacetic Acid, Disodium Salt
CAS No.: 6381926
TSCA CAS Number: 139-333
Percent Range: 1.0 - 10.0
Percent Range Units: weight / weight
LD50: Oral rat LD50 = 2000 mg/kg
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: May cause irritation.

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: White or light pink powder
Odor: None
MAY CAUSE EYE AND RESPIRATORY TRACT IRRITATION
MAY CAUSE ALLERGIC SKIN REACTION

HMIS:
Health: 2
Flammability: 1
Reactivity: 0
Protective Equipment: X - See protective equipment, Section 8.
NFPA:
Health: 1
Flammability: 1
Reactivity: 0
Symbol: Not applicable
Potential Health Effects:
Eye Contact: MAY CAUSE IRRITATION
Skin Contact: MAY CAUSE IRRITATION May cause allergic reaction
Skin Absorption: None reported
Target Organs: None reported
Ingestion: DPD Oral rat LD50 studies revealed decreased locomotor activity, depressed respiration, muscle spasms, loss of righting reflex and death. Autopsies revealed ulcerated stomach, enteritis, gas and congested lungs.
Target Organs: None reported
Inhalation: May cause: respiratory tract irritation Effects similar to those of ingestion.
Target Organs: None reported
Medical Conditions Aggravated: Allergy or sensitivity to salts of N,N-Diethyl-p-phenylenediamine Pre-existing: Eye conditions Skin conditions Respiratory conditions
Chronic Effects: DPD may cause allergic skin reactions in some people causing severe skin rashes and itching.
Cancer / Reproductive Toxicity Information:
This product does NOT contain any OSHA listed carcinogens.

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

Additional Cancer / Reproductive Toxicity Information: None reported
Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with soap and plenty of water. Call physician if irritation develops.

Ingestion (First Aid): Call physician immediately. Give 1-2 glasses of water under medical supervision. Never give anything by mouth to an unconscious person.
Inhalation: Remove to fresh air.

5. FIRE FIGHTING MEASURES

Flammable Properties: Can burn in fire, releasing toxic vapors.
Flash Point: Not applicable
Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable
Upper Explosion Limits: Not applicable
Autoignition Temperature: Not determined
Hazardous Combustion Products: Toxic fumes of: carbon monoxide, carbon dioxide. phosphorus oxides nitrogen oxides.
Fire / Explosion Hazards: None reported
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Use media appropriate to surrounding fire conditions
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Stop spilled material from being released to the environment.
Clean-up Technique: Scoop up spilled material into a large beaker and dissolve with water. Flush reacted material to the drain with a large excess of water. Decontaminate the area of the spill with a soap solution.
Evacuation Procedure: Evacuate as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.
Special Instructions (for accidental release): Mixture contains a component which is regulated as a water pollutant.
304 EHS RQ (40 CFR 355): Not applicable
D.O.T. Emergency Response Guide Number: Not applicable

7. HANDLING / STORAGE

Handling: Avoid contact with eyes skin clothing Do not breathe dust. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.
Storage: Store between 10° and 25°C. Protect from: light moisture heat
Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Have a safety shower nearby. Use general ventilation to minimize exposure to mist, vapor or dust. Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: safety glasses with top and side shields
Skin Protection: disposable latex gloves lab coat
Inhalation Protection: adequate ventilation
Precautionary Measures: Avoid contact with: eyes skin clothing Do not breathe: dust Wash thoroughly after handling. Protect from: light moisture heat
TLV: Not established
PEL: Not established

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: White or light pink powder

Physical State: Solid
Molecular Weight: Not applicable
Odor: None
pH: of 1% soln. = 6.35 @ 25°C
Vapor Pressure: Not applicable
Vapor Density (air = 1): Not applicable
Boiling Point: Not applicable
Melting Point: 110 C decomp
Specific Gravity (water = 1): 1.76
Evaporation Rate (water = 1): Not applicable
Volatile Organic Compounds Content: Not applicable
Partition Coefficient (n-octanol / water): Not applicable
Solubility:
Water: Soluble
Acid: Soluble
Other: Not determined
Metal Corrosivity:
Steel: Not determined
Aluminum: Not determined

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Exposure to light. Excess moisture Heating to decomposition.
Reactivity / Incompatibility: None reported
Hazardous Decomposition: Heating to decomposition releases toxic and/or corrosive fumes of: carbon dioxide carbon monoxide phosphorus oxides nitrogen oxides
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: None reported
LC50: None reported
Dermal Toxicity Data: None reported
Skin and Eye Irritation Data: None reported
Mutation Data: None reported
Reproductive Effects Data: None reported
Ingredient Toxicological Data: Salt of DPD Oral rat LD50 = 970 mg/kg; Sodium Phosphate Dibasic Oral Rat LD50 = 17 g/kg; EDTA Disodium Salt Oral Rat LD50 = 2000 mg/kg

12. ECOLOGICAL INFORMATION

Product Ecological Information: --
No ecological data available for this product.
Ingredient Ecological Information: --
No ecological data available for the ingredients of this product.

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: Not applicable
Special Instructions (Disposal): Dilute to 3 to 5 times the volume with cold water. Open cold water tap completely, slowly pour the material to the drain. Allow cold water to run for 5 minutes to completely flush the system.
Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash.
NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulatorsfor more information.

14. TRANSPORT INFORMATION

D.O.T.:

D.O.T. Proper Shipping Name: Not Currently Regulated

--

DOT Hazard Class: NA

DOT Subsidiary Risk: NA

DOT ID Number: NA

DOT Packing Group: NA

I.C.A.O.:

I.C.A.O. Proper Shipping Name: Not Currently Regulated

--

ICAO Hazard Class: NA

ICAO Subsidiary Risk: NA

ICAO ID Number: NA

ICAO Packing Group: NA

I.M.O.:

I.M.O. Proper Shipping Name: Not Currently Regulated

--

I.M.O. Hazard Class: NA

I.M.O. Subsidiary Risk: NA

I.M.O. ID Number: NA

I.M.O. Packing Group: NA

15. REGULATORY INFORMATION

U.S. Federal Regulations:

O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

E.P.A.:

S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard

S.A.R.A. Title III Section 313 (40 CFR 372): This product does NOT contain any chemical subject to the reporting requirements of Section 313 of Title III of SARA.

--

302 (EHS) TPQ (40 CFR 355): Not applicable

304 CERCLA RQ (40 CFR 302.4): 5000 lbs. Sodium phosphate, dibasic

304 EHS RQ (40 CFR 355): Not applicable

Clean Water Act (40 CFR 116.4): Sodium phosphate, dibasic - RQ 5000 lbs.

RCRA: Contains no RCRA regulated substances.

C.P.S.C.: Not applicable

State Regulations:

California Prop. 65: No Prop. 65 listed chemicals are present in this product.

Identification of Prop. 65 Ingredient(s): Not applicable

Trade Secret Registry: New Jersey Trade Secret Registry Number 80100131-5001 (Carboxylate Salt) New Jersey Trade Secret Registry Number 80100131-5002 (DPD Salt) New York Trade Secret Registry Number 478 (DPD Salt) New York Trade Secret Registry Number 479 (Carboxylate Salt) This product complies with Pennsylvania Trade Secret Regulations. This product is registered as a trade secret in the state of Illinois. This product is registered as a trade secret in the state of Massachusetts. This product is registered as a trade secret in the state of NewYork.

National Inventories:

U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).

TSCA CAS Number: Not applicable

16. OTHER INFORMATION

Intended Use: Determination of Free Chlorine

References: TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Air Contaminants, FederalRegister, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. In-house information. Technical Judgment. Outside Testing. Sax, N. Irving. Dangerous Properties of Industrial Materials, 7th Ed. New York: Van Nostrand Reinhold Co., 1989.

Revision Summary:

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BEACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

HACH COMPANY ©2003

Material Safety Data Sheet

DURON ™ -E SYNTHETIC 5W-40

1 . Product and company identification

Product name : DURON ™ -E SYNTHETIC 5W-40

Code : DESYN54, 420-071

Material uses : A synthetic, SAE 5W-40 Heavy Duty Diesel Engine Oil suitable for most 4-stroke engines operating on diesel, gasoline or natural gas fuel in mobile equipment. The low sulphated ash, phosphorus and sulphur design helps to protect emission control equipment such as particulate filters and catalytic converters.

Manufacturer : Petro-Canada Lubricants Inc.
2310 Lakeshore Road West
Mississauga, Ontario
Canada L5J 1K2

In case of emergency : Suncor Energy: 403-296-3000
Canutec Transportation: 613-996-6666
Poison Control Centre: Consult local telephone directory for emergency number(s).

2 . Hazards identification

Physical state : Viscous liquid.

Odour : Mild petroleum oil like.

WHMIS (Canada) : Not controlled under WHMIS (Canada).

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency overview : No specific hazard.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Skin : Slightly irritating to the skin.

Eyes : Slightly irritating to the eyes.

Potential chronic health effects

Chronic effects : No known significant effects or critical hazards.

Carcinogenicity : Not listed as carcinogenic by OSHA, NTP or IARC.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure : Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated skin exposure can produce local skin destruction or dermatitis.

See toxicological information (Section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	Mixture	-

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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3 . Composition/information on ingredients

The base oil may be a mixture of the following CAS#s: 8042-47-5, 64742-46-7, 64742-47-8, 64742-53-6, 64742-54-7, 64742-55-8, 72623-84-8, 72623-85-9, 72623-86-0, 72623-87-1, 178603-64-0, 178603-65-1, 178603-66-2, 445411-73-4

4 . First-aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

Flammability of the product : May be combustible at high temperature.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Products of combustion : Carbon oxides (CO, CO2), sulphur oxides (SOx), calcium oxides (CaOx), aldehydes, smoke and irritating vapours as products of incomplete combustion.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Low fire hazard. This material must be heated before ignition will occur.

Special remarks on explosion hazards : Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

6 . Accidental release measures

Large spill : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	**ACGIH TLV (United States). Notes: (Mineral oil)** TWA: 5 mg/m³, (Inhalable fraction) 8 hour(s).

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: organic vapour filter

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Recommended: neoprene, nitrile, polyvinyl alcohol (PVA), Viton®.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

8 . Exposure controls/personal protection

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Viscous liquid.

Flash point : Open cup: 229°C (444.2°F) [Cleveland.]

Auto-ignition temperature : Fire Point: 241 °C (465.8°F)

Flammable limits : Not available.

Colour : Light amber.

Odour : Mild petroleum oil like.

Odour threshold : Not available.

pH : Not available.

Boiling/condensation point : Not available.

Melting/freezing point : Not available.

Relative density : 0.8478 kg/L @ 15°C (59°F)

Vapour pressure : Not available.

Vapour density : Not available.

Volatility : Not available.

Evaporation rate : Not available.

Viscosity : 93.5 cSt @ 40°C (104°F), 15.18 cSt @ 100°C (212°F), VI=172

Pour point : -48°C (-54.4°F)

Solubility : Insoluble in water.

10 . Stability and reactivity

Chemical stability : The product is stable.

Hazardous polymerisation : Under normal conditions of storage and use, hazardous polymerisation will not occur.

Materials to avoid : Reactive with oxidising agents, acids, halogens and halogenated compounds.

Hazardous decomposition products : May release COx, H_2S, aldehydes, alkyl mercaptans, sulfides, methacrylate monomers, smoke and irritating vapours when heated to decomposition.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>5.2 mg/l	4 hours

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

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11 . Toxicological information

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	A4	-	-	-	-	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	Not regulated.	-	-	-		-
DOT Classification	Not regulated.	-	-	-		-

PG* : Packing group

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15 . Regulatory information

United States

HCS Classification : Not regulated.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

Canada inventory : All components are listed or exempted.

United States inventory (TSCA 8b) : All components are listed or exempted.

Europe inventory : At least one component is not listed in EINECS but all such components are listed in ELINCS.
Please contact your supplier for information on the inventory status of this material.

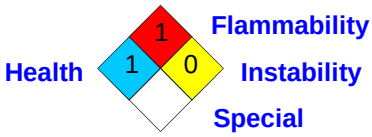
International lists : **China inventory (IECSC):** All components are listed or exempted.

16 . Other information

Hazardous Material Information System (U.S.A.) :

Health	1
Flammability	1
Physical hazards	0
Personal protection	B

National Fire Protection Association (U.S.A.) :



References : Available upon request.
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Date of printing : **3/5/2012.**

Date of issue : 5 March 2012

Date of previous issue : 10/12/2011.

Responsible name : **Product Safety - RS**

Indicates information that has changed from previously issued version.

For Copy of (M)SDS : The Canadian Controlled Products Regulations (CPR) (Under the Hazardous Products Act, part of the WHMIS legislation) only apply to WHMIS Controlled (i.e., hazardous) products. Therefore, the CPR and the 3-year update rule specified therein do not apply to WHMIS Non-Controlled products. Although this is true, customarily Petro-Canada reviews and updates Non-Controlled product MSDS if a customer requests such an update. These Non-Controlled product updates are given a lower priority than Controlled products but are handled as soon as practicable. If you would like to verify if the MSDS you have is the most current, or you require any further information, please contact:

Internet: lubricants.petro-canada.ca/msds

Lubricants:
Western Canada, telephone: 1-800-661-1199; fax: 1-800-378-4518
Ontario & Central Canada, telephone: 1-800-268-5850; fax: 1-800-201-6285
Quebec & Eastern Canada, telephone: 1-800-576-1686; fax: 1-800-201-6285

For Product Safety Information: (905) 804-4752

Notice to reader

16 . Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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SLUYTER COMPANY LTD.
375 Steelcase Road East
Markham, Ontario L3R 1G3 Canada
Tel (905) 475-6011 Fax (905) 475-3119

SECTION 01: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER----------SLUYTER COMPANY LTD.
375 Steelcase Road East
Markham, Ontario L3R 1G3
Canada
Tel (905) 475-6011
PRODUCT NAME----------3V PRIMER (PVC & CPVC Primer).
PRODUCT USES----------Primer used with PVC and CPVC Solvent Cements.
CHEMICAL FAMILY----------Solvent Blend.

SECTION 02: COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENTS / %	CAS / TLV	LD/50, ROUTE, SPECIES	LC/50, ROUTE, SPECIES
TETRAHYDROFURAN			
15 – 40	**109-99-9**	**1650 mg/kg**	**18000 ppm 4 hours**
	200 ppm	**Oral (Rat)**	**Inhalation (Rat)**
ACETONE			
15 - 40	**67-64-1**	**9750 mg/kg**	**16000 ppm 4 hours**
	750 ppm	**Oral (Rat)**	**Inhalation (Rat)**
METHYL ETHYL KETONE			
15 – 40	**78-93-3**	**2737 mg/kg**	**23500 mg/m3 8 Hours**
	200 ppm	**Oral (Rat)**	**Inhalation (Rat)**

SECTION 03: HAZARDS IDENTIFICATION

ROUTE OF ENTRY:----------
SKIN CONTACT----------Can cause moderate skin irritation, defatting and dermatitis.
SKIN ABSORPTION----------Tetrahydrofuran can be absorbed through the skin resulting in toxic effects.
INHALATION----------As described below.
INHALATION CHRONIC----------Can cause damage to the respiratory system. Can cause headache, dizziness and nausea.
INGESTION----------Can cause gastro-intestinal irritation, nausea, vomiting and diarrhea.
EYE CONTACT----------Causes eye burns. Severe irritation, redness, watering and blurred vision.
EFFECTS OF ACUTE EXPOSURE----------Refer to "ROUTE ENTRY" section.
EFFECTS OF CHRONIC EXPOSURE--------May cause damage to the central nervous system, respiratory system, lungs, eyes, skin, gastro-intestinal tract, liver, spleen and kidneys. May cause nausea, headache, dizziness and drowsiness. Prolonged or repeated skin contact may cause drying or cracking of the skin.

EMERGENCY - CALL CANUTEC (613) 996-6666 (Collect)

SECTION 04: FIRST AID MEASURES

EYE CONTACT----------Check for and remove any contact lenses. Immediately flush with water for a minimum of 20 minutes and get medical attention.
SKIN CONTACT----------Remove contaminated clothing. Wash affected area with water and soap. Seek medical attention if irritation occurs or persists.
INHALATION----------Remove patient to fresh air. If not breathing, trained personnel should administer artificial respiration. Get medical attention.
INGESTION----------Do NOT induce vomiting. Get immediate medical attention.
ADDITIONAL INFORMATION----------Contact your local poison control centre.

SECTION 05: FIRE FIGHTING MEASURES

FLAMMABILITY----------Flammable.
UNDER WHAT CONDITIONS----------Extremely flammable liquid. Dangerous fire hazard when exposed to heat, flame or temperatures above the flash point. As vapours are heavier than air, they may travel to a source of ignition and flash back.
SPECIAL PROCEDURES----------A self-contained breathing apparatus is required for fire fighting personnel. Use water spray to cool fire exposed surfaces and to protect personnel.
FLASH POINT (METHOD)---------- -5ºC TAG Closed Cup.
AUTO IGNITION TEMPERATURE----------321ºC.
UPPER FLAMMABLE LIMIT (% VOL)------12.50.
LOWER FLAMMABLE LIMIT (% VOL)------11.60.
EXTINGUISHING MEDIA----------Alcohol foam, CO_2 or dry chemical.
HAZARDOUS COMBUSTION PRODUCTS------Oxides of Carbon (CO and CO_2). Hydrogen Chloride.
SENSITIVITY TO MECHANICAL IMPACT----------Unknown.
SENSITIVITY TO STATIC DISCHARGE----------May be sensitive.

SECTION 06: ACCIDENTAL RELEASE MEASURES

LEAK/SPILL----------Prevent run-off into drains, sewers and other waterways. Use a non-combustible absorbent inorganic material. Ventilate. Eliminate all sources of ignition. Contain spill with dike to prevent entry into sewers and waterways. For large quantities contact the Environmental Authorities.

SECTION 07: HANDLING AND STORAGE

HANDLING PROCEDURES----------Avoid prolonged or repeated skin contact. Handle away from all sources of ignition. Ventilate adequately and wear appropriate breathing apparatus.
STORAGE NEEDS----------Store in a dry, well ventilated area. Store in a cool area, away from all sources of heat and ignition. Keep container closed and out of reach from children and pets when not in use.

SECTION 08: EXPOSURE CONTROLS / PERSONAL PROTECTION

PROTECTIVE EQUIPMENT:----------
EYE/TYPE----------Safely goggles.
RESPIRATORY/TYPE----------If used indoors on a continuous basis or if the TLV is exceeded, the use of a cartridge type respirator (NIOSH/MSHA approved) is recommended.
GLOVES/ TYPE----------Wear impervious gloves (Neoprene or Rubber).
CLOTHING/TYPE----------Not available.
FOOTWEAR/TYPE----------Safety boots as specified in workplace regulations.
OTHER/TYPE----------Eye bath and safety shower.
VENTILATION REQUIREMENTS----------Natural or mechanical (Explosion Proof) ventilation to keep vapour levels well below the TLV.

SECTION 09: PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE----------Liquid.
ODOUR----------Strong solvent odour.
SPECIFIC GRAVITY----------0.84 - 0.88.
ODOUR THRESHOLD (ppm)----------25 ppm.
VAPOUR PRESSURE----------145 mmHg @ 20ºC.
VAPOUR DENSITY (AIR=1)----------2.50.
EVAPORATION RATE----------6.00 (NBUAC = 1).
BOILING POINT (deg C)----------65ºC.
pH----------Not available.
SOLUBILITY IN WATER (% W/W)--------Slightly.
COEFFICIENT OF WATER\OIL----------Not available.
DISTRIBUTION
FREEZING POINT---------- <0ºC.
MELTING POINT (deg C)----------Not available.
MOLECULAR WEIGHT----------

SECTION 10: STABILITY AND REACTIVITY

INCOMPATIBILITY----------Ammonia. Do NOT mix with nitrites. Strong acids and strong bases.
REACTIVITY CONDITIONS----------Thermal.
HAZARDOUS PRODUCTS OF DECOMPOSITION----------Hydrogen Chloride. Oxides of Carbon (CO and C02). Peroxides.

SECTION 11: TOXICOLOGICAL INFORMATION

EXPOSURE LIMIT OF MATERIAL---------50 ppm for Toluene.200 ppm for Methyl Ethyl Ketone.200 ppm for Tetrahydrofuran.
IRRITANCY OF MATERIAL----------Irritant upon prolonged exposure. Eye irritant.
SENSITIZING CAPABILITY OF MATERIAL----------Not available.
CARCINOGENICITY OF MATERIAL--------Not available.
TERATOGENICITY----------No information is available and no adverse teratogenicity effects are anticipated.
MUTAGENICITY----------No information is available and no adverse mutagenicity effects are anticipated.
REPRODUCTIVE EFFECTS----------Not available.
SYNERGISTIC MATERIALS----------Not available.

SECTION 12: ECOLOGICAL INFORMATION

ENVIRONMENTAL---------- Not available. Can be dangerous if allowed to enter drinking water intakes. Product has an unaesthetic appearance and can be a nuisance. Do not contaminate domestic or irrigation water supplies, lakes, streams, ponds and rivers.

BIODEGRADABILITY---------- Not available. The solvent portion of this product is biodegradable and vaporizes rapidly.

VOC INFORMATION---------- This product emits VOC's (volatile organic compounds in use. Always ensure that the use of this product complies with local VOC Emission Regulations, where they exist. The VOC level is 409 grams/litre (SCAQMD Test Method 316A)

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL---------- To be disposed of in accordance with current Local, Provincial and Federal regulations.

SECTION 14: TRANSPORT INFORMATION

T.D.G. CLASSIFICATION----------

(A)---------- (A) In containers up to 1 litre - shipped as CONSUMER COMMODITY. If the shipment exceeds 500 kg in weight, shipped as CONSUMER COMMODITY - FLAMMABLE LIQUIDS N.O.S.(TETRAHYDROFURAN) CLASS 3.

(B)---------- (B) In containers over 1 litre - FLAMMABLE LIQUIDS N.O.S. (TETRAHYDROFURAN) CLASS 3 UN1993 P.G. II.

SECTION 15: REGULATORY INFORMATION

WHMIS CLASSIFICATION---------- Class B Div.2 Flammable Liquid Class D Div.2B Toxic Material.

SECTION 16: OTHER INFORMATION

IMPORTANT:---------- The information on this Material Safety Data Sheet is furnished without warranty, expressed or implied. All the information appearing herein is based upon data obtained from manufacturers and/or recognized technical sources. While the information is believed to be accurate, we make no representations for the accuracy or sufficiency.

Material Safety Data Sheet (MSDS)

Expo 2000

Liquid Glass Cleaner

Specialty Cleaners

SECTION I ▶ PRODUCT IDENTIFICATION

Product Name	Product Type	WHMIS Classification
Expo 2000	Liquid Glass Cleaner	Not applicable

SECTION II ▶ HAZARDOUS INGREDIENTS

Chemical Name	Cas Registry No.	%	Toxicity
Not Applicable			

SECTION III ▶ PHYSICAL DATA

Appearance	Odour	pH	Boiling Point	Specific Gravity	Solubility in Water
Clear blue liquid	Scented	10.5	100 °C	1.0	100 %

SECTION IV ▶ FIRE AND EXPLOSION HAZARD DATA

Flash Point (°C): None **Extinguising media:** Not Applicable

Special fire fighting procedures: None

Unusual fire and explosion hazards: None

SECTION V ▶ TOXICOLOGICAL PROPERTIES

HAZARD RATING: Health = 1 Flammability = 0 Reactivity = 0

Swallowing: Slightly Toxic

Inhalation: Not applicable

Skin Absortion: Not Applicable

Skin Contact: Slight Irritant

Eye Contact: Slight Irritant

Special Warning: None

Rating System
0 = Insignificant
1 = Slight
2 = Moderate
3 = High
4 = Extreme

SECTION VI ▶ FIRST AID MEASURES

Ingestion: Drink 3-4 glasses of milk or water. Call a physician.

Inhalation: Not Applicable

Skin: Flush with water.

Eyes: Flush with water. If irritation persists, call a physician.

SECTION VII ▶ REACTIVITY DATA

Stable: Yes

Conditions to avoid: None

Incompatibility with other materials: None

Hazardous decomposition products: None

Hazardous polymerization: Will not occur.

SECTION VIII ▶ PREVENTIVE MEASURES

Hand protection: None

Eye protection: None

Ventilation: General

Respiratory protection: None

Other protective equipment: None

Steps to be taken in case material is released or spilled: Mop up spillage. Rinse spill area with water and allow to dry.

Waste disposal method: Flush with water into waste systems in accordance with municipal, provincial and federal regulations.

Precautions to be taken in handling and storage: Normal handling processes. Inside storage at 4-40 °C recommended.

Other precautions: Follow label use instructions.

UN: Not Applicable **TDG Class:** None **Packing Group:** Not Applicable

TDG Emergency Telephone Number: 613-996-6666 (COLLECT)

SECTION IX ▶ PREPERATION DATA

Prepared by: D.R. Dunlop **Last updated:** August 1, 2012

Location: Dustbane Products Limited, 25 Pickering Place, Ottawa, Ontario, K1G 5P4 – 613-745-6861

Expo 2000

Liquid Glass Cleaner

"This ecological liquid glass cleaner leaves glass, windows and mirrors sparkling clean and free of streaks."

FEATURES AND BENEFITS

Environmentally responsible: Contains no VOC's, solvents, ammonia or APE's.

Versatile: Effective on automotive glass, windows and mirrors.

Synthetic surfactant: Unaffected by hard water.

Fast drying & non streaking: Reduced labour requirement.

WHERE TO USE

Use on all glass surfaces.

HOW TO USE

Recommended Dilution Rates:

Light cleaning	1:8
Normal cleaning	1:3
Heavy duty cleaning	1:2

Note: Adjust rates to suit your cleaning needs. Over-use will adversely affect fast dry, streak free properties.

Spray evenly on surface to be cleaned. Wipe off with a lint free cloth or paper towel. The use of a squeegee is also recommended.

SPECIFICATIONS

Appearance: Clear blue liquid

Fragrance: Scented

pH (conc.): 10.5

VOC: None

Ammonia: None

Solvent: None

Phosphate: None

WHMIS: No

TDG: No

World Headquarters
Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

MSDS No: M00482

MATERIAL SAFETY DATA SHEET

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Formazin Turbidity Standard 4000 NTU
Catalog Number: 246142

Hach Company
P.O.Box 389
Loveland, CO USA 80539
(970) 669-3050

Emergency Telephone Numbers:
(Medical and Transportation)
(303) 623-5716 24 Hour Service
(515)232-2533 8am - 4pm CST

MSDS Number: M00482
Chemical Name: Not applicable.
CAS No.: Not applicable
Chemical Formula: Not applicable.
Chemical Family: Not applicable
Hazard: May cause irritation. May cause allergic reaction.
Date of MSDS Preparation:
Day: 24
Month: June
Year: 2004

2. COMPOSITION / INFORMATION ON INGREDIENTS

Hexamethylenetetramine
CAS No.: 100-97-0
TSCA CAS Number: 100-97-0
Percent Range: 1.0 - 10.0
Percent Range Units: weight / weight
LD50: Oral mouse LDLo = 512 mg/kg
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: May cause irritation. Flammable solid. May cause allergic reaction.

Demineralized Water
CAS No.: 7732-18-5
TSCA CAS Number: 7732-18-5
Percent Range: 90.0 - 100.0
Percent Range Units: volume / volume
LD50: None reported
LC50: None reported
TLV: Not established
PEL: Not established
Hazard: No effects anticipated.

Formaldehyde
CAS No.: 50-00-0

TSCA CAS Number: 50-00-0
Percent Range: < 0.1
Percent Range Units: weight / weight
LD50: Oral rat LD50 = 100 mg/kg; Oral mouse LD50 = 42 mg/kg
LC50: Inhalation rat LC50 = 203mg/m^3; Inhalation mouse LC50 = 400 mg/m^3/2H
TLV: C: 0.37mg/m^3
PEL: 0.75 ppm. See the OSHA Standard at 29CFR1910.1048.
Hazard: Carcinogen. Causes burns. May cause allergic reaction.

Formazin Polymer
CAS No.: Not available
TSCA CAS Number: Various
Percent Range: < 1.0
Percent Range Units: weight / weight
LD50: None reported.
LC50: None reported.
TLV: Not established.
PEL: Not established.
Hazard: Toxic properties unknown.

3. HAZARDS IDENTIFICATION

Emergency Overview:
Appearance: Turbid, milky suspension
Odor: None
MAY CAUSE EYE AND SKIN IRRITATION
MAY CAUSE ALLERGIC SKIN REACTION

HMIS:
Health: 2
Flammability: 0
Reactivity: 0
Protective Equipment: X - See protective equipment, Section 8.
NFPA:
Health: 2
Flammability: 0
Reactivity: 0
Symbol: Not applicable
Potential Health Effects:
Eye Contact: May cause irritiation
Skin Contact: May cause irritiation May cause allergic reaction
Skin Absorption: None reported
Target Organs: Not applicable
Ingestion: May cause: gastrointestinal irritation
Target Organs: Not applicable
Inhalation: No effects anticipated
Target Organs: Not applicable
Medical Conditions Aggravated: Allergies or sensitivity to hexamethylenetetramine.
Chronic Effects: Chronic overexposure may cause symptoms similar to acute exposure.
Cancer / Reproductive Toxicity Information:
This product does NOT contain any OSHA listed carcinogens.

This product does NOT contain any IARC listed chemicals.

This product does NOT contain any NTP listed chemicals.

Additional Cancer / Reproductive Toxicity Information: Contains: an experimental mutagen.
Toxicologically Synergistic Products: None reported

4. FIRST AID

Eye Contact: Immediately flush eyes with water for 15 minutes. Call physician.
Skin Contact (First Aid): Wash skin with plenty of water. Remove contaminated clothing. Call physician if irritation develops.
Ingestion (First Aid): Induce vomiting using syrup of ipecac or by sticking finger down throat. Never give anything by mouth to an unconscious person. Call physician immediately.
Inhalation: Remove to fresh air.

5. FIRE FIGHTING MEASURES

Flammable Properties: During a fire, this product decomposes to form toxic gases.
Flash Point: Not applicable.
Method: Not applicable
Flammability Limits:
Lower Explosion Limits: Not applicable.
Upper Explosion Limits: Not applicable.
Autoignition Temperature: Not determined.
Hazardous Combustion Products: Toxic fumes of: ammonia formaldehyde nitrogen oxides. carbon monoxide, carbon dioxide.
Fire / Explosion Hazards: None reported
Static Discharge: None reported.
Mechanical Impact: None reported
Extinguishing Media: Use media appropriate to surrounding fire conditions
Fire Fighting Instruction: As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Notice:
Only persons properly qualified to respond to an emergency involving hazardous substances may respond to a spill according to federal regulations (OSHA 29 CFR 1910.120(a)(v)) and per your company's emergency response plan and guidelines/procedures. See Section 13, Special Instructions for disposal assistance.
Containment Technique: Absorb spilled liquid with non-reactive sorbent material. Dike large spills to keep spilled material from entering sewage and drainage systems or bodies of water.
Clean-up Technique: Absorb spilled liquid with non-reactive sorbent material. Sweep up material. Place material in a plastic bag. Mark bag 'Non-hazardous trash', and dispose of as normal refuse. Decontaminate the area of the spill with a soap solution.
Evacuation Procedure: Evacuate as needed to perform spill clean-up. If conditions warrant, increase the size of the evacuation.
Special Instructions (for accidental release): Not applicable
304 EHS RQ (40 CFR 355): Formaldehyde - RQ 100 lbs
D.O.T. Emergency Response Guide Number: Not applicable.

7. HANDLING / STORAGE

Handling: Avoid contact with eyes skin Do not breathe mist or vapors. Wash thoroughly after handling. Maintain general industrial hygiene practices when using this product.

Storage: Keep container tightly closed when not in use. Protect from: heat
Flammability Class: Not applicable

8. EXPOSURE CONTROLS / PROTECTIVE EQUIPMENT

Engineering Controls: Have an eyewash station nearby. Maintain general industrial hygiene practices when using this product.
Personal Protective Equipment:
Eye Protection: safety glasses with top and side shields
Skin Protection: disposable latex gloves
Inhalation Protection: adequate ventilation
Precautionary Measures: Avoid contact with: eyes skin Do not breathe: mist/vapor Wash thoroughly after handling.
TLV: Not established.
PEL: Not established.

9. PHYSICAL / CHEMICAL PROPERTIES

Appearance: Turbid, milky suspension
Physical State: Liquid
Molecular Weight: Not applicable.
Odor: None
pH: 6.4
Vapor Pressure: Not determined.
Vapor Density (air = 1): Not determined.
Boiling Point: ~ 100°C (~ 212°F)
Melting Point: Not applicable.
Specific Gravity (water = 1): 1.002
Evaporation Rate (water = 1): 0.63
Volatile Organic Compounds Content: Not determined.
Partition Coefficient (n-octanol / water): Not applicable.
Solubility:
Water: Miscible.
Acid: Miscible.
Other: Not determined.
Metal Corrosivity:
Steel: Not determined.
Aluminum: Not determined.

10. STABILITY / REACTIVITY

Chemical Stability: Stable when stored under proper conditions.
Conditions to Avoid: Extreme temperatures
Reactivity / Incompatibility: Incompatible with: oxidizers
Hazardous Decomposition: Heating to decomposition releases: ammonia carbon monoxide formaldehyde nitrogen oxides
Hazardous Polymerization: Will not occur.

11. TOXICOLOGICAL INFORMATION

Product Toxicological Data:
LD50: Oral rat LD50 > 5000 mg/kg
LC50: None reported.
Dermal Toxicity Data: None reported.

Skin and Eye Irritation Data: None reported.
Mutation Data: None reported.
Reproductive Effects Data: None reported.
Ingredient Toxicological Data: Hexamethylenetetramine: Oral mouse LDLo = 512 mg/kg.

12. ECOLOGICAL INFORMATION

Product Ecological Information: No specific ecological information available for this product.

Ingredient Ecological Information: Hexamethylenetetramine: Water Pollution Factors: BOD_5: 0.015; 0.026 std. dil. sew.

13. DISPOSAL CONSIDERATIONS

EPA Waste ID Number: Not applicable.
Special Instructions (Disposal): Dilute material with excess water making a weaker than 5% solution. Open cold water tap completely, slowly pour the material to the drain. Flush system with plenty of water.
Empty Containers: Rinse three times with an appropriate solvent. Dispose of empty container as normal trash.
NOTICE (Disposal): These disposal guidelines are based on federal regulations and may be superseded by more stringent state or local requirements. Please consult your local environmental regulators for more information.

14. TRANSPORT INFORMATION

D.O.T.:
D.O.T. Proper Shipping Name: Not Currently Regulated
--
DOT Hazard Class: NA
DOT Subsidiary Risk: NA
DOT ID Number: NA
DOT Packing Group: NA
I.C.A.O.:
I.C.A.O. Proper Shipping Name: Not Currently Regulated
--
ICAO Hazard Class: NA
ICAO Subsidiary Risk: NA
ICAO ID Number: NA
ICAO Packing Group: NA
I.M.O.:
I.M.O. Proper Shipping Name: Not Currently Regulated
--
I.M.O. Hazard Class: NA
I.M.O. Subsidiary Risk: NA
I.M.O. ID Number: NA
I.M.O. Packing Group: NA
Additional Information: This product may be shipped as part of a chemical kit composed of various compatible dangerous goods for analytical or testing purposes. This kit would have the following classification: Proper Shipping Name: Chemical Kit Hazard Class: 9 UN Number 3316.

15. REGULATORY INFORMATION

U.S. Federal Regulations:

O.S.H.A.: This product meets the criteria for a hazardous substance as defined in the Hazard Communication Standard. (29 CFR 1910.1200)

E.P.A.:

S.A.R.A. Title III Section 311/312 Categorization (40 CFR 370): Immediate (Acute) Health Hazard Delayed (Chronic) Health Hazard

S.A.R.A. Title III Section 313 (40 CFR 372): This product contains a chemical(s) subject to the reporting requirements of Section 313 of Title III of SARA.

Formaldehyde

302 (EHS) TPQ (40 CFR 355): Formaldehyde 500 lbs.

304 CERCLA RQ (40 CFR 302.4): Formaldehyde 1000 lbs.

304 EHS RQ (40 CFR 355): Formaldehyde - RQ 100 lbs

Clean Water Act (40 CFR 116.4): Formaldehyde - RQ 100 lbs.

RCRA: Contains no RCRA regulated substances.

C.P.S.C.: Not applicable

State Regulations:

California Prop. 65: No Prop. 65 listed chemicals are present in this product.

Identification of Prop. 65 Ingredient(s): None

Trade Secret Registry: Not applicable

National Inventories:

U.S. Inventory Status: All ingredients in this product are listed on the TSCA 8(b) Inventory (40 CFR 710).

TSCA CAS Number: Not applicable.

16. OTHER INFORMATION

Intended Use: Standard solution

References: 29 CFR 1900 - 1910 (Code of Federal Regulations - Labor). Air Contaminants, Federal Register, Vol. 54, No. 12. Thursday, January 19, 1989. pp. 2332-2983. CCINFO RTECS. Canadian Centre for Occupational Health and Safety. Hamilton, Ontario Canada: 30 June 1993. Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Fire Protection Guide on Hazardous Materials, 10th Ed. Quincy, MA: National Fire Protection Association, 1991. IARC Monographs on the Evaluation of the Carcinogenic Risks to Humans. World Health Organization (Volumes 1-42) Supplement 7. France: 1987. Lefevre, Marc J. First Aid Manual for Chemical Accidents, 2nd Ed. New York: Van Nostrand Reinhold Company, 1989. List of Dangerous Substances Classified in Annex I of the EEC Directive (67/548) - Classification, Packaging and Labeling of Dangerous Substances, Amended July 1992. Sixth Annual Report on Carcinogens, 1991. U.S. Department of Health and Human Services. Rockville, MD: Technical Resources, Inc. 1991. Technical Judgment. TLV's Threshold Limit Values and Biological Exposure Indices for 1992-1993. American Conference of Governmental Industrial Hygienists, 1992. Verschueren, Karel. Handbook of Environmental Data on Organic Chemicals. New York: Van Nostrand Reinhold Co., 1977.

Revision Summary: European MSDS Only Updates in Heading(s) 2,

Legend:

NA - Not Applicable	w/w - weight/weight
ND - Not Determined	w/v - weight/volume
NV - Not Available	v/v - volume/volume

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

THE INFORMATION CONTAINED HEREIN IS BASED ON DATA CONSIDERED TO BE ACCURATE. HOWEVER, NO WARRANTY IS EXPRESSED OR IMPLIED REGARDING THE ACCURACY OF THESE DATA OR THE RESULTS TO BE OBTAINED FROM THE USE THEREOF.

HACH COMPANY ©2007

Material Safety Data Sheet

HYDREX ™ EXTREME

1 . Product and company identification

Product name : HYDREX ™ EXTREME

Code : HDXEXT

Material uses : HYDREX EXTREME is a premium Multi-grade hydraulic fluid designed for year round use in hydraulic systems that operate in extremely low temperatures as well as moderate to high temperatures.

Manufacturer : Petro-Canada Lubricants Inc.
2310 Lakeshore Road West
Mississauga, Ontario
Canada L5J 1K2

In case of emergency : Suncor Energy: 403-296-3000
Canutec Transportation: 613-996-6666
Poison Control Centre: Consult local telephone directory for emergency number(s).

2 . Hazards identification

Physical state : Viscous liquid.

Odor : Mild petroleum oil like.

WHMIS (Canada) : Not controlled under WHMIS (Canada).

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency overview : No specific hazard.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Skin : Slightly irritating to the skin.

Eyes : Slightly irritating to the eyes.

Potential chronic health effects

Chronic effects : No known significant effects or critical hazards.

Carcinogenicity : Not listed as carcinogenic by OSHA, NTP or IARC.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure : Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated skin exposure can produce local skin destruction or dermatitis.

See toxicological information (Section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	Mixture	-

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

The base oil may be a mixture of the following CAS#s: 8042-47-5, 64742-46-7, 64742-47-8, 64742-53-6, 64742-54-7, 64742-55-8, 72623-84-8, 72623-85-9, 72623-86-0, 72623-87-1, 178603-64-0, 178603-65-1, 178603-66-2, 445411-73-4

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4 . First aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

Flammability of the product : May be combustible at high temperature.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Products of combustion : Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), phosphorus oxides (POx), silicon oxides (SiOx), hydrogen sulfide (H_2S), Carbon disulphide, aldehydes, diphenylamine, alkenes, smoke and irritating vapours as products of incomplete combustion.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Low fire hazard. This material must be heated before ignition will occur.

Special remarks on explosion hazards : Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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6 . Accidental release measures

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	**ACGIH TLV (United States). Notes: (Mineral oil)** TWA: 5 mg/m³, (Inhalable fraction) 8 hour(s).

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: organic vapor filter

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Recommended: neoprene, nitrile, polyvinyl alcohol (PVA), Viton®.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

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8 . Exposure controls/personal protection

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Viscous liquid.

Flash point : Open cup: 141°C (285.8°F) [Cleveland.]

Auto-ignition temperature : Not available.

Flammable limits : Not available.

Color : Pale, straw-yellow.

Odor : Mild petroleum oil like.

Odor threshold : Not available.

pH : Not available.

Boiling/condensation point : Not available.

Melting/freezing point : Not available.

Relative density : 0.8519 kg/L @ 15°C (59°F)

Vapor pressure : Not available.

Vapor density : Not available.

Volatility : Not available.

Evaporation rate : Not available.

Viscosity : 33.6 cSt @ 40°C (104°F), 13.0 cSt @ 100°C (212°F), VI=403

Pour point : -54°C (-65°F)

Solubility : Insoluble in water.

10 . Stability and reactivity

Chemical stability : The product is stable.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Materials to avoid : Reactive with oxidizing agents, acids and alkalis.

Hazardous decomposition products : May release COx, H_2S, aldehydes, Carbon disulphide, alkyl mercaptans, sulfides, smoke and irritating vapours when heated to decomposition.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>2.3 mg/l	4 hours

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitizer

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11 . Toxicological information

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	A4	-	-	-	-	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	Not regulated.	-	-	-		-
DOT Classification	Not regulated.	-	-	-		-

PG* : Packing group

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15 . Regulatory information

United States

HCS Classification : Not regulated.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

Canada inventory : All components are listed or exempted.

United States inventory (TSCA 8b) : All components are listed or exempted.

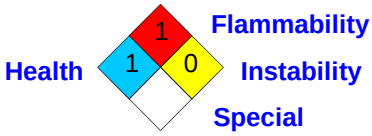
Europe inventory : At least one component is not listed in EINECS but all such components are listed in ELINCS.
Please contact your supplier for information on the inventory status of this material.

16 . Other information

Hazardous Material Information System (U.S.A.) :

Health	1
Flammability	1
Physical hazards	0
Personal protection	B

National Fire Protection Association (U.S.A.) :



References : Available upon request.
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Date of printing : **12/4/2012.**

Date of issue : 4 December 2012

Date of previous issue : 12/3/2012.

Responsible name : **Product Safety - RS**

Indicates information that has changed from previously issued version.

For Copy of (M)SDS : Internet: lubricants.petro-canada.ca/msds

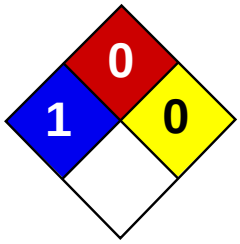
Telephone: 1-800-268-5850; Fax: 1-800-201-6285

For Product Safety Information: (905) 804-4752

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.







Material Safety Data Sheet
Hydrogen Peroxide - 3% MSDS

Section 1: Chemical Product and Company Identification

Product Name: Hydrogen Peroxide - 3%

Catalog Codes: SLH2497, SLH1180

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Water; Hydrogen Peroxide

CI#: Not applicable.

Synonym: Hydrogen Peroxide 3% Solution; Hydrogen Peroxide Topical Solution

Chemical Name: Not applicable.

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Water	7732-18-5	97
Hydrogen Peroxide	7722-84-1	3

Toxicological Data on Ingredients: Hydrogen Peroxide: ORAL (LD50): Acute: 2000 mg/kg [Mouse]. DERMAL (LD50): Acute: 4060 mg/kg [Rat]. 2000 mg/kg [pig]. VAPOR (LC50): Acute: 2000 mg/m 4 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of eye contact (irritant). Slightly hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation (lung sensitizer). Non-corrosive for skin. Non-corrosive to the eyes. Non-corrosive for lungs. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation.

Potential Chronic Health Effects:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH [Hydrogen Peroxide]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Hydrogen Peroxide]. Mutagenic for bacteria and/or yeast. [Hydrogen Peroxide]. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to blood, upper respiratory tract, skin, eyes, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Serious Inhalation: Not available.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Explosion Hazards in Presence of Various Substances:
Non-explosive in presence of open flames and sparks, of shocks, of heat, of reducing materials, of combustible materials, of organic materials, of metals, of acids, of alkalis.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
Most cellulose (wood, cotton) materials contain enough catalyst to cause spontaneous ignition with 90% Hydrogen Peroxide. Hydrogen Peroxide is a strong oxider. It is not flammable itself, but it can cause spontaneous combustion of flammable materials and continued support of the combustion because it liberates oxygen as it decomposes. Hydrogen peroxide mixed with magnesium and a trace of magnesium dioxide will ignite immediately.

Special Remarks on Explosion Hazards:
Soluble fuels (acetone, ethanol, glycerol) will detonate on a mixture with peroxide over 30% concentration, the violence increasing with concentration. Explosive with acetic acid, acetic anhydride, acetone, alcohols, carboxylic acids, nitrogen containing bases, As2S3, Cl2 + KOH, FeS, FeSO4 + 2 methylpryidine + H2SO4, nitric acid, potassium permanganate, P2O5, H2Se, Alcohols + H2SO4, Alcohols + tin chloride, Antimoy trisulfide, chlorosulfonic acid, Aromatic hydrocarbons + trifluoroacetic acid, Azeliac acid + sulfuric acid (above 45 C), Benzenesulfonic anhydride, tert-butanol + sulfuric acid, Hydrazine, Sulfuric acid, Sodium iodate, Tetrahydrothiophene, Thiodiglycol, Mercurous oxide, mercuric oxide, Lead dioxide, Lead oxide, Manganese dioxide, Lead sulfide, Gallium + HCl, Ketenes + nitric acid, Iron (II) sulfate + 2-methylpyridine + sulfuric acid, Iron (II) sulfate + nitric acid, + sodium carboxymethylcellulose (when

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill:
Absorb with an inert material and put the spilled material in an appropriate waste disposal. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers. Do not store above 30°C (86°F). Sensitive to light. Store in light-resistant containers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Not available.

Taste: Bitter.

Molecular Weight: Not applicable.

Color: Colorless. Clear

pH (1% soln/water): Neutral.

Boiling Point: The lowest known value is 100°C (212°F) (Water). Weighted average: 101.56°C (214.8°F)

Melting Point: May start to solidify at -0.43°C (31.2°F) based on data for: Hydrogen Peroxide.

Critical Temperature: Not available.

Specific Gravity: Weighted average: 1.01 (Water = 1)

Vapor Pressure: The highest known value is 2.3 kPa (@ 20°C) (Water). Weighted average: 2.24 kPa (@ 20°C)

Vapor Density: The highest known value is 1.2 (Air = 1) (Hydrogen Peroxide). Weighted average: 0.64 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility: Soluble in cold water, diethyl ether.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Light, excess heat, combustible materials, incompatible materials (Hydrogen Peroxide)

Incompatibility with various substances: Slightly reactive to reactive with reducing agents, combustible materials, organic materials, metals, acids, alkalis.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Light Sensitive. Incompatible with reducing materials, ethers (dioxane, furfuran), oxidizing materials, Metals(eg. potassium, sodium lithium, iron, copper, brass, bronze, chromium, zinc, lead, silver), metal oxides (eg. cobalt oxide, iron oxide, lead oxide, lead hydroxide, manganese oxide), metal salts (eg. calcium permanganate), manganese, asbestos, vanadium, platinium, tungsten, molybdeum, triethylamine, palladium, sodium pyrophosphate, carboxylic acids, cyclopentadiene, formic acid, rust, ketones, cyanides, sodium carbonate alcohols, sodium borate, aniline, mercurous chloride, rust sodium pyrophosphate, hexavalent chromium compounds, tetrahydrofuran, sodium fluoride organic matter, potassium permanganate, urea, chlorosulfonic acid, manganese dioxide, hydrogen selenide, charcoal, coal, sodium borate, alkalies, cyclopentadiene, glycerine. Caused to decompose catalytically by metals (in order of decreasing effectiveness): Osmium, Palladium, Platinum, Iridium, Gold, Silver, Manganese, Cobalt, Copper, Lead (Hydrogen Peroxide) A solution of 3% Hydrogen peroxide is also incompatible with: Albumin, Alkali citrates, Balsam Peru, Phenol, Tinctures, and Lime water

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact.

Toxicity to Animals:
Acute oral toxicity (LD50): 66667 mg/kg (Mouse) (Calculated value for the mixture). Acute dermal toxicity (LD50): 66667 mg/kg (pig) (Calculated value for the mixture).

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified A3 (Proven for animal.) by ACGIH [Hydrogen Peroxide]. Classified 3 (Not classifiable for human.) by IARC [Hydrogen Peroxide]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Hydrogen Peroxide]. Mutagenic for bacteria and/or yeast. [Hydrogen Peroxide]. Contains material which may cause damage to the following organs: blood, upper respiratory tract, skin, eyes, central nervous system (CNS).

Other Toxic Effects on Humans:
Slightly hazardous in case of skin contact (irritant, permeator), of ingestion, of inhalation (lung sensitizer). Non-corrosive for skin. Non-corrosive to the eyes. Non-corrosive for lungs.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:
May may affect genetic material. May cause cancer (be tumorigenic) based on animal data. IARC states that there is either no adequate human data or inadequate evidence for carcinogenicity in humans. (Hydrogen Peroxide)

Special Remarks on other Toxic Effects on Humans:
Acute Potential Health Effects: Skin: May cause skin irritation. May cause reddening of the skin and temporary discoloration/ whitening of the skin. Absorption into skin may affect behavior, brain, respiration (pulmonary edema) Eyes: Causes eye irritation. Symptoms may include burning sensation, redness, inflammaton, pain and possible corneal edema, and corneal cloudiness. Vapors may cause eye irritation. Inhalation: Not expected to be a health hazard under normal conditions. May cause respiratory tract and mucous membrane irritation with coughing, laryngitis, bronchitis, pulmonary edema. May affect respiration (dyspnea). May also cause headache, nausea, and vomiting. Ingestion: Ingestion of large doses may cause digestive tract/gastrointestinal tract irritation (irritation or possible blistering of the tongue, buccal muosa/mouth, throat, and stomach) with nausea, vomiting, hypermotility, and diarrhea. May cause difficulty in swallowing, stomach distension. May affect blood (change in leukocyte count, pigmented or nucleated red blood cells). May affect behavior/central nervous system. May affect cardiovascular system and cause vascular collapse and damage. Chronic Potential Health Effects: Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated ingestion may affect metabolism (weight loss). Prolonged or repeated inhalation may affect respiration, blood. Continue use of hydrogen peroxide solution as a mouth wash, even at half-strength, may cause hypertrophied filiform papillae of the tongue ("hairy tongue"). But these disappear after it is discontinued

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Not applicable.

Section 15: Other Regulatory Information

Federal and State Regulations:
New York acutely hazardous substances: Hydrogen Peroxide Rhode Island RTK hazardous substances: Hydrogen Peroxide Pennsylvania RTK: Hydrogen Peroxide Florida: Hydrogen Peroxide Minnesota: Hydrogen Peroxide Massachusetts RTK: Hydrogen Peroxide New Jersey: Hydrogen Peroxide TSCA 8(b) inventory: Hydrogen Peroxide

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS C: Oxidizing material.

DSCL (EEC):
This product is not classified according to the EU regulations. Not applicable.

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 0

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Splash goggles.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

Created: 10/09/2005 05:46 PM

Last Updated: 05/21/2013 12:00 PM

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HENKEL CORPORATION
6685 KENNEDY ROAD,SUITE #1
MISSISSAUGA, ONTARIO CANADA L5T 3A5
(905) 696-2770

PRODUCT : LEPAGE GEL CONTACT CEMENT



SECTION 01: PRODUCT INFORMATION

MANUFACTURER.....HENKEL CORPORATION
6685 KENNEDY ROAD, SUITE #1
MISSISSAUGA, ONTARIO
CANADA ; L5T 3A5
(905)696-2770
AFTER HOURS - CANUTEC (613) 996-6666
WHMIS CLASSIFICATION WHMIS.....B2 D2B. D2A. D2B, D2A, E. WHEN THIS PRODUCT IS LABELLED AS A CONSUMER
CLASSIFICATION WHMIS PRODUCT IT IS EXEMPT FROM WHMIS REGULATIONS. (SEE SECTION 12(f) OF THE
CLASSIFICATION WHMIS HAZARDOUS PRODUCTS ACT).
CLASSIFICATION WHMIS
CLASSIFICATION
T.D.G. CLASSIFICATION.....ADHESIVES, CLASS 3, UN 1133, PKG GRP II. WHEN THIS PRODUCT IS LABELLED AS
A CONSUMER COMMODITY IT IS EXEMPT FROM T.D.G. REGULATIONS
PRODUCT NAME.....LEPAGE GEL CONTACT CEMENT
CHEMICAL FAMILY.....CONTACT CEMENT
MATERIAL USE.....WOODWORKING ADHESIVE

SECTION 02: HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS	%	EXPOSURE LEVELS	C.A.S. #	LD/50, ROUTE, SPECIES	LC/50, ROUTE, SPECIES
Solvent naptha (petroleum), light aliphatic	30-60	TLV: 300ppm 8hrTWA PEL: 500ppm 8hrTWA	64742-89-8	>5g/kg,oral,rat >3.16g/kg,skin, rabbit	Not available
Toluene	10-30	TLV-TWA:188mg/m3 PEL-TWA:375mg/m3	108-88-3	2.6-7.5g/kg,oral,rat 14.1ml/kg,skin,rbt	8800 ppm,4hr,rat
2-Butanone	7-13	PEL-TWA: 200 ppm	78-93-3	2.7g/kg,oral,rat 4.0g/kg,oral,mouse 6.5g/kg,skin,rabbit	23.5g/m3/8hr., rat
Magnesium oxide	0.5-1.5	PEL-TWA: 15 mg/m3 TLV-TWA: 10 mg/m3	1309-48-4	810 mg/kg oral,mouse	Not availabe

SECTION 03: PHYSICAL DATA

PHYSICAL STATE.....Gel
APPEARANCE & ODOUR.....Light yellow gel. Solvent odour
ODOUR THRESHOLD (ppm).....Not available
VAPOUR PRESSURE (mm Hg).....Not available
VAPOUR DENSITY (AIR=1).....3.0
BY VOLUME
BY WEIGHT
EVAPORATION RATE.....>1 (Butyl Acetate = 1)
BOILING POINT (deg C).....66 deg C
pH.....Not available
SPECIFIC GRAVITY.....0.840
SOLUBILITY IN WATER (% W/W).....Insoluble
COEFFICIENT OF WATER/OIL.....Not available
DISTRIBUTION

SECTION 04: FIRE & EXPLOSION DATA

FLAMMABILITY.....EXTREMELY FLAMMABLE
IF YES, UNDER WHICH.....Excessive heat, sparks and open flame. Vapours may cause flash fires.
CONDITIONS? Vapours may ignite explosively.
AUTO IGNITION TEMPERATURE.....> 250 deg C
EXTINGUISHING MEDIA.....Carbon dioxide, dry chemical, foam
SPECIAL PROCEDURES.....Fire fighters should be equipped with self-contained breathing apparatus
to protect against potentially toxic and irritating fumes. A solid stream
of water directed on hot and/or burning material may cause violent
frothing. Isolate from heat, electrical equipment, sparks and open flame.
FLASH POINT (C), METHOD.....< -7 deg C
LOWER FLAMMABLE LIMIT (% VOL)....1.0
UPPER FLAMMABLE LIMIT (% VOL)....10.0
HAZARDOUS COMBUSTION PRODUCTS....Hydrocarbons and traces of chlorine compounds. Oxides of carbon (CO,CO2).
Smoke

SECTION 05: REACTIVITY DATA

YES.....Stable, hazardous polymerization will not occur. Under normal conditions
NO, WHICH CONDITIONS ?
COMPATIBILITY WITH OTHER
SUBSTANCES:

PRODUCT : LEPAGE GEL CONTACT CEMENT

SECTION 05: REACTIVITY DATA

YES
NO, WHICH ONES?.....Strong oxidizing agents
REACTIVITY CONDITIONS ?
HAZARDOUS PRODUCTS OF.....Smoke. Chlorine compounds. Oxides of carbon (CO,CO2) at high temperatures.
DECOMPOSITION

SECTION 06: TOXICOLOGICAL PROPERTIES

SKIN CONTACT.....May cause irritation, especially on prolonged contact.
SKIN ABSORPTION.....No data
EYE CONTACT.....On contact, will bond eyelids together. Vapours cause tearing. May cause moderate to severe irritation. Causes corneal damage.
INHALATION.....High vapour concentrations are irritating to the eyes and the respiratory tract. May cause headaches and dizziness; are anaesthetic. May affect central nervous system.
INGESTION.....May cause liver damage. May cause kidney damage. Product may be toxic if ingested.
EFFECTS OF ACUTE EXPOSURE.....Refer to route of entry.
EFFECTS OF CHRONIC EXPOSURE.....Dermatitis. May aggravate existing eye, skin, and lung conditions.
LD 50 OF MATERIAL, SPECIES &.....See hazardous ingredients section (2)
ROUTE
LC 50 OF MATERIAL, SPECIES &.....See hazardous ingredients section (2).
ROUTE
EXPOSURE LIMIT OF MATERIAL.....Not available
IRRITANCY OF MATERIAL.....Eye irritation:. Moderate to severe. Skin irritation:. Components of this formulation known to cause irritation.
SENSITIZING CAPABILITY OF.....Refer to route of entry
MATERIAL
CARCINOGENICITY OF MATERIAL.....Refer to route of entry.
TERATOGENICITY OF MATERIAL.....A component of this product has exhibited evidence of teratogenic effects in laboratory tests
SYNERGISTIC MATERIALS.....Not available

SECTION 07: PREVENTATIVE MEASURES

GLOVES/ TYPE.....Wear impervious gloves (in neoprene or rubber).
RESPIRATORY/TYPE.....None required under normal use. Use a NIOSH/MSHA approved respirator whenever mist or spray is generated.
EYE/TYPE.....Safety glasses with side-shields
FOOTWEAR/TYPE.....Standard work shoes.
CLOTHING/TYPE.....Standard work clothes.
VENTILATION REQUIREMENTS.....Use adequate local exhaust ventilation.
LEAK/SPILL.....Eliminate all sources of ignition. Evacuate all non-essential personnel. Clean up spills immediately. For small spills:. Absorb residual material with sand, or other absorbent material. For large spills:. Dike area to prevent spreading. Isolate product until disposal.
WASTE DISPOSAL.....In accordance with municipal, provincial and federal regulations. Since emptied container retains product residues all labelled hazard precautions must be observed.
HANDLING PROCEDURES AND.....Avoid breathing vapours. Use adequate ventilation. Avoid skin and eye
EQUIPMENT contact. Wear chemical splash goggles, gloves, and protective clothing. Keep away from heat, sparks, and open flame. When using, do not smoke.
SPECIAL SHIPPING INSTRUCTIONS....Ship in accordance with applicable Transportation of Dangerous Goods (TDG) regulations. Protect against physical damage.

SECTION 08: FIRST AID MEASURES

EYE CONTACT.....Immediately flush with water for a minimum of 15 minutes holding lids apart to ensure flushing of entire surface. Washing within 1 minute is essential to achieve maximum effectiveness.
INGESTION.....Dilute with large quantities of water or milk. DO NOT induce vomiting. Get immediate medical attention. Never give anything by mouth to an unconscious person.
INHALATION.....Remove victim to fresh air. If not breathing qualified personnel should administer artificial respiration. Get medical attention.
SKIN CONTACT.....Remove contaminated clothing. Wash affected area with water and soap. Seek medical attention if irritation occurs or persists.

SECTION 09: PREPARATION INFORMATION

PREPARED BY:.....Regulatory Affairs
TELEPHONE NUMBER:.....(440)937-7000

PRODUCT : LEPAGE GEL CONTACT CEMENT

SECTION 09: PREPARATION INFORMATION

DISCLAIMER2:.....All information, recommendations, and suggestions appearing herein concerning our product are based upon tests and data believed to be reliable. However, it is the user's responsibility to determine the safety, toxicity, and suitability for his own use of the product described herein. Since the actual use by others is beyond our control, no guarantee, express or implied, is made by Henkel Corporation as to the effects of such use, the results obtained, or the safety and toxicity of the product nor does Henkel Corporation assume any liability arising out of use, by others, of the product referred to herein. The information herein is not to be construed as absolutely complete since additional information may be necessary or desirable when particular or exceptional conditions or circumstan ces exist or because of applicable laws or government regulations.

PREPARATION DATE.....FEB 04/2008 Rev 2/4/11

CANUTEC EMERGENCY (613) 996-6666

Material Safety Data Sheet

Revision Number: 002.0 **Issue date:** 07/08/2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: **LePage® PL9000® Heavy Duty Construction Adhesive**
Product use: Solvent based adhesive

IDH number: 1421925

Region: Canada

Company address:
Henkel Canada Corporation
2515 Meadowpine Boulevard
Mississauga, Ontario L5N 6C3

Contact information:
Telephone: 800.624.7767
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical state: pasty
Color: Beige
Odor: Slightly, mineral-oil-like

WHMIS hazard class: B.2, D.2.B

DANGER**:** FLAMMABLE LIQUID AND VAPOR.
VAPOR MAY CAUSE FLASH FIRE.
MAY BE HARMFUL IF SWALLOWED OR INHALED.
MAY CAUSE EYE, SKIN AND RESPIRATORY TRACT IRRITATION.

Relevant routes of exposure: Inhalation, Skin contact

Potential Health Effects

Inhalation: May irritate the nose and respiratory system. Vapors may cause headaches, nausea, dizziness and respiratory tract irritation. Reports have associated repeated and prolonged overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal.

Skin contact: Prolonged and/or repeated skin contact with this product may cause irritation/dermatitis.

Eye contact: Contact with eyes can cause eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Ingestion: Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Existing conditions aggravated by exposure: Eye, skin and respiratory disorders.

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
n-Heptane	142-82-5	10 - 30
Limestone	1317-65-3	10 - 30
Phenolic resin	25085-50-1	10 - 30
Methylcyclohexane	108-87-2	1 - 5
Octane	111-65-9	1 - 5
Magnesium oxide	1309-48-4	1 - 5

4. FIRST AID MEASURES

Inhalation: If inhaled, immediately remove the affected person to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. If symptoms develop and persist, get medical attention.

Skin contact: Immediately flush skin with plenty of water (using soap, if available). Remove contaminated clothes. If symptoms develop and persist, get medical attention.

Eye contact: In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate medical attention.

Ingestion: Do not induce vomiting, seek medical advice immediately.

5. FIRE FIGHTING MEASURES

Flash point: -14 °C (6.8 °F) no method

Autoignition temperature: Not available.

Flammable/Explosive limits - lower: Not available.

Flammable/Explosive limits - upper: Not available.

Extinguishing media: Water spray (fog), foam, dry chemical or carbon dioxide. Do not direct a solid stream of water or foam into hot, burning pools; this may result in frothing and increase fire intensity. In case of fire, keep containers cool with water spray.

Special firefighting procedures: Wear a self-contained breathing apparatus with a full face piece operated in pressure-demand or other positive pressure mode. Wear full protective clothing.

Unusual fire or explosion hazards: Closed containers may explode when exposed to extreme heat. Vapors may form explosive mixtures with air. Vapors are heavier than air and may travel along floor to an ignition source. Fumes and vapors from thermal decompositions vary in composition and toxicity.

Hazardous combustion products: Carbon dioxide. Carbon monoxide. Acrid smoke and fumes.

Sensitivity to Mechanical Impact: Not sensitive to mechanical impact.

Sensitivity to static discharge: Electrostatic charge may build-up during handling. Grounding of equipment is recommended.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Eliminate all sources of ignition or flammables that may come into contact with a spill of this material. Ventilate area.

Clean-up methods: Absorb spill with inert material. Shovel material into appropriate container for disposal. Wear suitable protective clothing, gloves and eye/face protection. Clean residue with soap and water. Do not allow product to enter sewer or waterways.

7. HANDLING AND STORAGE

Handling: During use and until all vapors are gone: Keep area ventilated - do not smoke; extinguish all flames, pilot lights, and heaters; turn off stoves, electrical tools and appliances, and any other sources of ignition. Do not inhale vapors and fumes. Avoid contact with eyes, skin and clothing. Do not taste or swallow. Keep out of the reach of children. Wash thoroughly after handling.

Storage: Keep away from heat, spark and flame. Keep containers closed when not in use.

For information on product shelf life, please review labels on container or check the Technical Data Sheet.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
n-Heptane	500 ppm STEL 400 ppm TWA	500 ppm (2,000 mg/m3) TWA	None	None
Limestone	10 mg/m3 TWA Total dust.	5 mg/m3 TWA Respirable fraction. 15 mg/m3 TWA Total dust.	None	None
Phenolic resin	None	None	None	None
Methylcyclohexane	400 ppm TWA	500 ppm (2,000 mg/m3) TWA	None	None
Octane	300 ppm TWA	500 ppm (2,350 mg/m3) TWA	None	None
Magnesium oxide	10 mg/m3 TWA Inhalable fraction.	15 mg/m3 TWA Total particulate.	None	None

Engineering controls: Local exhaust ventilation is recommended when general ventilation is not sufficient to control airborne contamination below occupational exposure limits.

Respiratory protection: When workplace hazards warrant the use of a respirator, appropriate respirators must be used. Use NIOSH approved respirator if there is potential to exceed exposure limit(s).

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use impermeable gloves and protective clothing as necessary to prevent skin contact.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: pasty
Color: Beige
Odor: Slightly, mineral-oil-like
Odor threshold: Not available.
pH: not applicable
Vapor pressure: Not available.
Boiling point/range: 65 °C (149°F)
Melting point/ range: Not available.
Specific gravity: 0.92 - 0.98
Vapor density: > 1 Heavier than air
Flash point: -14 °C (6.8 °F) no method
Flammable/Explosive limits - lower: Not available.
Flammable/Explosive limits - upper: Not available.
Autoignition temperature: Not available.
Evaporation rate: Not available.
Solubility in water: Insoluble
Partition coefficient (n-octanol/water): Not available.
VOC content: 39 %; 370 g/l (calculated)

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions of storage and use.

Hazardous reactions: Will not occur.

Hazardous decomposition products: Carbon dioxide, carbon monoxide and irritating and/or toxic gases and particulate may be generated by thermal decomposition or combustion.

Incompatible materials: Strong oxidizing agents (peroxides, chlorine, strong acids). Avoid excessive heat and ignition sources.

Conditions to avoid: Heat, flames, sparks and other sources of ignition.

11. TOXICOLOGICAL INFORMATION

Toxicologically synergistic products: Not available.

Refer to the following for Irritancy of Product, Sensitization to Product, Carcinogenicity, Reproductive Toxicity, Teratogenicity, and Mutagenicity.

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)	ACGIH Carcinogen
n-Heptane	No	No	No	No
Limestone	No	No	No	No
Phenolic resin	No	No	No	No
Methylcyclohexane	No	No	No	No
Octane	No	No	No	No
Magnesium oxide	No	No	No	Group A4

Hazardous components	LD50s and LC50s	Health Effects/Target Organs
n-Heptane	Inhalation LC50 (RAT, 4 h) = 103 mg/l	Central nervous system, Irritant
Limestone	None	Nuisance dust
Phenolic resin	None	Irritant, Allergen
Methylcyclohexane	None	Central nervous system, Irritant, Kidney, Liver
Octane	Inhalation LC50 (RAT, 4 h) = 118 mg/l	Central nervous system, Irritant, Lung
Magnesium oxide	None	Blood, Central nervous system, Immune system, Irritant

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Dispose of according to Federal, State and local governmental regulations.

14. TRANSPORT INFORMATION

The shipping classification in this section are for bulk packaging only. Shipping classification may be different for non-bulk packaging as exceptions may apply. Refer to shipping documents for package specific transportation classification.

Canada Transportation of Dangerous Goods - Ground

Proper shipping name: ADHESIVES
Hazard class or division: 3
Identification number: UN 1133
Packing group: II

International Air Transportation (ICAO/IATA)

Proper shipping name:	Adhesives
Hazard class or division:	3
Identification number:	UN 1133
Packing group:	II

Water Transportation (IMO/IMDG)

Proper shipping name:	ADHESIVES (n-Heptane)
Hazard class or division:	3
Identification number:	UN 1133
Packing group:	II
Marine pollutant:	n-Heptane

15. REGULATORY INFORMATION

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian Domestic Substances List.

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: This Material Safety Data Sheet contains changes from the previous version in Section(s): 1,3,8,14

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulation (CPR), and the MSDS contains all the information required by the CPR.

Prepared by: Mary Ellen Roddy, Sr. Regulatory Affairs Specialist

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SECTION I-MATERIAL IDENTIFICATION AND USE

Material Name/Identifier:	Lock- De-Icer	Stock No.	615
Manufacturer's Name:	Kleen-Flo Tumbler Industries Ltd	Street Address:	75 Advance Blvd.
City:	Brampton	Province:	Ontario
Postal Code:	L6T 4N1	Emergency Phone #:	(905) 793-4311
Chemical Name:	N/A (mixture)	Chemical Family:	N/A
Chemical Formula:	N/A (Mixture)	Trade Names & Synonyms:	None
Material Use:	De-icer	Molecular Weight:	N/A (Mixture)

SECTION II-HAZARDOUS INGREDIENTS OF MATERIAL

Hazardous Ingredients	C.A.S.	Approximate Concentration	LD50 Species & Route	LC50 Species & Route
Isopropyl Alcohol	67-63-0	70-90%	>4720mg/kg rat-oral	12000ppm(8hr) rat-inh.
Naphthenic Oil	64742-34-3	5-15%	3000mg/kg rat-oral	N/Av.

SECTION III-PHYSICAL DATA FOR MATERIAL

Physical State:	Liquid	Odour/Appearance:	Clear, pale,yellow liquid
Specific Gravity:	0.8	Odour Threshold(p.p.m.):	N/E
Boiling Point:	85°C	Evaporation Rate:	N/E
Freezing Point:	>-40°C	Solubility in Water:	60% approx.
% Volatile(by volume):	13-15%	Vapour Pressure(mm)Hg:	N/Av.
Vapour Density(Air=1):	2	Coefficient of Water/Oil Distribut:	N/E
pH	N/Av.		

SECTION IV-FIRE AND EXPLOSION HAZARD OF MATERIAL

Flammability Yes/No	Yes	If yes under which conditions?:	Open flames and sparks
Auto Ignition Temperature:	N/E	Means of Extinction:	Dry chemical; Carbon dioixde, Foam
Flashpoint and Method:	15°C	Hazardous Combustion Products:	Carbon dioxide and
			Carbon monoxide
Upper Flammable limit (%vol)	12	Lower Flammable Limit (% by volume):	2
Explosion Data:	Sensitivity to Mechanical Impact: N/Av.	Sensitivity to Static Discharge:	N/Av.

SECTION V-REACTIVITY DATA

Chemical Stability Yes/No:	Yes	If NO under which conditions?:	
Incompatibility to Other Substances Yes/No:	Yes	If so which ones?	
		Strong oxidizing agents; may react with aluminum.	
Reactivity and under what conditions?	No		
Hazardous Decomposition Products:	Sparks, open flames, all other ignition sources		

N/E: not established N.Ap.: Not applicable N/Av.: not available

SECTION VI-TOXICOLOGICAL PROPERTIES OF PRODUCT

Route of Entry: ALL Routes	--SKIN CONTACT --SKIN ABSORPTION --EYE CONTACT --INHALATION --INGESTION		
Effects of Acute Exposure:	Moderately irritating to skin and eyes. May cause conjunctivitis (eyes).		
	Inhalation of high concentration (vapours) can cause headache, nausea, vomiting, central nervous system depression.		
Effects of Chronic Exposure:	None known		
LD 50 of Product:	N/E	LC 50 of Product:	N/E
Irritancy of Product:	Eye irritant	Exposure Limits of Product:	N/E
Sensitization of Product:	N/E	Toxicologically Synergistic Materials:	N/E
--CARCINOGENICITY --REPRODUCTIVE EFFECTS --TERATOGENICITY --MUTAGENICITY		none known	

SECTION VII-PREVENTIVE MEASURES

Personal Protective Equipment to be used:

Gloves(specify):	Not required	Eye(specify):	Safety Glasses
Respiratory(specify):	Use in open space	Clothing:	Not required
Respiratory Protection:	If used indoors or on a continuous basis, use of cartridge type respirator is recommended		
Engineering Controls:	Not required		
Leak and Spill Procedure:	Avoid sparks, open flames and all other ignition sources. Wear adequate respiratory protection.		
	Flush water to an open well-ventilated area. Absorb with absorbent material. Remove to a container.		
Waste Disposal:	Dispose of at approved disposal site.		
Storage Requirements:	Store at room temperature.		
Handling Procedures and	None required for normal use.		
Equipment:			
DSL Listing	All components are listed in the inventory.		
TDG Classification:	Consumer Commodity		
WHMIS Classification:	Consumer Commodity	Complies with CCCR 2001	

SECTION VIII-FIRST AID MEASURES

Eye:	Flush eyes with water for at least 15 minutes.
Skin:	Wash contaminated skin with mild soap and water. Wash contaminated clothing before re-use.
Inhalation:	Remove victim to fresh air and restore breathing if required.
Ingestion:	DO NOT INDUCE VOMITING. Guard against aspiration into lungs. Seek medical attention.

SECTION IX-PREPARATION DATE OF M.S.D.S.

Additional Info/Comments:		Sources Used: Supplier's data	
Phone Number:	(905) 793-4311	Prepared By: Quality Control Laboratory	
Date Prepared:	January 2, 2009	Kleen-Flo Tumbler Industries Limited	

THIS SHEET SUPERSEDES ANY OTHER M.S.D.S. PREVIOUSLY PREPARED

N/E: not established N.Ap.: Not applicable N/Av.: not available

Revision Number: 006.0

Issue date: 01/11/2012

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: LOCTITE® 242™ THREADLOCKER MEDIUM STRENGTH
Product type: Anaerobic Sealant

IDH number: 135354
Item number: 24221
Region: United States

Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

Contact information:
Telephone: 860.571.5100
MEDICAL EMERGENCY Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS:

Physical state: Liquid
Color: Blue
Odor: Mild

HEALTH: *2
FLAMMABILITY: 1
PHYSICAL HAZARD: 1
Personal Protection: See MSDS Section 8

WARNING: CAUSES EYE IRRITATION.
MAY CAUSE SKIN IRRITATION.
MAY CAUSE ALLERGIC SKIN REACTION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects

Inhalation: May cause respiratory tract irritation.
Skin contact: May cause allergic skin reaction. May cause skin irritation.
Eye contact: Contact with eyes will cause irritation.
Ingestion: Not expected to be harmful by ingestion.

Existing conditions aggravated by exposure: Eye, skin, and respiratory disorders.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Polyglycol dimethacrylate	25852-47-5	60 - 100
Oleic acid 5.5EO	9004-96-0	10 - 30
Saccharin	81-07-2	1 - 5
Silica, amorphous, fumed, crystal-free	112945-52-5	1 - 5
Cumene hydroperoxide	80-15-9	1 - 5
Propanediol-1,2	57-55-6	1 - 5
Titanium dioxide	13463-67-7	0.1 - 1
Cumene	98-82-8	0.1 - 1

4. FIRST AID MEASURES

Inhalation:	Move to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Keep warm and quiet. Get medical attention.
Skin contact:	Wash with soap and water. Remove contaminated clothing and footwear. Wash clothing before reuse. If symptoms develop and persist, get medical attention.
Eye contact:	Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time. Get medical attention.
Ingestion:	Do not induce vomiting. Keep individual calm. Get medical attention.

5. FIRE FIGHTING MEASURES

Flash point:	> 93.3 °C (> 199.94 °F) Tagliabue closed cup
Flame projection:	Not applicable
Autoignition temperature:	Not determined
Flammable/Explosive limits - lower:	2.6 % (propylene glycol)
Flammable/Explosive limits - upper:	12.5 % (propylene glycol)
Extinguishing media:	Foam, dry chemical or carbon dioxide.
Special firefighting procedures:	None
Unusual fire or explosion hazards:	None
Hazardous combustion products:	Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Irritating organic vapours.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions:	Do not allow product to enter sewer or waterways.
Clean-up methods:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Store in a partly filled, closed container until disposal.

7. HANDLING AND STORAGE

Handling:	Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling.
Storage:	For safe storage, store at or below 38 °C (100.4 °F) Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

For information on product shelf life contact Henkel Customer Service at (800) 243-4874.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Polyglycol dimethacrylate	None	None	None	None
Oleic acid 5.5EO	None	None	None	None
Saccharin	None	None	None	None
Silica, amorphous, fumed, crystal-free	10 mg/m3 TWA Inhalable dust. 3 mg/m3 TWA Respirable fraction.	20 MPPCF TWA 0.8 mg/m3 TWA	None	None
Cumene hydroperoxide	None	None	1 ppm (6 mg/m3) TWA (SKIN)	None
Propanediol-1,2	None	None	10 mg/m3 TWA Aerosol.	None
Titanium dioxide	10 mg/m3 TWA	15 mg/m3 TWA Total dust.	None	None
Cumene	50 ppm TWA	50 ppm (245 mg/m3) TWA (SKIN)	None	None

Engineering controls: No specific ventilation requirements noted, but forced ventilation may still be required if concentrations exceed occupational exposure limits.

Respiratory protection: Use NIOSH approved respirator if there is potential to exceed exposure limit(s).

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use impermeable gloves and protective clothing as necessary to prevent skin contact. Neoprene gloves. Butyl rubber gloves. Natural rubber gloves.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid
Color: Blue
Odor: Mild
Odor threshold: Not available.
pH: Not applicable
Vapor pressure: < 5 mm hg (27 °C (80.6 °F))
Boiling point/range: > 149 °C (> 300.2 °F)
Melting point/ range: Not available.
Specific gravity: 1.1 at 23.9 °C (75.02 °F)
Vapor density: Not available.
Flash point: > 93.3 °C (> 199.94 °F) Tagliabue closed cup
Flame projection: Not applicable
Flammable/Explosive limits - lower: 2.6 % (propylene glycol)
Flammable/Explosive limits - upper: 12.5 % (propylene glycol)
Autoignition temperature: Not determined
Evaporation rate: Not available.
Solubility in water: Slight
Partition coefficient (n-octanol/water): Not available.
VOC content: 4.48 %; 49.3 g/l EPA Method 24

10. STABILITY AND REACTIVITY

Stability: Stable

Hazardous reactions: Will not occur.

Hazardous decomposition products: Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Irritating organic vapours.

Incompatible materials: Strong oxidizing agents. Free radical initiators. Strong reducing agents. Alkalis. Oxygen scavengers. Other polymerization initiators. Copper. Iron. Zinc. Aluminum. Rust.

Conditions to avoid: See "Handling and Storage" (Section 7) and "Incompatibility" (Section 10).

11. TOXICOLOGICAL INFORMATION

Acute oral product toxicity: LD50 (rat) > 10,000 mg/kg

Acute dermal product toxicity: LD50 (rabbit) > 5,000 mg/kg

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Polyglycol dimethacrylate	No	No	No
Oleic acid 5.5EO	No	No	No
Saccharin	No	No	No
Silica, amorphous, fumed, crystal-free	No	No	No
Cumene hydroperoxide	No	No	No
Propanediol-1,2	No	No	No
Titanium dioxide	No	Group 2B	No
Cumene	No	Group 2B	No

Hazardous components	Health Effects/Target Organs
Polyglycol dimethacrylate	Irritant, Allergen
Oleic acid 5.5EO	Irritant
Saccharin	No Target Organs
Silica, amorphous, fumed, crystal-free	Nuisance dust
Cumene hydroperoxide	Allergen, Central nervous system, Corrosive, Irritant, Mutagen
Propanediol-1,2	Irritant
Titanium dioxide	Irritant, Respiratory, Some evidence of carcinogenicity
Cumene	Central nervous system, Irritant, Lung

12. ECOLOGICAL INFORMATION

Ecological information: Not available.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

The shipping classifications in this sections are for non-bulk packaging only (unless otherwise specified). Shipping classification may be different for bulk packaging.

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

International Air Transportation (ICAO/IATA)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

Water Transportation (IMO/IMDG)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12(b) Export Notification:	None above reporting de minimus
CERCLA/SARA Section 302 EHS:	None above reporting de minimus
CERCLA/SARA Section 311/312:	Immediate Health, Delayed Health
CERCLA/SARA 313:	This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (40 CFR 372). Cumene hydroperoxide (CAS# 80-15-9).
California Proposition 65:	This product contains a chemical known in the State of California to cause cancer. This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Canada Regulatory Information

CEPA DSL/NDSL Status:	All components are listed on or are exempt from listing on the Canadian Domestic Substances List.
WHMIS hazard class:	D.2.A, D.2.B

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: 3, 8, 11

Prepared by: Kyra Kozak Woods, Manager, Regulatory Affairs

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Revision Number: 002.0

Issue date: 01/12/2012

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: LOCTITE® 404™ INSTANT ADHESIVE QUICK SET™ P/N 46551
Product type: Cyanoacrylate

Company address:
Henkel Corporation
One Henkel Way
Rocky Hill, Connecticut 06067

IDH number: 135465
Item number: 46551
Region: United States

Contact information:
Telephone: 860.571.5100
Emergency telephone: 860.571.5100MEDICAL EMERGENCY
Phone: Poison Control Center
1-877-671-4608 (toll free) or 1-303-592-1711
TRANSPORT EMERGENCY Phone: CHEMTREC
1-800-424-9300 (toll free) or 1-703-527-3887
Internet: www.henkelna.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

HMIS:

Physical state:	Liquid	**HEALTH:**	2
Color:	Clear, Colorless	**FLAMMABILITY:**	2
Odor:	Sharp, Irritating	**PHYSICAL HAZARD:**	1
		Personal Protection:	See MSDS Section 8

WARNING: BONDS SKIN IN SECONDS.
MAY CAUSE EYE AND RESPIRATORY TRACT IRRITATION.

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects

Inhalation: Exposure to vapors above the established exposure limit results in respiratory irritation, which may lead to difficulty in breathing and tightness in the chest.

Skin contact: Bonds skin in seconds. May cause skin irritation. Cyanoacrylates have been reported to cause allergic reaction but due to rapid polymerization at the skin surface, an allergic response is rare. Cyanoacrylates generate heat on solidification. In rare circumstances a large drop will burn the skin. Cured adhesive does not present a health hazard even if bonded to the skin.

Eye contact: Irritating to eyes. Causes excessive tearing. Eyelids may bond.

Ingestion: Not expected to be harmful by ingestion. Rapidly polymerizes (solidifies) and bonds in mouth. It is almost impossible to swallow.

Existing conditions aggravated by exposure: Eye, skin, and respiratory disorders.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS NUMBER	%
Ethyl 2-cyanoacrylate	7085-85-0	60 - 100
Hydroquinone	123-31-9	0.1 - 1

4. FIRST AID MEASURES

Inhalation: Move to fresh air. If symptoms persist, seek medical advice.

Skin contact: Do not pull bonded skin apart. Soak in warm soapy water. Gently peel apart using a blunt instrument. If skin is burned due to the rapid generation of heat by a large drop, seek medical attention. If lips are bonded, apply warm water to the lips and encourage wetting and pressure from saliva in mouth. Peel or roll lips apart. Do not pull lips apart with direct opposing force.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. Get medical attention. If eyelids are bonded closed, release eyelashes with warm water by covering with a wet pad. Do not force eye open. Cyanoacrylate will bond to eye protein and will cause a lachrymatory effect which will help to debond the adhesive. Keep eye covered until debonding is complete, usually within 1-3 days. Medical attention should be sought in case solid particles of polymerized cyanoacrylate trapped behind the eyelid caused abrasive damage.

Ingestion: Ensure breathing passages are not obstructed. The product will polymerize rapidly and bond to the mouth making it almost impossible to swallow. Saliva will separate any solidified product in several hours. Prevent the patient from swallowing any separated mass.

Notes to physician: Surgery is not necessary to separate accidentally bonded tissues. Experience has shown that bonded tissues are best treated by passive, non-surgical first aid. If rapid curing has caused thermal burns they should be treated symptomatically after adhesive is removed.

5. FIRE FIGHTING MEASURES

Flash point: 80 - 93.3 °C (176°F - 199.94 °F) Tagliabue closed cup

Autoignition temperature: 485 °C (905°F)

Flammable/Explosive limits - lower: Not determined

Flammable/Explosive limits - upper: Not determined

Extinguishing media: Water spray (fog), foam, dry chemical or carbon dioxide.

Special firefighting procedures: Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA).

Unusual fire or explosion hazards: None

Hazardous combustion products: Trace amounts of toxic and/or irritating fumes may be released and the use of breathing apparatus is recommended.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Environmental precautions: Ventilate area.

Clean-up methods: Do not use cloths for mopping up. Flood with water to complete polymerization and scrape off the floor. Cured material can be disposed of as non-hazardous waste.

7. HANDLING AND STORAGE

Handling: Prevent contact with eyes, skin and clothing. Do not breathe vapor and mist. Wash thoroughly after handling. Avoid contact with fabric or paper goods. Contact with these materials may cause rapid polymerization which can generate smoke and strong irritating vapors, and cause thermal burns.

Storage: Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

For information on product shelf life contact Henkel Customer Service at (800) 243-4874.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
Ethyl 2-cyanoacrylate	0.2 ppm TWA	None	None	None
Hydroquinone	1 mg/m3 TWA (Sensitiser.)	2 mg/m3 TWA	None	None

Engineering controls: Use positive down-draft exhaust ventilation if general ventilation is insufficient to maintain vapor concentration below established exposure limits.

Respiratory protection: Use a NIOSH approved supplied air respirator with an organic cartridge if the potential to exceed established exposure limits exists.

Eye/face protection: Safety goggles or safety glasses with side shields.

Skin protection: Use nitrile gloves and aprons as necessary to prevent contact. Do not use PVC, nylon or cotton.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Liquid
Color: Clear, Colorless
Odor: Sharp, Irritating
Odor threshold: 1 - 2 ppm
pH: Not applicable
Vapor pressure: < 0.2 mm hg
Boiling point/range: > 149 °C (> 300.2 °F)
Melting point/ range: Not determined
Specific gravity: 1.09 at 23.9 °C (75.02 °F)
Vapor density: 3 Approximately
Flash point: 80 - 93.3 °C (176°F - 199.94 °F) Tagliabue closed cup
Flammable/Explosive limits - lower: Not determined
Flammable/Explosive limits - upper: Not determined
Autoignition temperature: 485 °C (905°F)
Evaporation rate: Not available.
Solubility in water: Polymerises in presence of water.
Partition coefficient (n-octanol/water): Not determined
VOC content: < 2 %; < 20 g/l (California SCAQMD Method 316B) (Estimated)

10. STABILITY AND REACTIVITY

Stability: Stable under recommended storage conditions.

Hazardous reactions: Rapid exothermic polymerization will occur in the presence of water, amines, alkalis and alcohols.

Hazardous decomposition products: None

Incompatible materials: Water, amines, alkalis and alcohols.

Conditions to avoid: Spontaneous polymerization.

11. TOXICOLOGICAL INFORMATION

Acute oral product toxicity: LD50 (rat) > 5,000 mg/kg (Estimated)

Acute dermal product toxicity: LD50 (rabbit) > 2,000 mg/kg (Estimated)

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen (Specifically Regulated)
Ethyl 2-cyanoacrylate	No	No	No
Hydroquinone	No	No	No

Hazardous components	Health Effects/Target Organs
Ethyl 2-cyanoacrylate	Irritant, Allergen, Respiratory
Hydroquinone	Blood, Bone Marrow, Central nervous system, Developmental, Eyes, Immune system, Irritant, Liver, Mutagen, Skin, Thyroid

12. ECOLOGICAL INFORMATION

Ecological information: Not known.

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Follow all local, state, federal and provincial regulations for disposal.

Hazardous waste number: Not a RCRA hazardous waste.

14. TRANSPORT INFORMATION

U.S. Department of Transportation Ground (49 CFR)

Proper shipping name: Combustible liquid, n.o.s. (Cyanoacrylate ester)
Hazard class or division: Combustible Liquid
Identification number: NA 1993
Packing group: III
DOT Reportable quantity: Hydroquinone
Exceptions: (Not more than 450 Liters), Unrestricted

International Air Transportation (ICAO/IATA)

Proper shipping name: Aviation regulated liquid, n.o.s. (Cyanoacrylate ester)
Hazard class or division: 9
Identification number: UN 3334
Packing group: None
Exceptions: (Not more than 500ml) Unrestricted

Water Transportation (IMO/IMDG)

Proper shipping name:	Not regulated
Hazard class or division:	None
Identification number:	None
Packing group:	None

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status:	All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.
TSCA 12(b) Export Notification:	None above reporting de minimus
CERCLA/SARA Section 302 EHS:	Hydroquinone (CAS# 123-31-9).
CERCLA/SARA Section 311/312:	Immediate Health, Delayed Health, Fire, Reactive
CERCLA/SARA 313:	None above reporting de minimus
CERCLA Reportable quantity:	Hydroquinone (CAS# 123-31-9) 100 lbs. (45.4 kg)
California Proposition 65:	No California Proposition 65 listed chemicals are known to be present.

Canada Regulatory Information

CEPA DSL/NDSL Status:	All components are listed on or are exempt from listing on the Canadian Domestic Substances List.
WHMIS hazard class:	B.3, D.2.A, D.2.B

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: Updated Contact Information in Section 1., Reviewed MSDS. Reissued with new date.

Prepared by: Kyra Kozak Woods, Manager, Regulatory Affairs

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Material Safety Data Sheet

Revision Date: 11/06/2006 **Issue date:** 11/06/2006

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: LOCTITE® 565™ PST® PIPE SEALANT h PTFE THREAD SEALANT
Item No. : 56531 / IDH No. 88551
Product Use: Sealant
Region: Canada
Company address:
Henkel Canada Corporation
2225 Meadowpine Boulevard
Mississauga, Ontario L5N 7P2
Contact Information:
Telephone: (905) 814-6511
Emergency telephone: (905) 814-6511
Internet: www.henkelna.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components	%	ACGIH TLV	OSHA PEL	OTHER
Polyglycol dimethacrylate 25852-47-5	30-60	None	None	None
Cellulose ester 9004-36-8	10-30	None	None	None
Poly(tetrafluoroethylene) 9002-84-0	5-10	None	None	AEL (DuPont): 10 mg/m^3, 8 Hr TWA, total dust; 5mg/m^3, 8 hr. TWA respirable dust
Titanium dioxide 13463-67-7	1-5	10 mg/m^3 TWA	15 mg/m^3 TWA total dust	None
Treated fumed silica 67762-90-7	1-5	10mg/m^3 Inhalable fraction, 3mg/m^3 Respirable fraction, TWA	5mg/m^3 Respirable dust, 15mg/m^3 Total dust	None
Saccharin 81-07-2	1-5	None	None	None
Cumene hydroperoxide 80-15-9	1-5	None	None	1 ppm (6 mg/m^3) Skin (WEEL), 1ppm, skin TWA, (WEEL)
Ethylene glycol 107-21-1	0.1-1	100 mg/m^3 Ceiling	None	None

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical state: Paste
Color: White
Odor: Mild
WHMIS hazard class: D.2.A, D.2.B

WARNING: CAUSES EYE IRRITATION.
MAY CAUSE ALLERGIC SKIN REACTION.
MAY CAUSE SKIN IRRITATION.
MAY CAUSE RESPIRATORY TRACT IRRITATION.

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects
Inhalation: May cause respiratory tract irritation.
Skin contact: May cause skin irritation. May cause allergic skin reaction.
Eye contact: Contact with eyes will cause irritation.

Ingestion:	Not expected to be harmful by ingestion.
Existing conditions aggravated by exposure:	Eye, skin, and respiratory disorders.

See Section 11 for additional toxicological information.

4. FIRST AID MEASURES

Inhalation:	Remove to fresh air. If symptoms develop and persist, get medical attention.
Skin contact:	Wash with soap and water. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention if symptoms occur.
Eye contact:	Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time. Get medical attention.
Ingestion:	Do not induce vomiting. Keep individual calm. Obtain medical attention.

5. FIRE-FIGHTING MEASURES

Flash point:	Greater than 93ºC (200ºF) Tagliabue closed cup
Autoignition temperature:	Not available
Flammable/Explosive limits-lower %:	Not available
Flammable/Explosive limits-upper %:	Not available
Extinguishing media:	Foam, dry chemical or carbon dioxide.
Special fire fighting procedures:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.
Unusual fire or explosion hazards:	None
Hazardous combustion products:	Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Toxic fluorine compounds. Irritating organic vapors.
Sensitivity to mechanical impact:	Not available.
Sensitivity to static discharge:	Not available.

6. ACCIDENTAL RELEASE MEASURES

Environmental precautions:	Prevent product from entering drains or open waters.
Clean-up methods:	Soak up with inert absorbent. Store in a partly filled, closed container until disposal.

7. HANDLING AND STORAGE

Handling:	Avoid contact with eyes, skin and clothing.
Storage:	For safe storage, store at or below 38°C (100°F).
Incompatible products:	Refer to Section 10.

For information on product shelf life contact Henkel Canada Customer Service at (905) 814-6511.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls:	No specific ventilation requirements noted, but forced ventilation may still be required if concentrations exceed occupational exposure limts.

Respiratory protection:	Use a NIOSH approved air purifying respirator with an organic vapor cartridge if the potential to exceed established exposure limits exists.
Skin protection:	Use impermeable gloves and protective clothing as necessary to prevent skin contact. Neoprene, Butyl-rubber, or nitrile-rubber gloves.
Eye/face protection:	Safety goggles or safety glasses with side shields.

See Section 2 for exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Paste
Color:	White
Odor:	Mild
Odor Threshold:	Not available
Vapor pressure:	Less than 5 mm Hg at 27ºC (80ºF)
pH:	Not applicable
Boiling point/range:	Greater than 149ºC (300ºF)
Melting point/range:	Not available
Specific gravity:	1.1
Vapor density:	Not available
Evaporation rate:	Not available
Solubility in water:	Slight
Partition coefficient (n-octanol/water):	Not available
VOC content:	0.111%; 1.0595 grams/liter

10. STABILITY AND REACTIVITY

Stability:	Stable.
Hazardous polymerization:	Will not occur.
Hazardous decomposition products:	Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Toxic fluorine compounds. Irritating organic vapors.
Incompatability:	Strong oxidizers.
Conditions to avoid:	See "Handling and Storage" (Section 7) and "Incompatabilty" (Section 10).

11. TOXICOLOGICAL INFORMATION

Product toxicity data:	Acute oral LD50 greater than 5000mg/kg (rat)(estimated). Acute dermal LD50 greater than 2000 mg/kg (rabbit) (estimated).
Toxicologically synergistic products:	Not available.

Refer to the following for Irritancy of Product, Sensitization to Product, Carcinogenicity, Reproductive Toxicity, Teratogenicity, and Mutagenicity.

Ingredient Toxicity Data & Carcinogen Status

Hazardous components	LD50s & LC50s	Other LD50s and LC50s	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen	ACGIH - Carcinogens
Polyglycol dimethacrylate 25852-47-5	None	None	No	No	No	No
Cellulose ester 9004-36-8	None	None	No	No	No	No
Poly(tetrafluoroethylene) 9002-84-0	Inhalation LC50 (Rat) = 45 mg/m³	None	No	No	No	No
Titanium dioxide 13463-67-7	Oral LD50 (Rat) > 10000 mg/kg	None	No	Group 2B	Yes	A4 - Not Classifiable as a Human Carcinogen
Treated fumed silica 67762-90-7	None	None	No	No	No	No
Saccharin 81-07-2	Oral LD50 (Mouse) = 17 g/kg	None	No	No	No	No
Cumene hydroperoxide 80-15-9	Inhalation LC50 (Rat) = 220 ppm Oral LD50 (Rat) = 382 mg/kg	None	No	No	No	No
Ethylene glycol 107-21-1	Oral LD50 (Rat) = 4000 mg/kg Dermal LD50 (Rabbit) = 9530 µL/kg	None	No	No	No	A4 - Not Classifiable as a Human Carcinogen (aerosol)

Literature Referenced Target Organ & Other Health Effects

Hazardous components	Health Effects/Target Organs
Polyglycol dimethacrylate 25852-47-5	Allergen, Irritant
Cellulose ester 9004-36-8	No Target Organs
Poly(tetrafluoroethylene) 9002-84-0	No Target Organs
Titanium dioxide 13463-67-7	Irritant, Respiratory
Treated fumed silica 67762-90-7	Irritant
Saccharin 81-07-2	No Target Organs
Cumene hydroperoxide 80-15-9	Allergen, Central nervous system, Corrosive, Irritant, Mutagen
Ethylene glycol 107-21-1	Blood, Bone Marrow, Central nervous system, Developmental, Eyes, Irritant, Kidney, Liver, Metabolic

12. ECOLOGICAL INFORMATION

Ecological information: Not available

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Dispose of in accordance with federal and local regulations.

14. TRANSPORT INFORMATION

Canada Transportation of Dangerous Goods - Ground:

Proper shipping name: Unrestricted
Hazard class or division: None
Identification number: None

Packing group: None

International Air Transportation (ICAO/IATA):

Proper shipping name: Unrestricted
Hazard class or division: None
Identification number: None
Packing group: None

WaterTransportation (IMO/IMDG):

Proper shipping name: Unrestricted
Hazard class or division: None
Identification number: None
Packing group: None
Marine pollutant: None

15. REGULATORY INFORMATION

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Domestic Substances List.

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: 8

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Product Regulations.

Prepared by: Regulatory Affairs

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Material Safety Data Sheet

Revision Date: 06/27/2008 **Issue date:** 06/27/2008

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product name: LOCTITE® 515™ GASKET ELIMINATOR® FLANGE SEALANT PART NO. 51531
Item No. : 51531 / IDH No. 135479
Product Use: Sealant
Region: Canada
Company address:
Henkel Canada Corporation
2225 Meadowpine Boulevard
Mississauga, Ontario L5N 7P2
Contact Information:
Telephone: (905) 814-6511
Emergency telephone: (905) 814-6511
Internet: www.henkelna.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components	%	ACGIH TLV	OSHA PEL	OTHER
Polyurethane methacrylate resin PROPRIETARY	60-100	None	None	None
Silica, amorphous, fumed, crystalline-free 112945-52-5	5-10	10mg/m^3 TWA inhalable 3mg/m^3 TWA respirable	6mg/m^3 TWA	None
Polyglycol dimethacrylate 25852-47-5	10-30	None	None	None
Acrylic acid 79-10-7	1-5	2 ppm TWA (skin)	10 ppm TWA; 30 mg/m³	1 ppm TWA (skin); 3 ppm STEL (skin)
Cumene hydroperoxide 80-15-9	1-5	None	None	1 ppm (6 mg/m^3) Skin (WEEL)
Ethylene glycol 107-21-1	0.1-1	100 mg/m^3 Ceiling	None	None
1-Acetyl-2-phenylhydrazine 114-83-0	0.1-1	None	None	None
Saccharin 81-07-2	1-5	None	None	None

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical state: Gel
Color: Purple
Odor: Sharp
WHMIS hazard class: D.2.A, D.2.B

WARNING: CAUSES EYE, SKIN AND RESPIRATORY TRACT IRRITATION
MAY CAUSE ALLERGIC SKIN REACTION.
MAY BE HARMFUL IF SWALLOWED.

Relevant routes of exposure: Skin, Inhalation, Eyes

Potential Health Effects
Inhalation: May cause irritation to nose and throat.
Skin contact: Irritating to skin. May cause allergic skin reaction.
Eye contact: Vapors may irritate eyes. Contact with eyes will cause irritation.

Ingestion:	May cause gastrointestinal tract irritation if swallowed.
Existing conditions aggravated by exposure:	Acrylic acid: Respiratory disorders. Lung disease.

See Section 11 for additional toxicological information.

4. FIRST AID MEASURES

Inhalation:	Remove to fresh air. If symptoms develop and persist, get medical attention.
Skin contact:	Wash with soap and water. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention if symptoms occur.
Eye contact:	Flush with copious amounts of water, preferably, lukewarm water for at least 15 minutes, holding eyelids open all the time. Get medical attention.
Ingestion:	Do not induce vomiting. Keep individual calm. Obtain medical attention.

5. FIRE-FIGHTING MEASURES

Flash point:	Greater than 93ºC (200ºF) Tagliabue closed cup
Autoignition temperature:	Not available
Flammable/Explosive limits-lower %:	Not available
Flammable/Explosive limits-upper %:	Not available
Extinguishing media:	Foam, dry chemical or carbon dioxide.
Special fire fighting procedures:	None
Unusual fire or explosion hazards:	None
Hazardous combustion products:	Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Irritating organic vapors.
Sensitivity to mechanical impact:	Not available.
Sensitivity to static discharge:	Not available.

6. ACCIDENTAL RELEASE MEASURES

Environmental precautions:	Prevent product from entering drains or open waters.
Clean-up methods:	Ensure adequate ventilation. Soak up with inert absorbent. Store in a partly filled, closed container until disposal.

7. HANDLING AND STORAGE

Handling:	Avoid contact with eyes, skin and clothing. Do not breathe mist or vapors.
Storage:	For safe storage, store at or below 38°C (100°F).
Incompatible products:	Refer to Section 10.

For information on product shelf life contact Henkel Canada Customer Service at (905) 814-6511.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering controls:	Use local exhaust ventilation to maintain airborne concentrations below established exposure limits.
Respiratory protection:	Use NIOSH approved respirator if there is potential to exceed exposure limit(s).

Skin protection: Use impermeable gloves and protective clothing as necessary to prevent skin contact. Neoprene gloves. Butyl rubber gloves. Natural rubber gloves.

Eye/face protection: Safety goggles or safety glasses with side shields.

See Section 2 for exposure limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Gel
Color: Purple
Odor: Sharp
Odor Threshold: Not available
Vapor pressure: Less than 10 mm Hg at 27ºC (80ºF)
pH: Not applicable
Boiling point/range: Greater than 149ºC (300ºF)
Melting point/range: Not available
Specific gravity: 1.1
Vapor density: Not available
Evaporation rate: Not available
Solubility in water: Slight
Partition coefficient (n-octanol/water): Not available
VOC content: 1.4069%; 15.48 grams/liter

10. STABILITY AND REACTIVITY

Stability: Stable.

Hazardous polymerization: Will not occur.

Hazardous decomposition products: Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Irritating organic vapors.

Incompatability: Strong oxidizers.

Conditions to avoid: See "Handling and Storage" (Section 7) and "Incompatabilty" (Section 10).

11. TOXICOLOGICAL INFORMATION

Product toxicity data: Acute LD50 (oral) :Greater than 5000 (rat). (estimated). Acute dermal LD50 greater than 2000 mg/kg (rabbit) (estimated).

Toxicologically synergistic products: Not available.

Refer to the following for Irritancy of Product, Sensitization to Product, Carcinogenicity, Reproductive Toxicity, Teratogenicity, and Mutagenicity.

Ingredient Toxicity Data & Carcinogen Status

Hazardous components	LD50s & LC50s	Other LD50s and LC50s	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen	ACGIH - Carcinogens
Polyurethane methacrylate resin PROPRIETARY	None	None	No	No	No	No
Silica, amorphous, fumed, crystalline-free 112945-52-5	Oral LD50 (Rat) = 3160 mg/kg	None	No	No	No	No
Polyglycol dimethacrylate 25852-47-5	None	None	No	No	No	No
Acrylic acid 79-10-7	Inhalation LC50 (Rat) = 1202 ppm Dermal LD50 (Rabbit) = 250 mg/kg Inhalation LC50 (Rat) = 3.6 mg/L Oral LD50 (Rat) = 33.5 mg/kg Inhalation LC50 (Rat) = 6.41 mg/L	None	No	No	No	A4 - Not Classifiable as a Human Carcinogen
Cumene hydroperoxide 80-15-9	Inhalation LC50 (Rat) = 220 ppm Oral LD50 (Rat) = 382 mg/kg	None	No	No	No	No
Ethylene glycol 107-21-1	Oral LD50 (Rat) = 4000 mg/kg Dermal LD50 (Rabbit) = 9530 µL/kg	None	No	No	No	A4 - Not Classifiable as a Human Carcinogen (aerosol)
1-Acetyl-2-phenylhydrazine 114-83-0	Oral LD50 (Mouse) = 270 mg/kg	None	No	No	No	No
Saccharin 81-07-2	Oral LD50 (Mouse) = 17 g/kg	None	No	No	No	No

Literature Referenced Target Organ & Other Health Effects

Hazardous components	Health Effects/Target Organs
Polyurethane methacrylate resin PROPRIETARY	Allergen, Irritant
Silica, amorphous, fumed, crystalline-free 112945-52-5	Nuisance dust
Polyglycol dimethacrylate 25852-47-5	Allergen, Irritant
Acrylic acid 79-10-7	Allergen, Corrosive, Irritant, Kidney, Liver
Cumene hydroperoxide 80-15-9	Allergen, Central nervous system, Corrosive, Irritant, Mutagen
Ethylene glycol 107-21-1	Blood, Bone Marrow, Central nervous system, Developmental, Eyes, Irritant, Kidney, Liver, Metabolic
1-Acetyl-2-phenylhydrazine 114-83-0	Allergen, Blood, Kidney, Mutagen, Some evidence of carcinogenicity
Saccharin 81-07-2	No Target Organs

12. ECOLOGICAL INFORMATION

Ecological information: Not available

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal: Dispose of in accordance with federal and local regulations.

14. TRANSPORT INFORMATION

Canada Transportation of Dangerous Goods - Ground:

Proper shipping name:	Unrestricted
Hazard class or division:	None
Identification number:	None
Packing group:	None

International Air Transportation (ICAO/IATA):

Proper shipping name:	Unrestricted
Hazard class or division:	None
Identification number:	None
Packing group:	None

WaterTransportation (IMO/IMDG):

Proper shipping name:	Unrestricted
Hazard class or division:	None
Identification number:	None
Packing group:	None
Marine pollutant:	None

15. REGULATORY INFORMATION

Canada Regulatory Information

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Domestic Substances List.

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

16. OTHER INFORMATION

This material safety data sheet contains changes from the previous version in sections: 2, 9

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Product Regulations.

Prepared by: Regulatory Affairs

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MATERIAL SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name: Loctite 268 High Strength Threadlocker Stick

Product-Code: 525717 (19 g)

Intended use: Anaerobic adhesive

Supplier:
HENKEL AUSTRALIA PTY. LIMITED
ADHESIVE TECHNOLOGIES
135-141 Canterbury Road
3137 Kilsyth, Victoria

Australia

Phone: +61 (3) 9724 6444

Emergency information: 24 HOUR EMERGENCY CONTACT NUMBER 03 9724 6556

SECTION 2. HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE:
Hazardous according to the criteria of ASCC.

Classification of material Xi - Irritant

Risk phrases:
R36/37/38 Irritating to eyes, respiratory system and skin.

Safety phrases:
S23 Do not breathe fumes.
S24/25 Avoid contact with skin and eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

Dangerous Goods information:
Not classified as Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

Signal word:
HAZARDOUS

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Identity of ingredients:

Chemical ingredients	CAS-No.	Proportion
Polyethylene glycol 200 dimethacrylate	25852-47-5	30 - 60 %
2-Propenoic acid, 2-methyl-, (1-methylethylidene)	24448-20-2	10 - 30 %
2-[[(Phenylamino)carbonyl]oxy]ethyl methacrylate	51727-47-0	10 - 30 %
Silica, amorphous, fumed, crystal-free	112945-52-5	< 2 %
Saccharin	81-07-2	< 2 %
Cumene hydroperoxide	80-15-9	< 1 %

SECTION 4. FIRST AID MEASURES

Ingestion:	Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting. Seek medical advice.
Skin:	Rinse with running water and soap. Seek medical advice.
Eyes:	Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.
Inhalation:	Should not be a problem as product is of low volatility. However, if feeling unwell remove patient to fresh air.
First Aid facilities:	Eye wash and safety shower

SECTION 5. FIRE FIGHTING MEASURES

Suitable extinguishing media:	Carbon dioxide, foam, powder Fine water spray
Improper extinguishing agent:	None known
Particular danger in case of fire:	In the event of a fire, carbon monoxide (CO) and carbon dioxide (CO2) can be released. In case of fire, keep containers cool with water spray.
Special protective equipment for fire-fighters:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions and emergency procedures:	Avoid skin and eye contact. Ensure adequate ventilation.
Environmental precautions:	Waste disposal with the approval of the responsible local authority.
Clean-up methods:	For small spills wipe up with paper towel and place in container for disposal.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:	Use only in well-ventilated areas. Avoid skin and eye contact. Prolonged or repeated skin contact should be avoided to minimise any risk of sensitisation.
Conditions for safe storage:	Ensure good ventilation/extraction. Store in a cool, well-ventilated place.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National exposure standards:

Ingredient	form of exposure	TWA (ppm)	TWA (mg/m3)	Peak Limit. (mg/m3)	STEL (ppm)	STEL (mg/m3)
FUMED SILICA (RESPIRABLE FRACTION) 112945-52-5	Respirable fraction.		2	-	-	-

Engineering controls: No specific ventilation requirements noted, but forced ventilation may still be required if concentrations exceed occupational exposure limits.

Eye protection: Wear protective glasses.

Skin protection: Wear suitable protective clothing.
The use of chemical resistant gloves such as Nitrile are recommended.

Please note that in practice the working life of chemical resistant gloves may be considerably reduced as a result of many influencing factors (e.g. temperature). Suitable risk assessment should be carried out by the end user. If signs of wear and tear are noticed then the gloves should be replaced.

Respiratory protection: If inhalation risk exists, wear a respirator or air supplied mask complying with the requirements of AS/NZS 1715 and AS/NZS 1716.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	red wax
Odor:	mild
Specific gravity:	1.0687
Boiling point:	> 149 °C (> 300.2 °F)
Density:	1.07 g/cm3
Solubility:	Solvent: Water, Slight Solvent: Acetone, Not applicable
VOC content (1999/13/EC)	< 3 %

SECTION 10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions of temperature and pressure.

Conditions to avoid: Keep away from heat, ignition sources and incompatible materials.

Incompatible materials: Strong oxidizing agents.

Hazardous decomposition products: Irritating organic vapours.

Oxides of sulfur.
Oxides of carbon.
Oxides of nitrogen.

Hazardous polymerization: Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

HEALTH EFFECTS:

Ingestion: Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.

Skin: This product is irritating to the skin.

Eyes: Contact with eyes can cause eye irritation.

Inhalation: May cause respiratory tract irritation.

Acute oral toxicity:	Saccharin 81-07-2	LD 50 (Mouse) = 17 g/kg
	Cumene hydroperoxide 80-15-9	LD L0 (Mouse) = 5,000 mg/kg

SECTION 12. ECOLOGICAL INFORMATION

General ecological information: Do not empty into drains / surface water / ground water.
In the cured state contribution of this product to Environmental Hazards is insignificant in comparison to articles in which it is used.

Mobility: Cured adhesives are immobile.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal of product: Dispose of in accordance with local and national regulations.
Contribution of this product to waste is very insignificant in comparison to article in which it is used

Disposal for uncleaned package: After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.
Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport:

Dangerous Goods information: Not classified as Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

General information:
Not hazardous according to RID, ADR, ADNR, IMDG, IATA-DGR.

SECTION 15. REGULATORY INFORMATION

SUSDP Poisons Schedule: None

AICS: All components are listed or are exempt from listing on the Australian Inventory of Chemical Substances (AICS).

MATERIAL SAFETY DATA SHEET

SECTION 16. OTHER INFORMATION

Abbreviations/acronyms:

ADGC - Australian Dangerous Goods Code
ASCC - Australian Safety and Compensation Council
SUSDP - Standard for the Uniform Scheduling of Drugs and Poisons
STEL - Short term exposure limit
TWA - Time weighted average

Date of previous issue: 04.10.2006

Disclaimer:

The percentage weight (% w/w) of ingredients is not to be taken as a specification guaranteed by Henkel Australia Pty. Limited, but only as an approximate guide to the content of hazardous ingredients in the material. The information contained herein does not constitute a guarantee by Henkel Australia Pty. Limited concerning the properties of the material. The information contained in this Material Safety Data Sheet is offered in good faith and has been developed from what is believed to be accurate and reliable sources. The information is offered without warranty, representation, inducement or licence and Henkel Australia Pty. Limited assumes no legal responsibility for reliance upon same. Henkel Australia Pty. Limited disclaims any liability for loss, injury or damage incurred in connection with the use of the material or its associated Material Safety Data Sheet. This information is not to be construed as a representation that the material is suitable for any particular purpose or use except those conditions and warranties implied by either Commonwealth or State statutes. Customers are encouraged to make their own enquiries as to the material's characteristics and, where appropriate, to conduct their own tests in the specific context of the material's intended use.

MATERIAL SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name: LOCTITE® 262™ THREADLOCKER

Product-Code: 231928

Intended use: Anaerobic Sealant

Supplier:
HENKEL AUSTRALIA PTY. LIMITED
ADHESIVE TECHNOLOGIES
135-141 Canterbury Road
3137 Kilsyth, Victoria

Australia

Phone: +61 (3) 9724 6444

Emergency information: 24 HOUR EMERGENCY CONTACT NUMBER 03 9724 6556

SECTION 2. HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE:
Hazardous according to the criteria of ASCC.

Classification of material Xi - Irritant

Risk phrases:
R36/37/38 Irritating to eyes, respiratory system and skin.
R43 May cause sensitisation by skin contact.

Safety phrases:
S24/25 Avoid contact with skin and eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28 After contact with skin, wash immediately with plenty of water and soap.
S37/39 Wear suitable gloves and eye/face protection.
S46 If swallowed, seek medical advice immediately and show this container or label.
S51 Use only in well-ventilated areas.

Dangerous Goods information:
Not classified as Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

Signal word:
HAZARDOUS

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Identity of ingredients:

Chemical ingredients	CAS-No.	Proportion
Polyethylene glycol 200 dimethacrylate	25852-47-5	> 60 %
2-Butenedioic acid (2E)-, polymer with a,a'-[(1-methylethylidene)di-4,1-phenylene]bis[w-hydroxypoly[oxy(methyl-1,2-ethanediyl)]]	39382-25-7	10 - 30 %
Cumene hydroperoxide	80-15-9	< 2 %
non hazardous ingredients~		10 - 30 %

SECTION 4. FIRST AID MEASURES

Ingestion: Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting.
Seek medical advice.

Skin: Rinse with running water and soap.
Seek medical advice.

Eyes: Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.

Inhalation: Move to fresh air. If symptoms persist, seek medical advice.

SECTION 5. FIRE FIGHTING MEASURES

Suitable extinguishing media: Carbon dioxide, foam, powder

Combustion behaviour: Non flammable product (flash point is greater than 100°C (CC))

Decomposition products in case of fire: Oxides of carbon, oxides of nitrogen, irritating organic vapors.

Special protective equipment for fire-fighters: Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions and emergency procedures: Wear protective equipment.

Ensure adequate ventilation.
Avoid skin and eye contact.

Environmental precautions: Do not allow product to enter sewer or waterways.

Clean-up methods: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Scrape up spilled material and place in a closed container for disposal.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:	See advice in chapter 8 Use only in well-ventilated areas. Prolonged or repeated skin contact should be avoided to minimise any risk of sensitisation. Avoid breathing vapors or mists of this product.
Conditions for safe storage:	Keep in a cool, well ventilated area away from heat, sparks and open flame. Keep container tightly closed until ready for use.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National exposure standards:

None

Engineering controls:	No specific ventilation requirements noted, but forced ventilation may still be required if concentrations exceed occupational exposure limits.
Eye protection:	Wear protective glasses.
Skin protection:	Wear suitable protective clothing. Use of Butyl or Nitrile Rubber gloves are recommended.
Respiratory protection:	Use only in well-ventilated areas. If inhalation risk exists, wear a respirator or air supplied mask complying with the requirements of AS/NZS 1715 and AS/NZS 1716.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	red liquid
Odor:	characteristic
Specific gravity:	1.05
Boiling point:	> 150.0 °C (> 302 °F)
Flash point:	> 100 °C (> 212 °F)
Solubility:	Solvent: Water, Slight Solvent: Acetone, partially soluble
VOC content (1999/13/EC)	< 3 %

SECTION 10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions of temperature and pressure.
Conditions to avoid:	Keep away from heat, ignition sources and incompatible materials.

Incompatible materials:	Iron. Rust. Aluminum. Zinc. Reducing agents. Strong acids and oxidizing agents. Oxygen scavengers. Strong alkalis. Copper.
Hazardous decomposition products:	Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Phenolics. Irritating organic vapours.

SECTION 11. TOXICOLOGICAL INFORMATION

HEALTH EFFECTS:

Ingestion: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Skin: Contact with skin can cause irritation and allergic reaction (sensitization) in some individuals.

Eyes: Contact with this product may cause severe eye irritation.

Inhalation: Causes respiratory tract irritation.
Excessive inhalation of this material causes headache, dizziness, nausea and incoordination.

Toxicity data:

Acute oral toxicity:	Cumene hydroperoxide 80-15-9	LD L0 (Mouse) = 5,000 mg/kg

SECTION 12. ECOLOGICAL INFORMATION

General ecological information: Do not empty into drains / surface water / ground water.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal of product: Dispose of in accordance with local and national regulations.
Contribution of this product to waste is very insignificant in comparison to article in which it is used

Disposal for uncleaned package: After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.
Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport:

Dangerous Goods information:	Not classified as Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

General information:
Not hazardous according to RID, ADR, ADNR, IMDG, IATA-DGR.

SECTION 15. REGULATORY INFORMATION

SUSDP Poisons Schedule:	None
AICS:	All components are listed or are exempt from listing on the Australian Inventory of Chemical Substances (AICS).

SECTION 16. OTHER INFORMATION

Abbreviations/acronyms:	ADGC - Australian Dangerous Goods Code ASCC - Australian Safety and Compensation Council SUSDP - Standard for the Uniform Scheduling of Drugs and Poisons
Date of previous issue:	16.08.2007

Disclaimer:

The percentage weight (% w/w) of ingredients is not to be taken as a specification guaranteed by Henkel Australia Pty. Limited, but only as an approximate guide to the content of hazardous ingredients in the material. The information contained herein does not constitute a guarantee by Henkel Australia Pty. Limited concerning the properties of the material. The information contained in this Material Safety Data Sheet is offered in good faith and has been developed from what is believed to be accurate and reliable sources. The information is offered without warranty, representation, inducement or licence and Henkel Australia Pty. Limited assumes no legal responsibility for reliance upon same. Henkel Australia Pty. Limited disclaims any liability for loss, injury or damage incurred in connection with the use of the material or its associated Material Safety Data Sheet. This information is not to be construed as a representation that the material is suitable for any particular purpose or use except those conditions and warranties implied by either Commonwealth or State statutes. Customers are encouraged to make their own enquiries as to the material's characteristics and, where appropriate, to conduct their own tests in the specific context of the material's intended use.

MATERIAL SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name: LOCTITE 596 SUPERFLEX RED HIGH TEMP RTV SEALANT

Product-Code: 198817

Intended use: Silicone sealant

Supplier:
HENKEL AUSTRALIA PTY. LIMITED
ADHESIVE TECHNOLOGIES
135-141 Canterbury Road
3137 Kilsyth, Victoria

Australia

Phone: +61 (3) 9724 6444

Emergency information: 24 HOUR EMERGENCY CONTACT NUMBER 03 9724 6556

SECTION 2. HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE:
Hazardous according to the criteria of ASCC.

Classification of material Xi - Irritant

Risk phrases:
R36/38 Irritating to eyes and skin.

Safety phrases:
S24/25 Avoid contact with skin and eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S46 If swallowed, seek medical advice immediately and show this container or label.

Dangerous Goods information:
Not classified as Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

Signal word:
HAZARDOUS

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Identity of ingredients:

Chemical ingredients	CAS-No.	Proportion
Methylsilanetriyl triacetate	4253-34-3	1 - 5 %
Triacetoxyethylsilane	17689-77-9	1 - 5 %

SECTION 4. FIRST AID MEASURES

Ingestion:	Do not induce vomiting. Seek medical advice.
Skin:	Rinse with running water and soap. Obtain medical attention if irritation persists.
Eyes:	Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.
Inhalation:	Move to fresh air. If symptoms persist, seek medical advice.
First Aid facilities:	Eye wash

SECTION 5. FIRE FIGHTING MEASURES

Suitable extinguishing media:	Carbon dioxide, foam, powder Fine water spray
Decomposition products in case of fire:	carbon oxides. Silica fume Formaldehyde
Special protective equipment for fire-fighters:	Wear self-contained breathing apparatus.
Additional fire fighting advice:	In case of fire, keep containers cool with water spray.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions and emergency procedures:	Avoid contact with skin and eyes. Ensure adequate ventilation.
Environmental precautions:	Do not let product enter drains.
Clean-up methods:	Scrape up as much material as possible. Ensure adequate ventilation. Store in a partly filled, closed container until disposal.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:	Use only in well-ventilated areas. Vapours should be extracted to avoid inhalation.
Conditions for safe storage:	Store in a cool, well-ventilated place. Never allow product to get in contact with water during storage

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National exposure standards:

None

Engineering controls: Use only with adequate ventilation.

Eye protection: Wear protective glasses.

Skin protection:

The use of chemical resistant gloves such as Nitrile are recommended.

Please note that in practice the working life of chemical resistant gloves may be considerably reduced as a result of many influencing factors (e.g. temperature). Suitable risk assessment should be carried out by the end user. If signs of wear and tear are noticed then the gloves should be replaced.

Respiratory protection: Use only in well-ventilated areas.
If inhalation risk exists, wear a respirator or air supplied mask complying with the requirements of AS/NZS 1715 and AS/NZS 1716.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	red paste
Odor:	of acetic acid
Specific gravity:	1.01
Flash point:	> 93 °C (> 199.4 °F)
Vapor pressure:	13 mbar
Density:	1.01 g/cm3
Solubility:	Solvent: Water, Not soluble. Polymerizes in presence of water. Solvent: Acetone, Not determined
VOC content (2004/42/EC)	3.08 %

SECTION 10. STABILITY AND REACTIVITY

Conditions to avoid: Stable under normal conditions of storage and use.

Incompatible materials: Acids.
Bases.
Oxidizing agents.
Polymerises in presence of water.

Hazardous decomposition products: Acetic acid is liberated slowly upon contact with moisture.

At higher temperatures (>150C) may release formaldehyde (traces).

SECTION 11. TOXICOLOGICAL INFORMATION

HEALTH EFFECTS:

Ingestion: Not expected to be harmful by ingestion.
Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.

Skin: May cause skin irritation.

Eyes:	Vapors may irritate eyes. Contact with eyes will cause irritation.
Inhalation:	Acetic acid produced during cure may irritate eyes, nose and throat. When heated to temperatures exceeding 300° F (150° C) in the presence of air, silicones may form formaldehyde vapors. Formaldehyde is a potential cancer hazard and a known skin and respiratory sensitizer. Vapors irritate the eyes, nose and throat. Safe handling conditions may be maintained by keeping formaldehyde vapor concentrations below the OSHA permissible limit.
Chronic effects:	No chronic health effects are expected from the intended use of these products or from foreseeable handling of them in the workplace.

SECTION 12. ECOLOGICAL INFORMATION

General ecological information:	Cured Loctite products are typical polymers and do not pose any immediate environmental hazards. In the cured state contribution of this product to Environmental Hazards is insignificant in comparison to articles in which it is used. Precautions required with respect to Environmental Hazards of articles in which this product is used should be considered.
Ecotoxicity:	Do not empty into drains / surface water / ground water.
Mobility:	Cured adhesives are immobile.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal of product:	Follow all local, state, federal and provincial regulations for disposal. Cured rubber can be incinerated or landfilled following EPA and local regulations.
Disposal for uncleaned package:	After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated. Disposal must be made according to official regulations.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport:

Dangerous Goods information:	Not classified as Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

General information:
Not hazardous according to RID, ADR, ADNR, IMDG, IATA-DGR.

SECTION 15. REGULATORY INFORMATION

SUSDP Poisons Schedule:	None
AICS:	All components are listed or are exempt from listing on the Australian Inventory of Chemical Substances (AICS).

MATERIAL SAFETY DATA SHEET

SECTION 16. OTHER INFORMATION

Abbreviations/acronyms:

ADGC - Australian Dangerous Goods Code
ASCC - Australian Safety and Compensation Council
SUSDP - Standard for the Uniform Scheduling of Drugs and Poisons

Date of previous issue: 05.07.2006

Disclaimer:

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MATERIAL SAFETY DATA SHEET

SECTION 1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product name: LOCTITE 660 QUICK METAL RETAINING COMPOUND

Product-Code: 473166

Intended use: Anaerobic Adhesive

Supplier:
Henkel Australia Pty. Ltd.
135-141 Canterbury Road
3137 Kilsyth, Victoria

Australia

Phone: +61 (3) 9724 6444

Emergency information: 24 HOUR EMERGENCY CONTACT NUMBER 03 9724 6556

SECTION 2. HAZARDS IDENTIFICATION

STATEMENT OF HAZARDOUS NATURE:
Hazardous according to the criteria of ASCC.

Classification of material Xi - Irritant

Risk phrases:
R36/37/38 Irritating to eyes, respiratory system and skin.
R43 May cause sensitisation by skin contact.

Safety phrases:
S24 Avoid contact with skin.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S28 After contact with skin, wash immediately with plenty of water and soap.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

Dangerous Goods information:
Not classified as Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

Signal word:
HAZARDOUS

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Identity of ingredients:

Chemical ingredients	CAS-No.	Proportion
Methacrylic acid, monoester with propane-1,2-diol	27813-02-1	30 - 60 %
Cumene hydroperoxide	80-15-9	1 - 2.5 %
Maleic acid	110-16-7	0.1 - 1 %
Cumene	98-82-8	0.1 - 0.5 %
N,N-dimethyl-o-toluidine	609-72-3	0.1 - 0.5 %

SECTION 4. FIRST AID MEASURES

Ingestion:	Rinse out mouth, drink 1-2 glasses of water, do not induce vomiting. Seek medical advice.
Skin:	Rinse with running water and soap. Seek medical advice.
Eyes:	Rinse immediately with plenty of running water (for 10 minutes). Seek medical attention if necessary.
Inhalation:	Move to fresh air. If symptoms persist, seek medical advice.

SECTION 5. FIRE FIGHTING MEASURES

Suitable extinguishing media:	Foam, dry chemical or carbon dioxide.
Decomposition products in case of fire:	Oxides of carbon. Oxides of sulfur. Oxides of nitrogen. Irritating organic vapours.
Particular danger in case of fire:	None
Special protective equipment for fire-fighters:	Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions and emergency procedures:	Avoid skin and eye contact. See advice in chapter 8
Environmental precautions:	Do not let product enter drains.
Clean-up methods:	For small spills wipe up with paper towel and place in container for disposal. For large spills absorb onto inert absorbent material and place in sealed container for disposal.

SECTION 7. HANDLING AND STORAGE

Precautions for safe handling:	Use only in well-ventilated areas. Avoid skin and eye contact. Prolonged or repeated skin contact should be avoided to minimise any risk of sensitisation.
Conditions for safe storage:	Store in original containers at 8-21°C (46.4-69.8°F) and do not return residual materials to containers as contamination may reduce the shelf life of the bulk product.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

National exposure standards:

Ingredient	form of exposure	TWA (ppm)	TWA (mg/m3)	Peak Limit. (mg/m3)	STEL (ppm)	STEL (mg/m3)
		25	125	-	-	-
		-	-	-	75	375

Engineering controls: Local exhaust ventilation is recommended when general ventilation is not sufficient to control airborne contamination below occupational exposure limits.

Eye protection: Wear protective glasses.

Skin protection: Wear suitable protective clothing.
Avoid skin-contact.

Nitrile rubber gloves should be worn.

Please note that in practice the working life of chemical resistant gloves may be considerably reduced as a result of many influencing factors (e.g. temperature). Suitable risk assessment should be carried out by the end user. If signs of wear and tear are noticed then the gloves should be replaced.

Respiratory protection: Use only in well-ventilated areas.
If inhalation risk exists, wear a respirator or air supplied mask complying with the requirements of AS/NZS 1715 and AS/NZS 1716.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	grey paste
Odor:	characteristic
Specific gravity:	1.1
Boiling point:	> 149 °C (> 300.2 °F)
Flash point:	> 100 °C (> 212 °F)
Density:	1.098 g/cm3
Solubility:	Solvent: Water, Slight

SECTION 10. STABILITY AND REACTIVITY

Stability: Stable under recommended storage conditions.

Incompatible materials: Reacts with strong oxidants.

Hazardous decomposition products: May produce fumes when heated to decomposition. Fumes may contain carbon monoxide and other toxic fumes.

SECTION 11. TOXICOLOGICAL INFORMATION

HEALTH EFFECTS:

Ingestion: May be harmful if swallowed.

Skin: Causes skin irritation.
May cause allergic skin reaction.

Eyes: Contact with eyes will cause irritation.

Inhalation: May cause respiratory tract irritation.

Toxicity data:

Acute oral toxicity:

Cumene hydroperoxide 80-15-9	LD L0 (Mouse) = 5,000 mg/kg
Maleic acid 110-16-7	LD 50 (Mouse) = 2,400 mg/kg LD 50 (Rat) = 708 mg/kg
Cumene 98-82-8	LD 50 (Rat) = 2.91 g/kg LD 50 (Rat) = 1,400 mg/kg

SECTION 12. ECOLOGICAL INFORMATION

General ecological information: Do not empty into drains / surface water / ground water.
May cause long-term adverse effects in the aquatic environment.

SECTION 13. DISPOSAL CONSIDERATIONS

Waste disposal of product: Dispose of according to Federal, State and local governmental regulations.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport:

Dangerous Goods information: Not classified as Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road and Rail (ADG Code).

General information:
Not hazardous according to RID, ADR, ADNR, IMDG, IATA-DGR.

SECTION 15. REGULATORY INFORMATION

SUSDP Poisons Schedule: None

AICS: All components are listed or are exempt from listing on the Australian Inventory of Chemical Substances (AICS).

MATERIAL SAFETY DATA SHEET

SECTION 16. OTHER INFORMATION

Abbreviations/acronyms:

ADGC - Australian Dangerous Goods Code
ASCC - Australian Safety and Compensation Council
SUSDP - Standard for the Uniform Scheduling of Drugs and Poisons
STEL - Short term exposure limit
TWA - Time weighted average

Reason of change:

Reviewed MSDS. Reissued with new date. involved chapters: 1 - 16

Date of previous issue:

28.05.2008

Disclaimer:

The percentage weight (% w/w) of ingredients is not to be taken as a specification guaranteed by Henkel Australia Pty. Limited, but only as an approximate guide to the content of hazardous ingredients in the material. The information contained herein does not constitute a guarantee by Henkel Australia Pty. Limited concerning the properties of the material. The information contained in this Material Safety Data Sheet is offered in good faith and has been developed from what is believed to be accurate and reliable sources. The information is offered without warranty, representation, inducement or licence and Henkel Australia Pty. Limited assumes no legal responsibility for reliance upon same. Henkel Australia Pty. Limited disclaims any liability for loss, injury or damage incurred in connection with the use of the material or its associated Material Safety Data Sheet. This information is not to be construed as a representation that the material is suitable for any particular purpose or use except those conditions and warranties implied by either Commonwealth or State statutes. Customers are encouraged to make their own enquiries as to the material's characteristics and, where appropriate, to conduct their own tests in the specific context of the material's intended use.

SAFETY DATA SHEET

1. Identification

Product identifier **LPS® ChainMate**

Other means of identification

Part Number 02416

Recommended use A spray lubricant designed to penetrate chains and wire ropes, displace moisture and provide long lasting lubrication under high loads and humid conditions.

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Manufacturer

Company name LPS Laboratories, a division of Illinois Tool Works, Inc.

Address 4647 Hugh Howell Rd.
Tucker, GA 30084

Country (U.S.A.)
Tel: +1 770-243-8800

In Case of Emergency 1-800-424-9300 (inside U.S.)
+001 703-527-3887 (outside U.S.)

Website www.lpslabs.com

E-mail sds@lpslabs.com

2. Hazard(s) identification

Physical hazards	Flammable aerosols	Category 1
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2
	Specific target organ toxicity, single exposure	Category 3 narcotic effects

Environmental hazards Not classified.

OSHA defined hazards Not classified.

Label elements



Signal word Danger

Hazard statement Extremely flammable aerosol. Causes skin irritation. May cause drowsiness or dizziness. Causes serious eye irritation.

Precautionary statement

Prevention Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not spray on an open flame or other ignition source. Pressurized container: Do not pierce or burn, even after use. Do not breathe gas. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves. Wear eye/face protection.

Response If on skin: Wash with plenty of water. Specific treatment (see this label). If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Storage Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information 65.99% of the mixture consists of component(s) of unknown long-term hazards to the aquatic environment.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Heptane		142-82-5	10 - < 20
Petroleum Gases, Liquiified, Sweetened		68476-86-8	10 - < 20
Acetone		67-64-1	3 - < 5
Other components below reportable levels			70 - < 80

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation
Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention if irritation develops and persists.

Eye contact
Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation develops and persists.

Ingestion
Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed
Irritant effects. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Defatting of the skin. Rash. Symptoms of overexposure can include shortness of breath, drowsiness, headaches, confusion, decreased coordination, visual disturbances and vomiting, and are reversible if exposure is stopped.

Indication of immediate medical attention and special treatment needed
Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim under observation. Symptoms may be delayed.

General information
In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media
Powder. Water. Foam. Carbon dioxide (CO2).

Unsuitable extinguishing media
Do not use a solid water stream as it may scatter and spread fire.

Specific hazards arising from the chemical
Contents under pressure. Pressurized container may explode when exposed to heat or flame.

Special protective equipment and precautions for firefighters
Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

Fire-fighting equipment/instructions
Move containers from fire area if you can do so without risk. Containers should be cooled with water to prevent vapor pressure build up. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.

Specific methods
Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers exposed to flames with water until well after the fire is out. In the event of fire and/or explosion do not breathe fumes.

General fire hazards
Extremely flammable aerosol.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures
Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid breathing gas. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. Use personal protection recommended in Section 8 of the SDS.

Methods and materials for containment and cleaning up
Refer to attached safety data sheets and/or instructions for use. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. This material is classified as a water pollutant under the Clean Water Act and should be prevented from contaminating soil or from entering sewage and drainage systems which lead to waterways. Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable. Isolate area until gas has dispersed. Following product recovery, flush area with water. For waste disposal, see section 13 of the SDS.

Environmental precautions
Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Do not re-use empty containers. Do not breathe gas. Avoid contact with skin. Avoid contact with eyes. Avoid prolonged exposure. Avoid contact with clothing. Use only in well-ventilated areas. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Level 3 Aerosol.

Store locked up. Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C/122 °F. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Acetone (CAS 67-64-1)	PEL	2400 mg/m3 1000 ppm
Heptane (CAS 142-82-5)	PEL	2000 mg/m3 500 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Acetone (CAS 67-64-1)	STEL	750 ppm
	TWA	500 ppm
Heptane (CAS 142-82-5)	STEL	500 ppm
	TWA	400 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Acetone (CAS 67-64-1)	TWA	590 mg/m3 250 ppm
Heptane (CAS 142-82-5)	Ceiling	1800 mg/m3 440 ppm
	TWA	350 mg/m3 85 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Acetone (CAS 67-64-1)	50 mg/l	Acetone	Urine	*

* - For sampling details, please see the source document.

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles). Eye wash fountain is recommended.

Skin protection

Hand protection

Chemical resistant gloves are recommended.

Other

Avoid contact with clothing. Wear suitable protective clothing. Chemical resistant gloves.

Respiratory protection

No personal respiratory protective equipment normally required. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

Thermal hazards

Not applicable.

General hygiene considerations

When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state	Gas.
Form	Aerosol.
Color	Dark grey. Black.
Odor	Slight petroleum odor
Odor threshold	Not established
pH	Not applicable
Melting point/freezing point	Not established
Initial boiling point and boiling range	Not established
Flash point	< -0.4 °F (< -18.0 °C) Tag Closed Cup
Evaporation rate	Not established
Flammability (solid, gas)	Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not established
Flammability limit - upper (%)	Not established
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not established
Vapor density	> 1
Relative density	Not available.

Solubility(ies)

Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not established
Auto-ignition temperature	Not established
Decomposition temperature	Not established
Viscosity	31 cP

Other information

Density	7.09
Heat of combustion	> 30 kJ/g
Percent volatile	32.5 %
Specific gravity	0.85 @ 20ºC
VOC (Weight %)	24.5 % per US State and Federal Consumer Prodcut Regulations

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Strong acids.
Hazardous decomposition products	Upon decomposition this product emits acrid dense smoke with carbon dioxide, carbon monoxide, water and other products of combustion.

11. Toxicological information

Information on likely routes of exposure

Ingestion	May cause discomfort if swallowed. However, ingestion is not likely to be a primary route of occupational exposure.
Inhalation	Narcotic effects. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.
Eye contact	Causes serious eye irritation.

Symptoms related to the physical, chemical and toxicological characteristics Skin irritation. Causes serious eye irritation. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea.

Information on toxicological effects

Acute toxicity Based on available data, the classification criteria are not met.

Components	Species	Test Results
Acetone (CAS 67-64-1)		
Acute		
Dermal		
LD50	Rabbit	20000 mg/kg
		20 ml/kg
Inhalation		
LC50	Rat	76 mg/l, 4 Hours
		50.1 mg/l, 8 Hours
Oral		
LD50	Mouse	3000 mg/kg
	Rabbit	5340 mg/kg
	Rat	5800 mg/kg
Other		
LD50	Mouse	1297 mg/kg
	Rat	5500 mg/kg
Heptane (CAS 142-82-5)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Inhalation		
LC50	Rat	> 29.29 mg/l
		103 mg/l, 4 Hours
LD50	Mouse	75 mg/l, 2 Hours
Oral		
LD50	Rat	> 5000 mg/kg
Other		
LD50	Mouse	222 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Based on available data, the classification criteria are not met.

Skin sensitization Based on available data, the classification criteria are not met.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Based on available data, the classification criteria are not met.

ACGIH Carcinogens

Acetone (CAS 67-64-1) Not classifiable as a human carcinogen. A4

Reproductive toxicity Based on available data, the classification criteria are not met.

Specific target organ toxicity - single exposure Narcotic effects.

Specific target organ toxicity - repeated exposure Based on available data, the classification criteria are not met.

Aspiration hazard Based on available data, the classification criteria are not met.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects.

Components		Species	Test Results
Acetone (CAS 67-64-1)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	10294 - 17704 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	4740 - 6330 mg/l, 96 hours
Heptane (CAS 142-82-5)			
Aquatic			
Fish	LC50	Mozambique tilapia (Tilapia mossambica)	375 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability Not inherently biodegradable.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

LPS® ChainMate	> 1
Acetone	-0.24
Heptane	4.66

Mobility in soil Readily absorbed into soil.

Other adverse effects None known.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Contents under pressure. Do not puncture, incinerate or crush. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D001: Waste Flammable material with a flash point <140 F
D003: Waste Reactive material

US RCRA Hazardous Waste U List: Reference

Acetone (CAS 67-64-1) U002

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied. Do not re-use empty containers.

14. Transport information

DOT

UN number UN1950
UN proper shipping name Aerosols, flammable
Transport hazard class(es)
Class 2.1
Subsidiary risk -
Label(s) 2.1
Packing group Not applicable.
Environmental hazards
Marine pollutant No
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions N82
Packaging exceptions 306
Packaging bulk None

IATA

UN number UN1950
UN proper shipping name Aerosols, flammable
Transport hazard class(es)
Class 2.1
Subsidiary risk -
Packing group Not applicable.
Environmental hazards No.
ERG Code 10L

Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed.
Cargo aircraft only	Allowed.

IMDG

UN number	UN1950
UN proper shipping name	AEROSOLS, flammable (Heptane), MARINE POLLUTANT
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	Yes
EmS	F-D, S-U
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

DOT



IATA; IMDG



Marine pollutant



15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Acetone (CAS 67-64-1) LISTED

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

SARA 304 Emergency release notification

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - Yes
Reactivity Hazard - No

SARA 302 Extremely hazardous substance Yes

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)
Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)
Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Acetone (CAS 67-64-1)	6532

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Acetone (CAS 67-64-1)	35 % weight/volumn

DEA Exempt Chemical Mixtures Code Number

Acetone (CAS 67-64-1)	6532

US state regulations

US. Massachusetts RTK - Substance List
Acetone (CAS 67-64-1)
Heptane (CAS 142-82-5)

US. New Jersey Worker and Community Right-to-Know Act
Not regulated.

US. Pennsylvania RTK - Hazardous Substances
Acetone (CAS 67-64-1)
Heptane (CAS 142-82-5)

US. Rhode Island RTK
Acetone (CAS 67-64-1)

US. California Proposition 65
California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 09-19-2013

Revision date	11-05-2013
Version #	02
HMIS® ratings	Health: 1 Flammability: 4 Physical hazard: 0
NFPA ratings	Health: 1 Flammability: 4 Instability: 0
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.
Revision Information	Composition / Information on Ingredients: Ingredients Physical & Chemical Properties: Multiple Properties Transport Information: Material Transportation Information Regulatory Information: United States HazReg Data: International Inventories GHS: Classification

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	**LPS® QB Duster**
Version #	02
Issue date	11-19-2012
Revision date	12-04-2012
Supersedes date	12-04-2012
CAS #	Mixture
Part Number	05710
Product use	A nonflammable duster for removing contaminants, dirt, dust and other soils.
Manufacturer information	LPS Laboratories, a division of Illinois Tool Works 4647 Hugh Howell Rd Tucker, GA 30084 United States www.lpslabs.com 1-800-241-8334 / 770-243-8800 Chemtrec 1-800-424-9300

2. Hazards Identification

Emergency overview	CONTENTS UNDER PRESSURE. Aerosol. Pressurized container may explode when exposed to heat or flame. Irritating to eyes, respiratory system and skin. May cause drowsiness or dizziness.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Eyes	Avoid contact with eyes. Irritating to eyes. May cause frostbite.
Skin	Avoid contact with the skin. Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis. May cause frostbite.
Inhalation	Do not breathe vapor. Irritating to respiratory system. Vapors may cause dizziness or asphyxiation without warning. In susceptible individuals, cardiac sensitization can result in potentially fatal heartbeat irregularities.
Ingestion	Unlikely due to volatile nature of product. Low order of oral toxicity.
Signs and symptoms	Irritating to eyes, respiratory system and skin. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Symptoms may include redness, edema, drying, defatting and cracking of the skin. Vapors have a narcotic effect and may cause headache, fatigue, dizziness and nausea. Persons with impaired cardiovascular function, heart disease or compromised heart function should avoid exposure. Inhalation of very high concentrations may result in cardiac arrhythmia.

3. Composition / Information on Ingredients

Components	CAS #	Percent
ETHANE, 1,1,1,2-TETRAFLUORO-(HFC-134a)	811-97-2	90 - 100

4. First Aid Measures

First aid procedures

Eye contact	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention if irritation develops and persists.
Skin contact	Wash off with warm water. In case of contact with liquefied gas, thaw frosted parts with lukewarm water. Get medical attention if irritation develops and persists.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician if symptoms develop or persist. DO NOT give adrenaline, epinephrine or similar drugs following exposure to this product.
Ingestion	Not applicable.
General advice	If you feel unwell, seek medical advice (show the label where possible).

5. Fire Fighting Measures

Flammable properties The product is not flammable; however, it will become combustible in an oxygen rich environment or when mixed with air under pressure and exposed to strong ignition sources. Pressurized container may explode when exposed to heat or flame.

Extinguishing media

Suitable extinguishing media Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media None known.

Protection of firefighters

Specific hazards arising from the chemical Contents under pressure. Pressurized container may explode when exposed to heat or flame.

Fire fighting equipment/instructions As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Cool containers / tanks with water spray.

Specific methods Cool containers exposed to flames with water until well after the fire is out.

Hazardous combustion products Hydrogen fluoride, hydrogen chloride, chlorine, carbon monoxide and carbon dioxide.

6. Accidental Release Measures

Personal precautions Use a NIOSH/MSHA approved respirator if there is a risk of exposure at levels exceeding the exposure limits. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them.

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods for containment ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. Move the cylinder to a safe and open area if the leak is irreparable.

Methods for cleaning up Stop the flow of material, if this is without risk. Isolate area until gas has dispersed. For waste disposal, see section 13 of the MSDS.

7. Handling and Storage

Handling Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Ground and bond containers when transferring material. Do not re-use empty containers. Use only in well-ventilated areas. Handle and open container with care.

Storage Level 1 Aerosol.

Contents under pressure. Do not expose to heat or store at temperatures above 120°F/49°C as can may burst. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. Keep tightly closed in a dry, cool and well-ventilated place. Keep out of the reach of children.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value	Form
ETHANE, 1,1,1,2-TETRAFLUORO-(HFC-134a) (CAS 811-97-2)	TWA	1000 ppm	8 hour

Personal protective equipment

Eye / face protection Not normally needed.

Skin protection Normal work clothing (long sleeved shirts and long pants) is recommended.

Respiratory protection No personal respiratory protective equipment normally required. If permissible levels are exceeded use NIOSH mechanical filter / organic vapor cartridge or an air-supplied respirator.

General hygiene considerations Do not eat, drink or smoke when using the product. Do not get in eyes, on skin, on clothing. Wash hands after handling. Handle in accordance with good industrial hygiene and safety practice.

9. Physical & Chemical Properties

Appearance	Liquefied gas.
Physical state	Gas.
Form	Aerosol. Liquefied gas.
Color	Clear.Colorless
Odor	Ether-like.
Odor threshold	Not established.
pH	Not applicable.
Vapor pressure	4432 mm Hg @ 21.1ºC
Vapor density	3.54
Boiling point	-15.52 °F (-26.4 °C)
Solubility (water)	0.9 g/l @ 25°C
Specific gravity	1.19 - 1.23 @ 20°C
Relative density	Not available.
Flash point	Not applicable.
Flammability limits in air, upper, % by volume	Not available.
Flammability limit - upper (%) temperature	None.
Flammability limits in air, lower, % by volume	Not available.
Flammability limit - lower (%) temperature	None.
Auto-ignition temperature	1369.4 °F (743 °C)
VOC	0% per State & Federal Consumer Product Regulations
Evaporation rate	Not applicable.
Viscosity	Not established.
Percent volatile	100 %
Partition coefficient (n-octanol/water)	> 1
Other data	
Decomposition temperature	> 698 °F (> 370 °C)
Heat of combustion	< 20 kJ/g

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Avoid heat, sparks, open flames and other ignition sources.
Incompatible materials	Alkalies. Powdered metal. Magnesium. Aluminum. Zinc. Strong oxidizing agents.
Hazardous decomposition products	Thermal decomposition may yield hydrogen fluoride, carbon monoxide, carbon dioxide and carbonyl halide.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Chronic effects	Prolonged inhalation may be harmful. Prolonged or repeated contact may cause drying, cracking, or irritation.

12. Ecological Information

Persistence and degradability	Not inherently biodegradable.
Bioaccumulation / Accumulation	

Bioaccumulative potential

Octanol/water partition coefficient log Kow

LPS® QB Duster	> 1
ETHANE, 1,1,1,2-TETRAFLUORO-(HFC-134a)	1.06

Partition coefficient

LPS® QB Duster	> 1
ETHANE, 1,1,1,2-TETRAFLUORO-(HFC-134a)	1.06

13. Disposal Considerations

Waste codes	D003: Waste Reactive material
Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Contents under pressure. Do not puncture, incinerate or crush. Dispose in accordance with all applicable regulations.
Waste from residues / unused products	Not applicable.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

14. Transport Information

DOT

Basic shipping requirements:

UN number	UN3159
Proper shipping name	1,1,1,2-tetrafluoroethane
Hazard class	2.2
Special precautions	Read safety instructions, MSDS and emergency procedures before handling. This product ships under Special Permit DOT-SP 10232.

Additional information:

Packaging exceptions	306
Packaging non bulk	None
Packaging bulk	None

IATA

UN number	UN3159
UN proper shipping name	1,1,1,2-tetrafluoroethane
Transport hazard class(es)	2.2
ERG code	2L
Special precautions for user	NOTE: Special Permit (DOT-SP 10232) copy required with shipping papers.

IMDG

UN number	UN3159
UN proper shipping name	1,1,1,2-tetrafluoroethane
Transport hazard class(es)	2.2
EmS	F-C, S-V

DOT



IATA; IMDG



15. Regulatory Information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Not listed.

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated.

DEA Exempt Chemical Mixtures Code Number

Not regulated.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA (Superfund) reportable quantity

None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - Yes
Pressure Hazard - Yes
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

No

SARA 311/312 Hazardous chemical

No

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

State regulations

US. Massachusetts RTK - Substance List

Not regulated.

US. Pennsylvania RTK - Hazardous Substances

Not regulated.

US. Rhode Island RTK

Not regulated.

16. Other Information

Further information	HMIS® is a registered trade and service mark of the NPCA.
HMIS® ratings	Health: 1 Flammability: 1 Physical hazard: 2
NFPA ratings	Health: 2 Flammability: 1 Instability: 0
Disclaimer	The information in the sheet was written based on the best knowledge and experience currently available.
This data sheet contains changes from the previous version in section(s):	Product and Company Identification: Alternate Trade Names Transport Information: Material Transportation Information Regulatory Information: United States

PRODUCT NUMBERS: ST100DNA; ST100BNA; CN30DNA

SAFETY DATA SHEET

This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements and the International Chemical Safety Cards of the Global Harmonizing System.
THIS SDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD)
IMPORTANT: Read this SDS before handling & disposing of this product.
Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTITY: RESPIRATORY FLUID WITH ALCOHOL
NEW MSDS DATE: 05/01/2013
COMPANY IDENTITY: Magic Safety Products
COMPANY ADDRESS: 4301 B New Brunswick Ave.
COMPANY CITY: South Plainfield, NJ 07080
COMPANY PHONE: 1-732-968-0008
EMERGENCY PHONES: CHEMTREC: 1-800-424-9300 (USA)
CANUTEC: 1-613-996-6666 (CANADA)

SECTION 2. HAZARDS IDENTIFICATION

DANGER!!

RISK STATEMENTS:
R36/37/38 Irritating to eyes, respiratory system and skin.
R11 Highly Flammable.
R67 Vapors may cause drowsiness and dizziness.

SAFETY STATEMENTS:
S24/25 Avoid contact with skin and eyes.
S7 Keep container tightly closed.
S16 Keep away from sources of ignition. No smoking.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

SEE SECTION 11 FOR OTHER TOXICOLOGICAL INFORMATION (ACUTE & CHRONIC HAZARDS)

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS#	EINECS#	WT%	TWA (OSHA)	TLV (ACGIH)
Isopropanol	67-63-0	200-661-7	65-75	400 ppm	200 ppm A4
Water	7732-18-5	231-791-2	25-35	None Known	None Known

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS (CONTINUED)

MATERIAL	CAS#	EINECS#	CEILING	STEL(OSHA/ACGIH)	HAP
Isopropanol	67-63-0	200-661-7	None Known	400 ppm	No

This product contains no EPA Hazardous Air Pollutants (HAP) in amounts > 0.1%.

SECTION 4. FIRST AID MEASURES

EYE CONTACT:
For eyes, flush with plenty of water for 15 minutes & get medical attention.

SKIN CONTACT:
In case of contact with skin immediately remove contaminated clothing.
Wash thoroughly with soap & water. Wash contaminated clothing before reuse.

INHALATION:
After high vapor exposure, remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, trained personnel should immediately begin artificial respiration. If the heart has stopped, trained personnel should immediately begin cardiopulmonary resuscitation (CPR).

SWALLOWING:
Rinse mouth. Do NOT induce vomiting. GET MEDICAL ATTENTION IMMEDIATELY.
Do NOT give liquids to an unconscious or convulsing person.

SECTION 5. FIRE FIGHTING MEASURES

FIRE & EXPLOSION PREVENTIVE MEASURES
NO open flames, NO sparks, & NO smoking. Above flash point, use a closed system, ventilation, explosion-proof electrical equipment, lighting.

EXTINGUISHING MEDIA
Use dry powder, alcohol-resistant foam, water in large amounts, carbon dioxide.

SPECIAL FIRE FIGHTING PROCEDURES
Water spray may be ineffective on fire but can protect fire-fighters & cool closed containers. Use fog nozzles if water is used.
Do not enter confined fire-space without full bunker gear.
(Helmet with face shield, bunker coats, gloves & rubber boots).
Use NIOSH approved positive-pressure self-contained breathing apparatus.

UNUSUAL EXPLOSION AND FIRE PROCEDURES
HIGHLY FLAMMABLE!! VAPORS CAN CAUSE FLASH FIRE
Isolate from oxidizers, heat, sparks, electric equipment & open flame.
Closed containers may explode if exposed to extreme heat.
Applying to hot surfaces requires special precautions.
Empty container very hazardous! Continue all label precautions!

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTIVE MEASURES:
Vapors may ignite explosively & spread long distances. Prevent vapor buildup.
Keep unprotected personnel away. Remove all ignition sources.
Filter respirator for organic vapors.

ENVIRONMENTAL PRECAUTIONS:
Keep from entering storm sewers and ditches which lead to waterways.

CONTAINMENT AND CLEAN-UP MEASURES:
Stop spill at source. Dike and contain. Collect leaking liquid in sealable containers.
Absorb remaining liquid in sand or inert absorbent. Remove to safe place.

SECTION 7. HANDLING AND STORAGE

HANDLING
Isolate from oxidizers, heat, sparks, electric equipment & open flame.
Use only with adequate ventilation. Avoid breathing of vapor or spray mist.
Avoid contact with skin & eyes.
Wear OSHA Standard goggles or face shield. Consult Safety Equipment Supplier. Wear gloves, apron & footwear impervious to this material. Wash clothing before reuse.
Avoid free fall of liquid. Ground containers when transferring. Do not flame cut, saw, drill, braze, or weld. Empty container very hazardous! Continue all label precautions!
To minimize static discharge when transferring, ensure electrical continuity by bonding and grounding all equipment. Use an inlet line diameter of at least 3.5 inches (8.9 centimeters) with a maximum flow rate of 1 meter/second.

STORAGE
Keep in fireproof surroundings. Keep separated from strong oxidants. Keep cool.
Do not store above 49 C/120 F. Keep container tightly closed & upright when not in use to prevent leakage.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY EXPOSURE CONTROLS
A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z86.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

VENTILATION

LOCAL EXHAUST:	Necessary	MECHANICAL (GENERAL):	Acceptable
SPECIAL:	None	OTHER:	None

Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

PERSONAL PROTECTIONS:
Wear OSHA Standard goggles or face shield. Consult Safety Equipment Supplier. Wear gloves, apron & footwear impervious to this material. Wash clothing before reuse.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

WORK & HYGIENIC PRACTICES:
Provide readily accessible eye wash stations & safety showers.
Wash at end of each workshift & before eating, smoking or using the toilet.
Promptly remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE:	Liquid, Water-White
ODOR:	Alcohol
ODOR THRESHOLD:	Not Available
pH (Neutrality):	Not Applicable
MELTING POINT/FREEZING POINT:	Not Available
BOILING RANGE (IBP,50%,Dry Point):	80 85 100 C / 177 185 212 F
FLASH POINT (TEST METHOD):	11 C / 53 F (TCC)
EVAPORATION RATE (n-BUTYL ACETATE=1):	0.555
FLAMMABILITY CLASSIFICATION:	Class I B
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	2.0 (Lowest Component)
UPPER FLAMMABLE LIMIT IN AIR (% by vol):	Not Available
VAPOR PRESSURE (mm of Hg)@20 C	23.9
VAPOR DENSITY (air=1):	1.2
GRAVITY @ 68/68 F / 20/20 C:	
SPECIFIC GRAVITY (Water=1):	0.850
POUNDS/GALLON:	7.081
WATER SOLUBILITY:	Complete
PARTITION COEFFICIENT (n-Octane/Water):	Not Available
AUTO IGNITION TEMPERATURE:	398 C / 750 F
DECOMPOSITION TEMPERATURE:	Not Available
REFRACTIVE INDEX:	1.367
VOC'S (>0.44 Lbs/Sq In) :	69.2 Vol% / 588.5 g/L / 4.9 Lbs/Gal
TOTAL VOC'S (TVOC):	74.8 Vol% / 588.5 g/L / 4.9 Lbs/Gal
NONEXEMPT VOC'S (CVOC):	74.8 Vol% / 588.5 g/L / 4.9 Lbs/Gal
HAZARDOUS AIR POLLUTANTS (HAPS):	0.0 Wt% /0.0 g/L / 0.000 Lbs/Gal
NONEXEMPT VOC PARTIAL PRESSURE (mm of Hg @ 20 C)	13.6

SECTION 10. STABILITY & REACTIVITY

STABILITY
Stable under normal conditions.

CONDITIONS TO AVOID
Isolate from oxidizers, heat, sparks, electric equipment & open flame.

MATERIALS TO AVOID
Reacts with strong oxidants, causing fire & explosion hazard. Attacks

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon Monoxide, Carbon Dioxide from burning.

HAZARDOUS POLYMERIZATION
Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

ACUTE HAZARDS

EYE & SKIN CONTACT:
Primary irritation to skin, defatting, dermatitis.
Primary irritation to eyes, redness, tearing, blurred vision.
Liquid can cause eye irritation. Wash thoroughly after handling.

INHALATION:
Anesthetic. Irritates respiratory tract. Acute overexposure can cause serious nervous system depression. Vapor harmful.
Breathing vapor can cause irritation.
Acute overexposure can cause harm to kidneys, blood, nerves, liver, lungs.

SWALLOWING:
Swallowing can cause abdominal irritation, nausea, vomiting & diarrhea.

SUBCHRONIC HAZARDS/CONDITIONS AGGRAVATED

CONDITIONS AGGRAVATED
Chronic overexposure can cause harm to kidneys, blood, nerves, liver, lungs.
Persons with severe skin, liver or kidney problems should avoid use.

CHRONIC HAZARDS

CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS:
This product has no carcinogens listed by IARC, NTP, NIOSH, OSHA or ACGIH, as of this date, greater or equal to 0.1%.

MAMMALIAN TOXICITY INFORMATION

MATERIAL	CAS#	EINECS#	LOWEST KNOWN LETHAL DOSE DATA
			LOWEST KNOWN LD50 (ORAL)
Isopropanol	67-63-0	200-661-7	5840.0 mg/kg(Rats)
			LOWEST KNOWN LC50 (VAPORS)
Isopropanol	67-63-0	200-661-7	1600 ppm (Rats)
			LOWEST KNOWN LD50 (SKIN)
Isopropanol	67-63-0	200-661-7	16400.0 mg/kg (Rabbits)

SECTION 12. ECOLOGICAL INFORMATION

AQUATIC ANIMAL INFORMATION:
The most sensitive known aquatic group to any component of this product is:
Chub 1000 ppm or mg/L (24 hour exposure).
Keep out of sewers and natural water supplies.

MOBILITY IN SOIL
This material is a mobile liquid.

DEGRADABILITY
This product is completely biodegradable.

ACCUMULATION
This product does not accumulate or biomagnify in the environment.

SECTION 13. DISPOSAL CONSIDERATIONS

Processing, use or contamination may change the waste management options.
Recycle / dispose of observing national, regional, state, provincial and local health, safety & pollution laws. If in doubt, contact appropriate agencies.

SECTION 14. TRANSPORT INFORMATION

DOT SHIPPING NAME: UN1219, Isopropyl alcohol solution, 3, PG-II
DRUM LABEL: (FLAMMABLE LIQUID)
IATA / ICAO: UN1219, Isopropyl alcohol solution, 3, PG-II
IMO / IMDG: UN1219, Isopropyl alcohol solution, 3, PG-II
EMERGENCY RESPONSE GUIDEBOOK NUMBER: 129

SECTION 15. REGULATORY INFORMATION

EPA REGULATION:
SARA SECTION 311/312 HAZARDS: Acute Health, Fire

All components of this product are on the TSCA list.
This material contains no known products restricted under SARA Title III, Section 313 in amounts greater or equal to 1%.

SECTION 15. REGULATORY INFORMATION (CONTINUED)

INTERNATIONAL REGULATIONS
The components of this product are listed on the chemical inventories of the following countries:
Australia, Canada, China, Europe (EINECS), Japan, Korea, United Kingdom.

CANADA: WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)
B2: Flammable Liquid.
D2B: Irritating to skin / eyes.

SECTION 16. OTHER INFORMATION

HAZARD RATINGS:
HEALTH (NFPA): 1, HEALTH (HMIS): 2, FLAMMABILITY: 3, REACTIVITY: 0
(Personal Protection Rating to be supplied by user based on use conditions.)
This information is intended solely for the use of individuals trained in the NFPA & HMIS hazard rating systems.

EMPLOYEE TRAINING
See Section 2 for Risk & Safety Statements. Employees should be made aware of all hazards of this material (as stated in this SDS) before handling it.

NOTICE

The supplier disclaims all expressed or implied warranties of merchantability or fitness for a specific use, with respect to the product or the information provided herein, except for conformation to contracted specifications. All information appearing herein is based upon data obtained from manufacturers and/or recognized technical sources. While the information is believed to be accurate, we make no representations as to its accuracy or sufficiency.
Conditions of use are beyond our control, and therefore users are responsible for verifying the data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their handling, and disposal of the product. Users also assume all risks in regards to the publication or use of, or reliance upon information contained herein.
This information relates only to the product designated herein, and does not relate to its use in combination with any other material or process.

Unless updated, the Safety Data Sheet is valid until 05/01/2016.

PRODUCT NUMBERS: 716FBG; 716FP; 716MF; 708FBG; 708FP; 700FBG; 702FBG; 702PFBG; 1200FBG; 600FBG; TW100DS; TW100BS; 851DFF; 860DFF; 351DFF; TW100FBG; CN30DS; PL800FBG; 1520FBG

SAFETY DATA SHEET

This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements and the International Chemical Safety Cards of the Global Harmonizing System.
THIS SDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD)
IMPORTANT: Read this SDS before handling & disposing of this product.
Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTITY: MAGIC FOG-BE-GONE
NEW MSDS DATE: 05/01/2013
COMPANY IDENTITY: Magic Safety Products
COMPANY ADDRESS: 4301 B New Brunswick Ave.
COMPANY CITY: South Plainfield, NJ 07080
COMPANY PHONE: 1-732-968-0008
EMERGENCY PHONES: CHEMTREC: 1-800-424-9300 (USA)
CANUTEC: 1-613-996-6666 (CANADA)

SECTION 2. HAZARDS IDENTIFICATION

DANGER!!

RISK STATEMENTS:
R36/37/38 Irritating to eyes, respiratory system and skin.
R11 Highly Flammable.
R67 Vapors may cause drowsiness and dizziness.

SAFETY STATEMENTS:
S24/25 Avoid contact with skin and eyes.
S7 Keep container tightly closed.
S16 Keep away from sources of ignition. No smoking.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

SEE SECTION 11 FOR OTHER TOXICOLOGICAL INFORMATION (ACUTE & CHRONIC HAZARDS)

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS#	EINECS#	WT%	TWA (OSHA)	TLV (ACGIH)
Water	7732-18-5	231-791-2	85-90	None Known	None Known
Isopropanol	67-63-0	200-661-7	0-10	400 ppm	200 ppm A4
Copolymer Surfactant	67762-85-0	-	0- 5	None Known	None Known
Alcohol Ethoxy Sulfate	3088-31-1	-	0- 5	None Known	None Known
Sodium Xylene Sulfonate	1300-72-7	-	0- 5	None Known	None Known
Propylene Glycol n-Butyl Ether	5131-668	-	0- 5	None Known	None Known

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS (CONTINUED)

MATERIAL	CAS#	EINECS#	CEILING	STEL(OSHA/ACGIH)	HAP
Isopropanol	67-63-0	200-661-7	None Known	400 ppm	No

This product contains no EPA Hazardous Air Pollutants (HAP) in amounts > 0.1%.

SECTION 4. FIRST AID MEASURES

EYE CONTACT:
For eyes, flush with plenty of water for 15 minutes & get medical attention.

SKIN CONTACT:
In case of contact with skin immediately remove contaminated clothing.
Wash thoroughly with soap & water. Wash contaminated clothing before reuse.

INHALATION:
After high vapor exposure, remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, trained personnel should immediately begin artificial respiration. If the heart has stopped, trained personnel should immediately begin cardiopulmonary resuscitation (CPR).

SWALLOWING:
Rinse mouth. Do NOT induce vomiting. GET MEDICAL ATTENTION IMMEDIATELY.
Do NOT give liquids to an unconscious or convulsing person.

SECTION 5. FIRE FIGHTING MEASURES

FIRE & EXPLOSION PREVENTIVE MEASURES
NO open flames, NO sparks, & NO smoking. Above flash point, use a closed system, ventilation, explosion-proof electrical equipment, lighting.

EXTINGUISHING MEDIA
Use dry powder, alcohol-resistant foam, water in large amounts, carbon dioxide.

SPECIAL FIRE FIGHTING PROCEDURES
Water spray may be ineffective on fire but can protect fire-fighters & cool closed containers. Use fog nozzles if water is used.
Do not enter confined fire-space without full bunker gear.
(Helmet with face shield, bunker coats, gloves & rubber boots).
Use NIOSH approved positive-pressure self-contained breathing apparatus.

UNUSUAL EXPLOSION AND FIRE PROCEDURES
COMBUSTIBLE!
Isolate from oxidizers, heat, sparks, electric equipment & open flame.
Closed containers may explode if exposed to extreme heat.
Applying to hot surfaces requires special precautions.
Empty container very hazardous! Continue all label precautions!

SECTION 6. ACCIDENTAL RELEASE MEASURES

PERSONAL PROTECTIVE MEASURES:
Vapors may ignite explosively & spread long distances. Prevent vapor buildup.
Keep unprotected personnel away. Remove all ignition sources.
Filter respirator for organic vapors.

ENVIRONMENTAL PRECAUTIONS:
Keep from entering storm sewers and ditches which lead to waterways.

CONTAINMENT AND CLEAN-UP MEASURES:
Stop spill at source. Dike and contain. Collect leaking liquid in sealable containers.
Absorb remaining liquid in sand or inert absorbent. Remove to safe place.

SECTION 7. HANDLING AND STORAGE

HANDLING
Isolate from oxidizers, heat, sparks, electric equipment & open flame.
Use only with adequate ventilation. Avoid breathing of vapor or spray mist.
Avoid contact with skin & eyes.
Wear OSHA Standard goggles or face shield. Consult Safety Equipment Supplier. Wear gloves, apron & footwear impervious to this material. Wash clothing before reuse.
Avoid free fall of liquid. Ground containers when transferring. Do not flame cut, saw, drill, braze, or weld. Empty container very hazardous! Continue all label precautions!

STORAGE
Keep in fireproof surroundings. Keep separated from strong oxidants. Keep cool.
Do not store above 49 C/120 F. Keep container tightly closed
& upright when not in use to prevent leakage.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY EXPOSURE CONTROLS
A respiratory protection program that meets OSHA 29 CFR 1910.134 and ANSI Z86.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

VENTILATION

LOCAL EXHAUST:	Necessary	MECHANICAL (GENERAL):	Acceptable
SPECIAL:	None	OTHER:	None

Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

PERSONAL PROTECTIONS:
Wear OSHA Standard goggles or face shield. Consult Safety Equipment Supplier. Wear gloves, apron & footwear impervious to this material. Wash clothing before reuse.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

WORK & HYGIENIC PRACTICES:
Provide readily accessible eye wash stations & safety showers.
Wash at end of each workshift & before eating, smoking or using the toilet.
Promptly remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE:	Liquid, Water-White
ODOR:	Alcohol
ODOR THRESHOLD:	Not Available
pH (Neutrality):	Not Applicable
MELTING POINT/FREEZING POINT:	Not Available
BOILING RANGE (IBP, 50%, Dry Point):	80 96 100*C/177 205 212*F(*=End Point)
FLASH POINT (TEST METHOD):	> 39 C / > 102 F (TCC)
EVAPORATION RATE (n-BUTYL ACETATE=1):	Not Applicable
FLAMMABILITY CLASSIFICATION:	Class II
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	2.0 (Lowest Component)
UPPER FLAMMABLE LIMIT IN AIR (% by vol):	Not Available
VAPOR PRESSURE (mm of Hg)@20 C	17.9
VAPOR DENSITY (air=1):	0.708
GRAVITY @ 68/68 F / 20/20 C:	
SPECIFIC GRAVITY (Water=1):	0.971
POUNDS/GALLON:	8.087
WATER SOLUBILITY:	Appreciable
PARTITION COEFFICIENT (n-Octane/Water):	Not Available
AUTO IGNITION TEMPERATURE:	398 C / 750 F
DECOMPOSITION TEMPERATURE:	Not Available
REFRACTIVE INDEX:	1.338
VOC'S (>0.44 Lbs/Sq In) :	8.1 Vol% / 78.3 g/L / 0.6 Lbs/Gal
TOTAL VOC'S (TVOC):	9.9 Vol% / 78.3 g/L / 0.6 Lbs/Gal
NONEXEMPT VOC'S (CVOC):	9.9 Vol% / 78.3 g/L / 0.6 Lbs/Gal
HAZARDOUS AIR POLLUTANTS (HAPS):	0.0 Wt% /0.0 g/L / 0.000 Lbs/Gal
NONEXEMPT VOC PARTIAL PRESSURE (mm of Hg @ 20 C)	0.916

SECTION 10. STABILITY & REACTIVITY

STABILITY
Stable under normal conditions.

CONDITIONS TO AVOID
Isolate from oxidizers, heat, sparks, electric equipment & open flame.

MATERIALS TO AVOID
Reacts with strong oxidants, causing fire & explosion hazard. Attacks

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon Monoxide, Carbon Dioxide from burning.

HAZARDOUS POLYMERIZATION
Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

ACUTE HAZARDS

EYE & SKIN CONTACT:
Primary irritation to skin, defatting, dermatitis.
Primary irritation to eyes, redness, tearing, blurred vision.
Liquid can cause eye irritation. Wash thoroughly after handling.

INHALATION:
Anesthetic. Irritates respiratory tract. Acute overexposure can cause serious nervous system depression. Vapor harmful.
Breathing vapor can cause irritation.
Acute overexposure can cause harm to kidneys, blood, nerves, liver, lungs.

SWALLOWING:
Swallowing can cause abdominal irritation, nausea, vomiting & diarrhea.

SUBCHRONIC HAZARDS/CONDITIONS AGGRAVATED

CONDITIONS AGGRAVATED
Chronic overexposure can cause harm to kidneys, blood, nerves, liver, lungs.
Persons with severe skin, liver or kidney problems should avoid use.

CHRONIC HAZARDS

CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS:
This product has no carcinogens listed by IARC, NTP, NIOSH, OSHA or ACGIH, as of this date, greater or equal to 0.1%.

MAMMALIAN TOXICITY INFORMATION

MATERIAL	CAS#	EINECS#	LOWEST KNOWN LETHAL DOSE DATA
			LOWEST KNOWN LD50 (ORAL)
Isopropanol	67-63-0	200-661-7	5840.0 mg/kg(Rats)
			LOWEST KNOWN LC50 (VAPORS)
Isopropanol	67-63-0	200-661-7	1600 ppm (Rats)
			LOWEST KNOWN LD50 (SKIN)
Isopropanol	67-63-0	200-661-7	16400.0 mg/kg (Rabbits)

SECTION 12. ECOLOGICAL INFORMATION

AQUATIC ANIMAL INFORMATION:
The most sensitive known aquatic group to any component of this product is:
Chub 1000 ppm or mg/L (24 hour exposure).
Keep out of sewers and natural water supplies.

MOBILITY IN SOIL
This material is a mobile liquid.

DEGRADABILITY
This product is partially biodegradable.

ACCUMULATION
Bioaccumulation of this product has not been determined.

SECTION 13. DISPOSAL CONSIDERATIONS

Processing, use or contamination may change the waste management options.
Recycle / dispose of observing national, regional, state, provincial and local health, safety & pollution laws. If in doubt, contact appropriate agencies.

SECTION 14. TRANSPORT INFORMATION

DOT SHIPPING NAME: NONBULK: None
BULK: Combustible liquid, n.o.s.
(contains: Isopropyl Alcohol, Propylene Glycol n-Butyl Ether), PG-III
DRUM LABEL: None, COMBUSTIBLE LIQUID
IATA / ICAO: Flammable liquid, n.o.s. (contains: Isopropyl Alcohol, Propylene Glycol n-Butyl Ether), 3, PG-III
IMO / IMDG: Flammable liquid, n.o.s. (contains: Isopropyl Alcohol Propylene Glycol n-Butyl Ether), 3, PG-III
EMERGENCY RESPONSE GUIDEBOOK NUMBER: 128

SECTION 15. REGULATORY INFORMATION

EPA REGULATION:
SARA SECTION 311/312 HAZARDS: Acute Health, Fire

All components of this product are on the TSCA list.
This material contains no known products restricted under SARA Title III, Section 313 in amounts greater or equal to 1%.

SECTION 15. REGULATORY INFORMATION (CONTINUED)

INTERNATIONAL REGULATIONS
The components of this product are listed on the chemical inventories of the following countries:
Australia, Canada, China, Europe (EINECS), Japan, Korea, United Kingdom.

CANADA: WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)
B2: Flammable Liquid.
D2B: Irritating to skin / eyes.

SECTION 16. OTHER INFORMATION

HAZARD RATINGS:
HEALTH (NFPA): 1, HEALTH (HMIS): 2, FLAMMABILITY: 2, REACTIVITY: 0
(Personal Protection Rating to be supplied by user based on use conditions.)
This information is intended solely for the use of individuals trained in the NFPA & HMIS hazard rating systems.

EMPLOYEE TRAINING
See Section 2 for Risk & Safety Statements. Employees should be made aware of all hazards of this material (as stated in this SDS) before handling it.

NOTICE

The supplier disclaims all expressed or implied warranties of merchantability or fitness for a specific use, with respect to the product or the information provided herein, except for conformation to contracted specifications. All information appearing herein is based upon data obtained from manufacturers and/or recognized technical sources. While the information is believed to be accurate, we make no representations as to its accuracy or sufficiency.
Conditions of use are beyond our control, and therefore users are responsible for verifying the data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their handling, and disposal of the product. Users also assume all risks in regards to the publication or use of, or reliance upon information contained herein.
This information relates only to the product designated herein, and does not relate to its use in combination with any other material or process.

Unless updated, the Safety Data Sheet is valid until 05/01/2016.

MATERIAL SAFETY DATA SHEET

SECTION I - PRODUCT IDENTIFICATION

Product name: MASTERS PRO-DOPE
Product use: Thread sealing compound.

Supplier name and address:
G.F. THOMPSON CO. LTD.
620 Steven Court
Newmarket, Ontario
L3Y 6Z2

Manufacturer name and address:
Refer to supplier.

Emergency Tel:
Mon – Fri, 7:30 am to 5:00 pm EST
905-898-2557
800-499-3673 (toll free)
24 hr Emergency Tel:
905-252-4793

WHMIS CLASS: B4, D1A, D2A, D2B

HMIS Rating:
* - Chronic hazard 0 - Minimal 1 – Slight 2 - Moderate 3 - Serious 4 – Severe
Health: *2 Flammability: 3 Reactivity: 0

SECTION II - INGREDIENTS

Ingredients	CAS#	wt.%	LC_{50} / 4 Hrs (Rat, ihl.)	LD_{50} mg/kg (Rat, oral)	(Rabbit, dermal)
Castor oil	8001-79-4	15 - 40	N/Av	N/Av	N/Av
Ethylene glycol n-butyl ether	111-76-2	10 - 30	450 ppm	320 (rabbit)	400
Isopropyl alcohol	67-63-0	10 - 30	17,000 ppm	4720	12,890

SECTION III - PHYSICAL DATA

Physical state, odour and appearance: Solid paste. Slight alcohol odour.
Evaporation rate (n-Butyl acetate = 1): N/Av
Volatile, % by volume: 10
Solubility in water: Slightly soluble
pH: N/Av.
Vapour pressure (mmHg): N/Av
Coefficient of water/oil distribution: N/Av
VOC: 345.6 g/l, 25.4%
Freezing / melting point: N/Av
Odour threshold: N/Av
Specific gravity: 1.41
Boiling point: N/Av
Vapour density (Air = 1): N/Av
Viscosity: N/Av

SECTION IV - FIRE AND EXPLOSION DATA

Conditions of flammability: Flammable solid, due to organic solvent content. Product may be ignited by heat, sparks and flame.
Flash point (Method): 25°C / 77°F (Method not known)
Auto-ignition temperature: N/Av
Upper flammable limit %: N/Av
Lower flammable limit %: N/Av
Means of extinction: Dry chemical, foam, carbon dioxide and water fog. Do not use water jet, as this may spread burning material.
Sensitivity to mechanical impact/static discharge: N/Av.

Special fire fighting procedures: Firefighters should wear proper full protective equipment and self-contained breathing apparatus. Move containers from fire area if it can be done without risk. Water spray may only be useful in cooling equipment and containers exposed to heat and flame.
Unusual fire and explosion hazards: Closed containers may rupture if exposed to excess heat or flame due to a build-up of internal pressure.
Hazardous combustion products: Carbon oxides and other irritating fumes and smoke.

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SECTION V - REACTIVITY DATA

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Stability: Stable under the recommended storage and handling conditions prescribed. Hazardous polymerization will not occur.
Incompatible materials: Strong oxidizers (e.g. Chlorine, Peroxides, etc.).
Conditions of reactivity: Stable under ambient pressure and temperature. Avoid heat, sparks and flames.
Hazardous decomposition products: None known. Refer to Section IV for 'Hazardous combustion products'.

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SECTION VI - TOXICOLOGICAL PROPERTIES

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******Routes of exposure and acute effects******

Exposure limit: ACGIH-TLV: Ethylene glycol n-butyl ether – 20 ppm; Isopropyl alcohol – 200 ppm.
OSHA-PEL: Ethylene glycol n-butyl ether – 50 ppm (skin); Isopropyl alcohol – 400 ppm.
Routes of exposure: Skin contact, skin absorption, eye contact, inhalation and ingestion.
Irritancy of product: Moderate to severe.
Inhalation: Harmful if inhaled. Inhalation may cause nose, throat and respiratory tract irritation. Symptoms may include headache, nausea, vomiting, other central nervous system effects and blood system effects (red blood cell fragility and hemoglobinuria).
Skin: May cause moderate to severe irritation. Product could be absorbed if left on the skin and cause headache, nausea, vomiting, other central nervous system effects and blood system effects (red blood cell fragility and hemoglobinuria).
Eyes: May cause severe irritation.
Ingestion: Harmful if ingested. May cause irritation to the mouth, throat and stomach. Symptoms may include headache, nausea, vomiting, diarrhea, other central nervous system effects and possibly blood system effects (red blood cell fragility and hemoglobinuria).
Chronic effects: Prolonged or repeated skin contact may cause severe drying and cracking of the skin (dermatitis). Prolonged or repeated inhalation may cause severe toxicity to the blood system. At higher concentrations, prolonged inhalation may cause liver damage.
Carcinogenicity: Contains Ethylene glycol n-butyl ether. Ethylene glycol n-butyl ether is classified as a confimed animal carcinogen with unknown relevance to humans by ACGIH (Group A3). None of the listed ingredients are classified as carcinogenic by IARC.
Reproductive effects, Teratogenicity, Mutagenicity: Contains Isopropyl alcohol. Isopropyl alcohol may cause fetotoxic effects, based on animal data.
Sensitization to material: None known.
Synergistic materials: N/Av.
Conditions aggravated by exposure: Pre-existing skin, eye and respiratory disorders.

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SECTION VII - FIRST AID

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Inhalation: Immediately remove victim to fresh air. Obtain medical attention.
Skin contact: Immediately wash skin with mild soap and plenty of water, while removing contaminated clothing. Obtain medical attention immediately.
Eye contact: Immediately flush eyes thoroughly with water for at least fifteen minutes. Do not rub eyes. Obtain medical attention immediately.
Ingestion: Do not induce vomiting. Obtain medical attention immediately. Never give anything by mouth to an unconscious or convulsing person.

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SECTION VIII - PREVENTIVE MEASURES

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Spill, leak or release: Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. All persons dealing with clean-up should wear the appropriate chemically resistant equipment. Eliminate all sources of heat and flame. Ventilate area of release. Stop leak if you can do so without risk. Scrape up into suitable containers, using method that does not generate sparks. Place any recovered material in closed, labelled containers for recycling or disposal (see below).Clean spill area. Keep out of waterways. Notify the appropriate authorities as required.
Waste disposal: Handle according to recommendations listed below. Dispose in accordance with all applicable government regulations.

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SECTION VIII - PREVENTIVE MEASURES Continued

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PROTECTIVE EQUIPMENT

Respiratory protection: None required under normal use. For prolonged exposure or if the TLV is exceeded, wear NIOSH-approved respirators.
Ventilation: Use in well ventilated area. General ventilation should be sufficient under normal use. Local exhaust ventilation may be necessary for prolonged exposures or if the product is being heated.
Protective gloves: Gloves impervious to the material, must be worn. Advice should be sought from glove suppliers.
Eye protection: Safety goggles, to prevent product from entering the eyes.
Other protective equipment: An eyewash station and safety shower should be made available in the immediate working area. Other equipment may be required according to workplace standards.

*** STORAGE & HANDLING ***

Storage and handling conditions:
Handling: Wear appropriate chemically protective equipment. Use in a well ventilated area. Avoid inhaling vapours or fumes. Avoid contact with skin, eyes, and clothing. Avoid and control operations that create dusty atmospheres. Keep away from heat, sparks and flame. Ground all equipment during handling. Keep away from incompatible materials. Keep container tightly closed when not in use. Wash thoroughly after handling.
Storage: Store in a cool, dry, well-ventilated area away from incompatibles (refer to Section V), heat and flame. No smoking in the area. Inspect periodically for damage or leaks.

Special Shipping Information - Transportation of Dangerous Goods Regulations (TDGR): Refer to the supplier for shipping information.

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SECTION IX - PREPARATION INFORMATION

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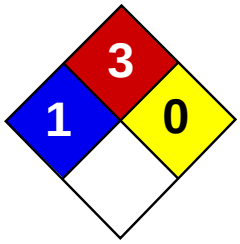
Prepared by: G. F. Thompson Co. Ltd
Telephone No.: 905-898-2557
Preparation date: December 1, 2012

Additional notes or references:

Legend: ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Service
HMIS: Hazardous Materials Identification System
IARC: International Agency for Research on Cancer
N/Ap: Not Applicable
N/Av: Not Available
NIOSH: National Institute of Occupational Safety and Health
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
RTECs: Registry of Toxic Effects of Chemical Substances
TLV: Threshold Limit Values
WHMIS: Workplace Hazardous Materials Information System

References:
1. ACGIH, Threshold Limit Values and Biological Exposure Indices for 2005.
2. International Agency for Research on Cancer Monographs, searched 2006.
3. Canadian Centre for Occupational Health and Safety, CCInfoWeb databases, 2006 (Chempendium and RTECs).
4. Material Safety Data Sheet from manufacturer.





Health	2
Fire	3
Reactivity	0
Personal Protection	H

Material Safety Data Sheet
Methyl alcohol MSDS

Section 1: Chemical Product and Company Identification

Product Name: Methyl alcohol

Catalog Codes: SLM3064, SLM3952

CAS#: 67-56-1

RTECS: PC1400000

TSCA: TSCA 8(b) inventory: Methyl alcohol

CI#: Not applicable.

Synonym: Wood alcohol, Methanol; Methylol; Wood Spirit; Carbinol

Chemical Name: Methanol

Chemical Formula: CH3OH

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Methyl alcohol	67-56-1	100

Toxicological Data on Ingredients: Methyl alcohol: ORAL (LD50): Acute: 5628 mg/kg [Rat]. DERMAL (LD50): Acute: 15800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 64000 ppm 4 hours [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator). Severe over-exposure can result in death.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to eyes. The substance may be toxic to blood, kidneys, liver, brain, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS), optic nerve. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion:
If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 464°C (867.2°F)

Flash Points: CLOSED CUP: 12°C (53.6°F). OPEN CUP: 16°C (60.8°F).

Flammable Limits: LOWER: 6% UPPER: 36.5%

Products of Combustion: These products are carbon oxides (CO, CO2).

Fire Hazards in Presence of Various Substances:
Highly flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

Explosion Hazards in Presence of Various Substances:
Risks of explosion of the product in presence of mechanical impact: Not available. Explosive in presence of open flames and sparks, of heat.

Fire Fighting Media and Instructions:
Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

Special Remarks on Fire Hazards:
Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition, it emits acrid smoke and irritating fumes. CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME

Special Remarks on Explosion Hazards:
Forms an explosive mixture with air due to its low flash point. Explosive when mixed with Choroform + sodium methoxide and diethyl zinc. It boils violently and explodes.

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Flammable liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals, acids.

Storage:
Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection:
Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
TWA: 200 from OSHA (PEL) [United States] TWA: 200 STEL: 250 (ppm) from ACGIH (TLV) [United States] [1999] STEL: 250 from NIOSH [United States] TWA: 200 STEL: 250 (ppm) from NIOSH SKIN TWA: 200 STEL: 250 (ppm) [Canada] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Alcohol like. Pungent when crude.

Taste: Not available.

Molecular Weight: 32.04 g/mole

Color: Colorless.

pH (1% soln/water): Not available.

Boiling Point: 64.5°C (148.1°F)

Melting Point: -97.8°C (-144°F)

Critical Temperature: 240°C (464°F)

Specific Gravity: 0.7915 (Water = 1)

Vapor Pressure: 12.3 kPa (@ 20°C)

Vapor Density: 1.11 (Air = 1)

Volatility: Not available.

Odor Threshold: 100 ppm

Water/Oil Dist. Coeff.: The product is more soluble in water; log(oil/water) = -0.8

Ionicity (in Water): Non-ionic.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water, hot water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ingnition sources, incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Can react vigorously with oxidizers. Violent reaction with alkyl aluminum salts, acetyl bromide, chloroform + sodium methoxide, chromic anhydride, cyanuirc chlorite, lead perchlorate, phosphorous trioxide, nitric acid. Exothermic reaction with sodium hydroxide + chloroform. Incompatible with beryllium dihydride, metals (potassium and magnesium), oxidants (barium perchlorate, bromine, sodium hypochlorite, chlorine, hydrogen peroxide), potassium tert-butoxide, carbon tetrachloride, alkali metals, metals (aluminum, potassium magnesium, zinc), and dichlormethane. Rapid autocatalytic dissolution of aluminum, magnesium or zinc in 9:1 methanol + carbon tetrachloride - sufficiently vigorous to be rated as potentially hazardous. May attack some plastics, rubber, and coatings.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals:
WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 5628 mg/kg [Rat]. Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 64000 4 hours [Rat].

Chronic Effects on Humans:
MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. Causes damage to the following organs: eyes. May cause damage to the following organs: blood, kidneys, liver, brain, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS), optic nerve.

Other Toxic Effects on Humans:
Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans:

Passes through the placental barrier. May affect genetic material. May cause birth defects and adverse reproductive effects(paternal and maternal effects and fetotoxicity) based on animal studies.

Special Remarks on other Toxic Effects on Humans:

Section 12: Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 29400 mg/l 96 hours [Fathead Minnow].

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation:
Methanol in water is rapidly biodegraded and volatilized. Aquatic hydrolysis, oxidation, photolysis, adsorption to sediment, and bioconcentration are not significant fate processes. The half-life of methanol in surfact water ranges from 24 hrs. to 168 hrs. Based on its vapor pressure, methanol exists almost entirely in the vapor phase in the ambient atmosphere. It is degraded by reaction with photochemically produced hydroxyl radicals and has an estimated half-life of 17.8 days. Methanol is physically removed from air by rain due to its solubility. Methanol can react with NO2 in pollulted to form methyl nitrate. The half-life of methanol in air ranges from 71 hrs. (3 days) to 713 hrs. (29.7 days) based on photooxidation half-life in air.

Section 13: Disposal Considerations

Waste Disposal:
Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: CLASS 3: Flammable liquid.

Identification: : Methyl alcohol UNNA: 1230 PG: II

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Connecticut hazardous material survey.: Methyl alcohol Illinois toxic substances disclosure to employee act: Methyl alcohol Illinois chemical safety act: Methyl alcohol New York release reporting list: Methyl alcohol Rhode Island RTK hazardous substances: Methyl alcohol Pennsylvania RTK: Methyl alcohol Minnesota: Methyl alcohol Massachusetts RTK: Methyl alcohol Massachusetts spill list: Methyl alcohol New Jersey: Methyl alcohol New Jersey spill list: Methyl alcohol Louisiana spill reporting: Methyl alcohol California Directors List of Hazardous Substances (8CCR 339): Methyl alcohol Tennesse Hazardous Right to Know : Methyl alcohol TSCA 8(b) inventory: Methyl alcohol SARA 313 toxic chemical notification and release reporting: Methyl alcohol CERCLA: Hazardous substances.: Methyl alcohol: 5000 lbs. (2268 kg)

Other Regulations:
OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

Other Classifications:

WHMIS (Canada):
CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC). Class D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):
R11- Highly flammable. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R39- Danger of very serious irreversible effects. R39/23/24/25- Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. S7- Keep container tightly closed. S16- Keep away from sources of ignition - No smoking. S36/37- Wear suitable protective clothing and gloves. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 2

Fire Hazard: 3

Reactivity: 0

Personal Protection: h

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 3

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

Section 16: Other Information

References:
-SAX, N.I. Dangerous Properties of Indutrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984. -Material safety data sheet emitted by: la Commission de la SantÃ© et de la SÃ©curitÃ© du Travail du QuÃ©bec. -Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York N.Y., Van Nostrand Reinold, 1987. LOLI, HSDB, RTECS, HAZARDTEXT, REPROTOX databases

Other Special Considerations: Not available.

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MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **MOBIL DELVAC SYNTHETIC FINAL DRIVE AND AXLE OIL**
Product Description: Synthetic Base Stocks and Additives
MSDS Number: 21117
Intended Use: Gear oil

COMPANY IDENTIFICATION

Supplier: **Imperial Oil Products Division**
240 4th Avenue
Calgary, ALBERTA. T2P 3M9 Canada

24 Hour Environmental / Health Emergency Telephone	1-866-232-9563
Transportation Emergency Phone Number	1-866-232-9563
Product Technical Information	1-800-268-3183
Supplier General Contact	1-800-567-3776

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

No Reportable Hazardous Substance(s) or Complex Substance(s).

SECTION 3 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines see Section 15.

HEALTH EFFECTS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

NFPA Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	1	Reactivity:	0

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek

immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Smoke, Fume, Aldehydes, Sulphur oxides, Incomplete combustion products, Oxides of carbon

FLAMMABILITY PROPERTIES

Flash Point [Method]: >230C (446F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending

on the specific circumstances and/or the expert judgment of the emergency responders.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do so without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source). When the material is handled in bulk, an electrical spark could ignite any flammable vapors from liquids or residues that may be present (e.g., during switch-loading operations). Use proper bonding and/or earthing procedures. However, bonding and earthing may not eliminate the hazard from static accumulation. Consult local applicable standards for guidance. Additional references include American Petroleum Institute 2003 (Protection Against Ignitions Arising out of Static, Lightning and Stray Currents) or National Fire Protection Agency 77 (Recommended Practice on Static Electricity) or CENELEC CLC/TR 50404 (Electrostatics - Code of practice for the avoidance of hazards due to static electricity).

Static Accumulator: This material is a static accumulator.

STORAGE

The container choice, for example storage vessel, may effect static accumulation and dissipation. Do not store in open or unlabelled containers.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists/aerosols can occur the following is recommended: 5 mg/m³ - ACGIH TLV (inhalable fraction).

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practise good housekeeping.

ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid
Colour: Amber
Odour: Characteristic
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 C): 0.858
Flash Point [Method]: >230C (446F) [ASTM D-92]

Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: > 316C (600F)
Vapour Density (Air = 1): > 2 at 101 kPa
Vapour Pressure: < 0.013 kPa (0.1 mm Hg) at 20°C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): N/D
Solubility in Water: Negligible
Viscosity: 320 cSt (320 mm2/sec) at 40°C | 31.6 cSt (31.6 mm2/sec) at 100C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -42°C (-44°F)

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Excessive heat. High energy sources of ignition.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Route of Exposure	Conclusion / Remarks
Inhalation	
Toxicity (Rat): LC50 > 5000 mg/m3	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
Ingestion	
Toxicity (Rat): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity (Rabbit): LD50 > 5000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Irritation (Rabbit): Data available.	Negligible irritation to skin at ambient temperatures. Based on test data for structurally similar materials.
Eye	
Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS

For the product itself:
Repeated and/or prolonged exposure may cause irritation to the skin, eyes, or respiratory tract.
Contains:
Synthetic base oils: Not expected to cause significant health effects under conditions of normal use, based on laboratory studies with the same or similar materials. Not mutagenic or genotoxic. Not sensitising in test animals and humans. Aryl thiophosphate: Effects on the liver, adrenals, thyroid, blood and reproductive organs were seen in rats after repeated oral gavage at high doses. In a reproduction/developmental toxicity screening study, repeated oral gavage of rats with the aryl thiophosphate at high doses that produced maternal toxicity resulted in litter loss, decreased number of implantation sites and decreased number of live pups. However, when the aryl thiophosphate was tested in a subsequent, identical reproduction/developmental screening study in rats at a concentration higher than in this lubricant product, there were no reproductive/developmental effects or maternal toxicity.

Additional information is available by request.

CMR Status: None.

--REGULATORY LISTS SEARCHED--

1 = IARC 1	3 = IARC 2B	5 = ACGIH A1
2 = IARC 2A	4 = ACGIH ALL	6 = ACGIH A2

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY
Material -- Not expected to be harmful to aquatic organisms.

MOBILITY
Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS
Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products. Protect the environment. Dispose of used oil at designated sites. Minimize skin contact. Do not mix used oils with solvents, brake fluids or coolants.

REGULATORY DISPOSAL INFORMATION
Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain

residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (TDG): Not Regulated for Land Transport

LAND (DOT): Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA): Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

WHMIS Classification: Not controlled

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the (M)SDS contains all the information required by the Controlled Products Regulations.

CEPA: All components of this material are either on the Canadian Domestic Substances List (DSL), exempt, or have been notified under CEPA.

Complies with the following national/regional chemical inventory requirements: AICS, IECSC, KECI, ENCS, TSCA, EINECS, DSL, PICCS

The Following Ingredients are Cited on the Lists Below:

Chemical Name	CAS Number	List Citations
DIPHENYLAMINE	122-39-4	6

--REGULATORY LISTS SEARCHED--

1 = TSCA 4	3 = TSCA 5e	5 = TSCA 12b
2 = TSCA 5a2	4 = TSCA 6	6 = NPRI

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

No revision information is available.

WHMIS Classification: Not controlled

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Prepared by: Imperial Oil Limited, IH and Product Safety

1 Identification of the substance/mixture and of the company/undertaking

· **Product identifier**

· **Trade name: Silver carbonate pure**

· **Article number:** A1524
· **CAS Number:**
534-16-7
· **EC number:**
208-590-3
· **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
· **Application of the substance / the preparation** Chemical analytics

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
AppliChem GmbH
Ottoweg 4
D-64291 Darmstadt
msds@applichem.com

· **Further information obtainable from:** Abteilung Qualitätskontrolle / Dep. Quality Control
· **Emergency telephone number:**
+49(0)6151 93570 (während der normalen Geschäftszeiten / Inside normal business hours)

2 Hazards identification

· **Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**



GHS05 corrosion

Eye Dam. 1 H318 Causes serious eye damage.

· **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xi; Irritant

R41: Risk of serious damage to eyes.

· **Label elements**
· **Labelling according to Regulation (EC) No 1272/2008**
The substance is classified and labelled according to the CLP regulation.
· **Hazard pictograms**



GHS05

· **Signal word** Danger

· **Hazard-determining components of labelling:**
silver carbonate
· **Hazard statements**
H318 Causes serious eye damage.
· **Precautionary statements**
P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P313 Get medical advice/attention.
· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.

(Contd. on page 2)

Trade name: Silver carbonate pure

(Contd. of page 1)

· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Substances**
· **CAS No. Description**
534-16-7 silver carbonate
· **Identification number(s)**
· **EC number:** 208-590-3

4 First aid measures

· **Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:**
Immediately remove any clothing soiled by the product.
Immediately rinse with water.
If skin irritation continues, consult a doctor.
· **After eye contact:**
Rinse opened eye for several minutes under running water.
Call a doctor immediately.
· **After swallowing:**
Rinse out mouth.
Do not induce vomiting; call for medical help immediately.
make victim drink water (maximum of 2 drinking glasses)
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Firefighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Use fire extinguishing methods suitable to surrounding conditions.
· **Special hazards arising from the substance or mixture** carbon oxides (CO, CO2).
· **Advice for firefighters**
· **Protective equipment:** Wear self-contained respiratory protective device.
· **Additional information**
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Avoid formation of dust.
Do not inhale dust.
Avoid substance contact.
Ensure adequate ventilation
· **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **Methods and material for containment and cleaning up:**
Pick up mechanically.
Avoid generation of dusts.
Clean up affected area.
Dispose of the material collected according to regulations.

(Contd. on page 3)

(Contd. of page 2)

· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Handling:**
· **Precautions for safe handling** Any unavoidable deposit of dust must be regularly removed.
· **Information about fire - and explosion protection:** No special measures required.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** Keep container sealed.
· **Recommended storage temperature:** 15-25°C
· **Storage class:** 10-13
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
534-16-7 silver carbonate	
WEL ()	Long-term value: 0.01 mg/m³ as Ag

· **Additional information:** The lists valid during the making were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.
Avoid contact with the eyes.
· **Respiratory protection:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
Short term filter device:
Filter P2
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **For the permanent contact gloves made of the following materials are suitable:**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
Value for the permeation: Level ≥ 480 min
· **As protection from splashes gloves made of the following materials are suitable:**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm

(Contd. on page 4)

Trade name: Silver carbonate pure

(Contd. of page 3)

Value for the permeation: Level ≥ 480 min

· **Eye protection:**



Tightly sealed goggles

· **Body protection:**
Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazourdous substances handled.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Powder
Colour:	Light yellow
· **Odour:**	Odourless
· **pH-value:**	Not applicable.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gaseous):**	Product is not flammable.
· **Danger of explosion:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapour pressure:**	Not applicable.
· **Density:**	Not determined.
· **Solubility in / Miscibility with water at 20°C:**	0.032 g/l
· **Viscosity:**	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
· **Solvent content:**	
Organic solvents:	0.0 %
VOC (EC)	0.00 %
Solids content:	100.0 %
· **Other information**	No further relevant information available.

10 Stability and reactivity

· **Reactivity**
· **Chemical stability**
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** No further relevant information available.
· **Incompatible materials:** No further relevant information available.

(Contd. on page 5)

Trade name: Silver carbonate pure

(Contd. of page 4)

· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **LD/LC50 values relevant for classification:**
Quantitative data on the toxicological effect of this product are not available.
· **Primary irritant effect:**
· **on the skin:** No irritant effect.
· **on the eye:** Strong irritant with the danger of severe eye injury.
· **After inhalation:** No irritant effect.
· **Sensitization:** No sensitizing effects known.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behaviour in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Do not allow to enter waters, waste water, or soil.
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation**
Chemicals must be disposed of in compliance with the respective national regulations.
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packaging:**
· **Recommendation:**
Disposal must be made according to official regulations.
Packagings that may not be cleansed are to be disposed of in the same manner as the product.

14 Transport information

· **UN-Number**	
· **ADR, ADN, IMDG, IATA**	Void
· **UN proper shipping name**	
· **ADR, ADN, IMDG, IATA**	Void
· **Transport hazard class(es)**	
· **ADR, ADN, IMDG, IATA**	
· **Class**	Void

(Contd. on page 6)

Trade name: Silver carbonate pure

(Contd. of page 5)

· **Packing group** · **ADR, IMDG, IATA**	Void
· **Special precautions for user**	Not applicable.
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	Not dangerous according to the above specifications.
· **UN "Model Regulation":**	-

15 Regulatory information

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing MSDS:** Abteilung Qualitätskontrolle / Dept. Quality Control
· **Contact:** Hr. / Mr. Th. Stöckle
· **Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
ICAO: International Civil Aviation Organization
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)

DOW CORNING

DOW CORNING CORPORATION
Material Safety Data Sheet

MOLYKOTE(R) 55 O-RING GREASE

1. PRODUCT AND COMPANY IDENTIFICATION

MSDS No.: 01889826

SUPPLIER:
Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

Prepared by Product Safety: (800) 248-2481
NEWALTA: (800) 567-7455
Revision Date: 2012/08/17

MANUFACTURER:
Dow Corning Corporation
South Saginaw Road
Midland, Michigan 48686

24 Hour Emergency Telephone: (989) 496-5900

WHMIS CLASSIFICATION: Not Controlled.

Material Usage: Lubricant

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Generic Description: Silicone grease.
Physical Form: Grease
Colour: White
Odour: Slight

There are no components with workplace exposure limits.

++

POTENTIAL HEALTH EFFECTS

Acute Effects

Eye: Direct contact may cause mild irritation.

Skin: No significant irritation expected from a single short-term exposure.

Inhalation: No significant effects expected from a single short-term exposure.

Oral: Low ingestion hazard in normal use.

Prolonged/Repeated Exposure Effects

Skin: Repeated or prolonged exposure may cause irritation.

Inhalation**:**	No known applicable information.
Oral:	No known applicable information.

Signs and Symptoms of Overexposure

No known applicable information.

Medical Conditions Aggravated by Exposure

No known applicable information.

The above listed potential effects of overexposure are based on actual data, results of studies performed upon similar compositions, component data and/or expert review of the product. Please refer to Section 11 for the detailed toxicology information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

None present. This material does not contain any controlled products as defined by CPR. am . SOR/88-555.

4. FIRST AID MEASURES

Eye:	Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 5 minutes while holding the eyelid(s) open. Obtain medical attention.
Skin:	No health effects expected. If irritation does occur flush with lukewarm, gently flowing water for 5 minutes. If irritation persists, obtain medical advice.
Inhalation:	If symptoms are experienced remove source of contamination or move victim to fresh air. If irritation persists, obtain medical advice.
Oral:	If irritation or discomfort occur, obtain medical advice.
Notes to Physician:	Treat according to person's condition and specifics of exposure.

5. FIRE-FIGHTING MEASURES

Flash Point:	> 214 °F / > 101.1 °C (Closed Cup)
Autoignition Temperature:	Not available.
Flammability Limits in Air:	Not available.
Extinguishing Media:	On large fires use dry chemical, foam or water spray. On small fires use carbon dioxide (CO2), dry chemical or water spray. Water can be used to cool fire exposed containers.

Fire Fighting Measures:	Self-contained breathing apparatus and protective clothing should be worn in fighting large fires involving chemicals. Determine the need to evacuate or isolate the area according to your local emergency plan. Use water spray to keep fire exposed containers cool.
Unusual Fire Hazards:	None.

6. ACCIDENTAL RELEASE MEASURES

Containment/Clean up:	Observe all personal protection equipment recommendations described in Sections 5 and 8. Wipe up or scrape up and contain for salvage or disposal. Clean area as appropriate since spilled materials, even in small quantities, may present a slip hazard. Final cleaning may require use of steam, solvents or detergents. Dispose of saturated absorbant or cleaning materials appropriately, since spontaneous heating may occur. Local, provincial, federal laws and regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases.

Note: See Section 8 for Personal Protective Equipment for Spills. Refer to Section 1 to obtain telephone numbers, if additional information is required.

7. HANDLING AND STORAGE

Use with adequate ventilation. Traces of benzene (carcinogen) may form if heated in air above 300°F (149°C). Provide ventilation to control vapor exposure within inhalation guidelines when handling at elevated temperatures. Avoid eye contact. Avoid skin contact.

Use reasonable care and store away from oxidizing materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

There are no components with workplace exposure limits.

Engineering Controls

Local Ventilation:	None should be needed.
General Ventilation:	Recommended.

Personal Protective Equipment for Routine Handling

Eyes:	Use proper protection - safety glasses as a minimum.
Skin:	Washing at mealtime and end of shift is adequate.

Suitable Gloves:	Avoid skin contact by implementing good industrial hygiene practices and procedures. Select and use gloves and/or protective clothing to further minimize the potential for skin contact. Consult with your glove and/or personnel protective equipment manufacturer for selection of appropriate compatible materials.
Inhalation:	No respiratory protection should be needed.
Suitable Respirator:	None should be needed.

Personal Protective Equipment for Spills

Eyes:	Use proper protection - safety glasses as a minimum.
Skin:	Washing at mealtime and end of shift is adequate.
Inhalation/Suitable Respirator:	No respiratory protection should be needed.
Precautionary Measures:	Avoid eye contact. Avoid skin contact. Use reasonable care.
Comments:	Traces of benzene (carcinogen) may form if heated in air above 300°F (149°C). Provide ventilation to control vapor exposure within inhalation guidelines when handling at elevated temperatures.

Note: These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form:	Grease
Color:	White
Odor:	Slight
Odor Threshold:	Not available.
Specific Gravity @ 25°C:	1.1
Viscosity:	Not available.
Freezing/Melting Point:	Not available.
Boiling Point:	Not available.
Vapor Pressure @ 25°C:	Not available.
Vapor Density:	Not available.
Evaporation Rate:	Not available.
Solubility in Water:	Not available.
Coefficient of Water/Oil Distribution:	Not available.
pH:	Not available.
Volatile Content:	Not available.
Flash Point:	> 214 °F / > 101.1 °C (Closed Cup)
Autoignition Temperature:	Not available.
Flammability Limits in Air:	Not available.

Note: The above information is not intended for use in preparing product specifications. Contact Dow Corning before writing specifications.

10. STABILITY AND REACTIVITY

Chemical Stability:	Stable.
Hazardous Polymerization:	Hazardous polymerization will not occur.
Conditions to Avoid:	None.
Materials to Avoid:	Oxidizing material can cause a reaction.

Hazardous Decomposition Products

Thermal breakdown of this product during fire or very high heat conditions may evolve the following decomposition products: Carbon oxides and traces of incompletely burned carbon compounds. Silicon dioxide. Metal oxides. Formaldehyde.

11. TOXICOLOGICAL INFORMATION

Special Hazard Information on Components

No known applicable information.

12. ECOLOGICAL INFORMATION

Environmental Fate and Distribution

Complete information is not yet available.

Environmental Effects

Complete information is not yet available.

Fate and Effects in Waste Water Treatment Plants

Complete information is not yet available.

Ecotoxicity Classification Criteria

Hazard Parameters (LC50 or EC50)	High	Medium	Low
Acute Aquatic Toxicity (mg/L)	<=1	>1 and <=100	>100
Acute Terrestrial Toxicity	<=100	>100 and <= 2000	>2000

This table is adapted from "Environmental Toxicology and Risk Assessment", ASTM STP 1179, p.34, 1993.

This table can be used to classify the ecotoxicity of this product when ecotoxicity data is listed above. Please read the other information presented in the

section concerning the overall ecological safety of this material.

13. DISPOSAL CONSIDERATIONS

Can be incinerated in accordance with local regulations.

Call local hazardous waste disposal company or provincial waste authorities for more information. Refer to Section 1 to obtain telephone numbers, if additional information is required.

14. TRANSPORT INFORMATION

Canada Road (Based on IMDG Regulations)

Not subject to local road regulations.

Ocean Shipment (IMDG)

Not subject to IMDG code.

Air Shipment (IATA)

Not subject to IATA regulations.

Refer to Section 1 to obtain telephone numbers, if additional information is required.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

WHMIS CLASSIFICATION:	Not Controlled.
DSL Status:	All chemical substances in this material are included on or exempted from the DSL.
TSCA Status:	All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

MOLYKOTE(R) 55 O-RING GREASE

16. OTHER INFORMATION

Prepared by: Dow Corning Corporation

These data are offered in good faith as typical values and not as product specifications. No warranty, either expressed or implied, is hereby made. The recommended industrial hygiene and safe handling procedures are believed to be generally applicable. However, each user should review these recommendations in the specific context of the intended use and determine whether they are appropriate.

(R) indicates Registered Trademark

Permatex, Inc.
10 Columbus Blvd.
Hartford, CT 06106 USA
Telephone: 1-87-Permatex
(877) 376-2839
Emergency: 800-255-3924
International Emergency: +01-813-248-0585

Canadian Corporate Office:
ITW Permatex Canada
8450 Lawson Road, Unit 1
Milton, ON L9T 0J8
Toll Free: (800) 924-6994
(905) 693-8900
Emergency: ChemTel (800) 255-3924

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Product Name: **Spray Nine®**
Product Type: **Multi-Purpose Germicidal Cleaner**

Product Trade Name: **26824**

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Weight%	ACGIH; TLV-TWA	OSHA PEL
2-BUTOXYETHANOL 111-76-2	1-5	20 ppm	50 ppm; 240 mg/m^3
ETHOXYLATED C9-C11 ALCOHOLS 68439-46-3	1-5	NA	NA

3. HAZARDS IDENTIFICATION

Effects of Acute Exposure: Product may cause reversible eye and skin irritation.
May irritate respiratory system upon frequent or prolonged use

Primary Routes of Entry: Eye and skin contact, inhalation

Signs and Symptoms of Exposure: Overexposure may cause eye and skin redness May cause inflammation of mucous membranes and irritation Ingestion may cause nausea and vomiting

Medical Conditions Recognized as Being Aggravated by Exposure: None known. Preexisting eye, skin and respiratory disorders may be aggravated by overexposure to this product.

Chronic Health Hazard None known

4. FIRST AID MEASURES

Eye Contact: Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Contact a physician if irritation persists.

Skin Contact: Immediately remove contaminated clothing and excess contaminant. Flush with water for at least 15 minutes. Wash thoroughly with soap and water. Consult a physician if irritation develops

Ingestion: If swallowed, DO NOT induce vomiting. Give victim water, call a physician immediately. Never give anything by mouth to an unconscious person

Inhalation: Move to fresh air; get medical attention if symptoms persist

Notes to Physician: Treat symptomatically

5. FIRE FIGHTING MEASURES

Flash Point °F(C°): 182°F/83°C TCC
Recommended Extinguishing Media: Carbon dioxide, Dry chemical, Foam
Special Fire-Fighting Procedures: Wear suitable protective equipment. Use water spray to cool exposed containers.
Hazardous Products of Combustion: Oxides of carbon, Oxides of nitrogen
Unusual Fire/Explosion Hazards: Does not sustain combustion (ASTM D4206).
Sensitivity to Static Discharge: Sensitivity to static discharge is not expected
Mechanical Sensitivity: None reasonably foreseeable

5. FIRE FIGHTING MEASURES

Lower Explosive Limit: Not determined
Upper Explosive Limit: Not determined

6. ACCIDENTAL RELEASE MEASURES

Spills may cause slippery floors. Prevent spill from entering drainage/sewer systems, waterways and surface water. Notify local health authorities and other appropriate agencies if such contamination occurs.

7. HANDLING AND STORAGE

Keep out of the reach of children. Keep containers tightly closed in a cool, well-ventilated place. Store below 100°F. Do not allow freezing.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eyes: Safety glasses
Skin: Chemical resistant gloves
Ventilation: Use only in well ventilated area.
Respiratory Protection: Not required under normal use

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Clear, colorless to slightly colored solution	**Odor:**	Mild
Boiling Point:	~212ºF/~100ºC	**Freezing Point:**	~32°F/ ~0°C
pH:	~12.6	**Solubility in Water:**	Completely soluble
Specific Gravity:	~1.022 g/ml	**Vapor Pressure:**	~18 mm Hg
Vapor Density (Air=1):	>1	**% Volatile:**	~95
VOC(Wt.%):	<4% by weight	**Evaporation Rate:**	<1 (butyl acetate = 1)

10. STABILITY AND REACTIVITY

Chemical Stability: Stable
Hazardous Polymerization: Will not occur.
Incompatabilities: Strong oxidizers
Conditions to Avoid: Avoid temperatures greater than 100°F. Freezing conditions.
Hazardous Products of Combustion: Oxides of carbon, Oxides of nitrogen

11. TOXICOLOGICAL INFORMATION

Product Toxicity

Eyes:
Draize Test: 27.3 out of 110

Skin:
Draize Test 2.5 out of 10
LD50: >5,000 mg/kg (Rat)

Inhalation LC50:
>200 g/L (Rat)

Oral LD50:
>5,000 mg/kg (Rat)

12. ECOLOGICAL INFORMATION

No data available

13. DISPOSAL CONSIDERATIONS

Disposal should be made in accordance with federal, state and local regulations.

14. TRANSPORTATION INFORMATION

Ground Transport (DOT)

DOT Shipping Name: Not Regulated
Hazard Class: None
UN/ID Number: None

TDG(Transport of Dangerous Goods) Canada

Proper Shipping Name: Not Regulated
Hazard Class: None
UN/ID No: None

15. REGULATORY INFORMATION

SARA 302 Extremely Hazardous Substances: None

15. REGULATORY INFORMATION

SARA 313 Toxic Chemicals: 2-butoxyethanol (Glycol ethers)
SARA (311, 312) Hazard Class: Acute health hazard

TSCA Inventory Status: All components of this product are listed (or exempt) on the EPA TSCA inventory.

California Proposition 65: No California Prop 65 chemicals are known to be present.

WHMIS Hazard Class: Exempt

16. OTHER INFORMATION

HEALTH 1, FLAMMABILITY 0, PHYSICAL HAZARD 0, PERSONAL PROTECTION B
HMIS is a registered trademark of the National Paint and Coatings Assn.

Estimated NFPA Rating:
HEALTH 1, FLAMMABILITY 0 , REACTIVITY 0
NFPA is a registered trademark of the National Fire Protection Assn.

Prepared By: Denise Boyd, Manager-Environmental, Health & Safety
Company: Permatex. Inc. 10 Columbus Blvd. Hartford, CT USA 06106
Telephone No.: 1-87-Permatex (877) 376-2839

Revision Date: February 10, 2010
Formula Index: 04

DISCLAIMER OF LIABILITY:
The information contained herein is based on data we believe to be reliable as of the date of preparation of the Material Safety Data Sheet. The accuracy and completeness of such data are not warranted or guaranteed. We cannot anticipate all conditions under which this information and our products, or the products of other manufacturers in combination with our products may be used. We assume no liability or responsibility for loss or damage resulting from the improper or abnormal use or handlling of our products, from incompatible product combinations, from the failure to follow instructions and warnings in the product's label and Material Safety Data Sheet, or from any failure to adhere to recommended practices.

MATERIAL SAFETY DATA SHEET

Trade Name: Johnsens Non-chlorinated Brake Parts Cleaner
MSDS NO. 2413
Revision Date: 03-06-2012
Date Printed 03-06-2012

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Trade Name: Johnsens Non-chlorinated Brake Parts Cleaner
Chemical Family: Non-Chlorinated Hydrocarbon
Synonyms: None
Emergency Telephone (24 hr.): 24-Hour Emergency Information: CHEMTREC (800) 424-9300

Supplier: Technical Chemical Company, P.O. Box 139, Cleburne, Texas 76033

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Weight %	OSHA TWA	OSHA STEL	OSHA SKIN
Methanol 67-56-1	30-35	Not Listed	Not Listed	Not Listed
Acetone 67-64-1	20-30	Not Listed	Not Listed	Not Listed
Toluene 108-88-3	15-25	Not Listed	Not Listed	Not Listed
Heptane 142-82-5	15-25	Not Listed	Not Listed	Not Listed
Carbon Dioxide 124-38-9	5-10	Not Listed	Not Listed	Not Listed

Component	Weight %	OSHA Z PEL	OSHA Z TWA	OSHA Z Ceiling
Methanol 67-56-1	30-35	260 mg/m^3 200 ppm	260 mg/m^3 200 ppm	Not Listed
Acetone 67-64-1	20-30	2400 mg/m^3 1000 ppm	1800 mg/m^3 750 ppm	Not Listed
Toluene 108-88-3	15-25	Not Listed	200 ppm 375 mg/m^3 100 ppm	300 ppm
Heptane 142-82-5	15-25	2000 mg/m^3 500 ppm	1600 mg/m^3 400 ppm	Not Listed
Carbon Dioxide 124-38-9	5-10	9000 mg/m^3 5000 ppm	18000 mg/m^3 10000 ppm	Not Listed

Component	ACGIH TLV TWA	ACGIH TLV STEL	ACGIH TLV Ceiling
Methanol 67-56-1	200 ppm	250 ppm	Not Listed
Acetone 67-64-1	500 ppm	750 ppm	Not Listed
Toluene 108-88-3	50 ppm	Not Listed	Not Listed
Heptane 142-82-5	400 ppm	500 ppm	Not Listed
Carbon Dioxide 124-38-9	5000 ppm	30000 ppm	Not Listed

Other: This product does not contain Normal Hexane (N-Hexane).

3. HAZARDS IDENTIFICATION

MATERIAL SAFETY DATA SHEET

Trade Name: Johnsens Non-chlorinated Brake Parts Cleaner
MSDS NO. 2413
Revision Date: 03-06-2012
Date Printed 03-06-2012

3. HAZARDS IDENTIFICATION

Emergency Overview: Danger: Poison. Extremely Flammable. Content under pressure. Ingestion of even small amounts of methanol can cause blindness and death. This material is an eye and skin irritant. Harmful if absorbed through the skin. Keep away from heat, sparks and flame. Gross inhalation overexposure may cause: respiratory track irritation, kidney damage, blood, liver damage, lung damage and central nervous system depression.

HMIS Classification: Health: *2 Flammability: 3 Physical Hazard: 2
NFPA Rating: Health: 2 Flammability: 3 Reactivity: 0

4. FIRST AID MEASURES

Eye Contact: In case of contact, or suspected contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention immediately after flushing.
Ingestion: If swallowed, do NOT induce vomiting. Call a physician immediately. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head lower than hips to prevent aspiration.
Inhalation: If inhaled, remove to fresh air. If not breathing give artificial respiration, preferably mouth-to-mouth. If breathing is difficult give oxygen. Get medical attention.
Skin Contact: In case of contact, immediately flush skin with plenty of soap and water for at least 15 minutes. Get medical attention. Remove contaminated clothing and shoes, and launder before reuse.

5. FIRE FIGHTING MEASURES

Flammable Properties

Flash Point °F(°C): -20 F (-29 C) (Lowest Component)
Flash Point Method: TAG Closed Cup
Flammable Limits in Air - Lower (%): 2.5% (Lowest Component)
Flammable Limits in Air - Upper (%): 12.8% (Lowest Component)
Autoignition Temperature °F(°C): 725 F (385 C) (Lowest Component)
Extinguishing Media: Dry chemical. Carbon dioxide. Alcohol foam. Use water spray to keep containers cool that are exposed to heat or flames.

Protection Of Fire-Fighters:

Special Fire-Fighting Procedures: Wear approved positive-pressure self-contained breathing apparatus and protective clothing. Vapor may cause flash fire.
Hazardous Combustion Products: Carbon Dioxide. Carbon Monoxide. Formaldehyde.
Aerosol Comments: NFPA Level 3 Aerosol

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Wear appropriate protective clothing and equipment to prevent skin and eye contact.
Spill Procedures: Contain any liquid from leaking containers. Avoid all sources of ignition; heat, sparks and open flames.
Action to be taken if material is released or spilled: Do not puncture or incinerate container. Contents under pressure. Wear proper protective equipment as specified in the protective equipment section. Remove sources of ignition. Leaking containers should be removed to an isolated, well-ventilated area and transferred to other suitable containers. Wipe, scrape, or soak up in an inert material and put in a container intended for flammable materials for disposal. Persons not trained should evacuate area.
Environmental Precautions: Do not allow to enter sanitary drains, sewer or surface and subsurface waters. Keep out of lakes, ponds or streams.

7. HANDLING AND STORAGE

Handling and Storage: Caution: Contents under pressure. Keep away from heat and open flame. Use only in a well ventilated area. Avoid breathing vapors, if exposed to high vapor concentration, leave area at once. Avoid contact with skin and eyes. Do not puncture, incinerate or store above 120 F. Exposure to high temperatures may cause bursting. DO NOT store in the passenger compartment of an automobile.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: Use in a well ventilated area. Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Eyewash stations. Showers.

MATERIAL SAFETY DATA SHEET

Trade Name: Johnsens Non-chlorinated Brake Parts Cleaner
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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eyes: Chemical goggles; also wear a face shield if splashing hazard exists.
Skin Protection: Avoid skin contact. Wear protective clothing and gloves.
Respiratory Protection: Do not breath mist or vapor. Use in a well ventilated area. Appropriate respiratory protection shall be worn when applied engineering controls are not adequate to protect against inhalation exposure.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Colorless to pale yellow liquid
Odor: MILD
pH Value: Not Determined
Vapor Pressure: Not Determined
Vapor Density (Air=1): Approximately 2.0
Boiling Point (°F): 133 F (56.1 C) (Lowest Component)
Melting/Freezing Point: < -110 F.
Solubility in Water: 64 %
Bulk Density at 20°C: Not Determined
Molecular Weight: Mixture
Specific Gravity (H20=1): .82 @ 68 F.
Viscosity: Not Determined.
Evaporation Rate: Not Determined
VOC Content(%): 69.34%
Decomposition Temperature: Not Determined

10. STABILITY AND REACTIVITY

Chemical Stability: Stable under normal conditions of handling, use and transportation.
Conditions to Avoid: Keep away from heat,sparks and flame. Avoid any source of ignition. Do not expose to heat or store at temperatures above 120 F.
Materials to Avoid: Nitric acid. Sulfuric Acid. Strong acids. Contact with oxidizing agents. Chlorine compounds. Alkalis. Potassium t-butoxide. Beryllium Dihydride. Magnesium. Nitrogen Tetraoxide. Strong bases. Methanol has an explosive reaction with chloroform + soduim methoxide and diethyl zinc. Methanol has a violent reaction with alkyl aluminum salts, acetyl bromide, chloroform + sodium hydroxide, cyanuric chloride, nitric acid, etc.
Hazardous Decomposition Products: Carbon monoxide. Carbon dioxide. Formaldehyde.
Hazardous Polymerization: WILL NOT OCCUR

11. TOXICOLOGICAL INFORMATION

Toxicological Data:

Component	Route	Species	Dose
Methanol 67-56-1	Inhalation	Rats	LC50 64,000 ppm
Acetone 67-64-1	Inhalation	Rats	LC50 50100 mg/m^3/8H
Toluene 108-88-3	Inhalation	Rats	LC50 49 gm/m^3/4H
Heptane 142-82-5	Inhalation	Rats	LC50 103 gm/m^3/4H
Carbon Dioxide 124-38-9	NA	NA	Not known.

Carcinogenicity:

Component	IARC	NTP	OSHA
Methanol 67-56-1	Not Listed	Not Listed	Not Listed

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Component	IARC	NTP	OSHA
Acetone 67-64-1	Not Listed	Not Listed	Not Listed
Toluene 108-88-3	Group 3 (not classifiable)	Not Listed	Not Listed
Heptane 142-82-5	Not Listed	Not Listed	Not Listed
Carbon Dioxide 124-38-9	Not Listed	Not Listed	Not Listed

12. ECOLOGICAL INFORMATION

Remarks: Ecological testing has not been conducted on this product.

13. DISPOSAL CONSIDERATION

Waste Classification: Residues and spilled material are hazardous waste due to ignitability.
Waste Management: Not determined.
Disposal Method: Disposal should be made in accordance with federal, state and local regulations.

14. TRANSPORTATION INFORMATION

U.S. DOT:

Proper Shipping Name: CONSUMER COMMODITY
Hazard Class: ORM-D
UN/NA Number: Not Applicable
DOT Packing Group: Not Applicable

IMDG:

Proper Shipping Name: Aerosols
Hazard Class: 2
Hazard Subclass: 2.1
UN No.: UN1950
Packing Group: Not Applicable.
Marine Pollutant: No

15. REGULATORY INFORMATION

US Federal Regulations:

Component	SARA 313	SARA 302	TPQ	RQ
Methanol 67-56-1	Listed.	Not Listed	Not Listed	Not Listed
Acetone 67-64-1	Not Listed	Not Listed	Not Listed	Not Listed
Toluene 108-88-3	Listed.	Not Listed	Not Listed	Not Listed
Heptane 142-82-5	Not Listed	Not Listed	Not Listed	Not Listed
Carbon Dioxide 124-38-9	Not Listed	Not Listed	Not Listed	Not Listed

US OSHA HEALTH CLASSIFICATION: Hazardous per OSHA 29 CFR 1910.1200
SARA 311/312 Hazard Catagories: Not Determined.

State Regulations:

MATERIAL SAFETY DATA SHEET

Trade Name: Johnsens Non-chlorinated Brake Parts Cleaner
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Component	California Prop. 65 Cancer list	California - Prop 65 Developmental Toxicity	California Prop. 65 Reproductive Female	California Prop. 65 Reproductive Male
Methanol 67-56-1	Not Listed	Not Listed	Not Listed	Not Listed
Acetone 67-64-1	Benzene and Acetaldehyde may be present in trace amounts	Benzene may be present in trace amounts- Developmental Toxicity, male.	Not Listed	Not Listed
Toluene 108-88-3	Not Listed	Listed: January 1, 1991 Developmental toxin.	Not Listed	Not Listed
Heptane 142-82-5	Not Listed	Not Listed	Not Listed	Not Listed
Carbon Dioxide 124-38-9	Not Listed	Not Listed	Not Listed	Not Listed

Component	New Jersey Right-to-Know List:
Methanol 67-56-1	Substance no. 2079 Substance no. 2422 Substance no. 2423 Substance no. 2425 Substance no. 2426 Substance no. 2427 Substance no. 2428 Substance no. 2429 Substance no. 2430 Substance no. 1222
Acetone 67-64-1	Substance no. 0006 Listed Substance no. 2422 Substance no. 2423 Substance no. 2425 Substance no. 2426 Substance no. 2427 Substance no. 2428 Substance no. 2429 Substance no. 2430
Toluene 108-88-3	Substance no. 1866 Substance no. 2422 Substance no. 2423 Substance no. 2425 Substance no. 2426 Substance no. 2427 Substance no. 2428 Substance no. 2429 Substance no. 2430
Heptane 142-82-5	Substance no. 2422 Substance no. 2423 Substance no. 2425 Substance no. 2426 Substance no. 2427 Substance no. 2428 Substance no. 2429 Substance no. 2430 Substance no. 1339
Carbon Dioxide 124-38-9	Substance no. 0343

U.S. TSCA: The components of this product are listed on the TSCA Inventory.
Canadian Inventory: The components of this product are listed on the Canadian DSL or NDSL Inventory.

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Trade Name: Johnsens Non-chlorinated Brake Parts Cleaner
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Consumer Product Safety Improvement Act of 2008 General Conformity Certification

The Supplier identified in Section 1 of this MSDS has evaluated this product and certifies it to be labeled and packaged in compliance with the applicable provisions of the Federal Hazardous Substance Act as stated in 16 CFR 1500 and enforced by the Consumer Product Safety Commission, and where applicable the products that require Child Resistant Closures are packaged in accordance with the Poison Prevention Packaging Act as stated in 16 CFR 1700 and enforced by the Consumer Product Safety Commission. All closures have been tested in accordance with the latest protocols. No other testing is required to certify compliance with the above. The date of manufacture is stamped on the product container.

16. OTHER INFORMATION

General Notes: Do not allow undiluted material or large quantities to reach groundwater, bodies of water or sewer system.

Disclaimer: The information and recommendations contained herein are based upon tests believed to be reliable. However, the manufacturer/distributor of this product does not guarantee their accuracy or completeness NOR SHALL ANY OF THIS INFORMATION CONSTITUTE A WARRANTY, WHETHER EXPRESSED OR IMPLIED, AS TO THE SAFETY OF THE GOODS, THE MERCHANTABILITY OF THE GOODS, OR THE FITNESS OF THE GOODS FOR A PARTICULAR PURPOSE. Adjustment to conform to actual conditions of usage may be required. The manufacturer/distributor assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied.

Material Safety Data Sheet

PC HEAVY DUTY SYNTHETIC BLEND AUTOMATIC TRANSMISSION FLUID

1 . Product and company identification

Product name : PC HEAVY DUTY SYNTHETIC BLEND AUTOMATIC TRANSMISSION FLUID

Code : PCHDATF

Material uses : A heavy duty synthetic blend automatic transmission fluid for use in commerical service in a variety of automatic transmission makes and as a hydraulic and power steering fluid for mobile equipment.

Manufacturer : Petro-Canada Lubricants Inc.
2310 Lakeshore Road West
Mississauga, Ontario
Canada L5J 1K2

In case of emergency : Suncor Energy: 403-296-3000
Canutec Transportation: 613-996-6666
Poison Control Centre: Consult local telephone directory for emergency number(s).

2 . Hazards identification

Physical state : Viscous liquid.

Odor : No odor or slight petroleum oil like.

WHMIS (Canada) : Not controlled under WHMIS (Canada).

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency overview : No specific hazard.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Skin : Slightly irritating to the skin.

Eyes : Slightly irritating to the eyes.

Potential chronic health effects

Chronic effects : No known significant effects or critical hazards.

Carcinogenicity : Not listed as carcinogenic by OSHA, NTP or IARC.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure : Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated skin exposure can produce local skin destruction or dermatitis.

See toxicological information (Section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	Mixture	-

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

The base oil may be a mixture of the following CAS#s: 8042-47-5, 64742-46-7, 64742-47-8, 64742-53-6, 64742-54-7, 64742-55-8, 72623-84-8, 72623-85-9, 72623-86-0, 72623-87-1, 178603-64-0, 178603-65-1, 178603-66-2, 445411-73-4

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4 . First aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

Flammability of the product : May be combustible at high temperature.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Products of combustion : Carbon oxides (CO, CO2), nitrogen oxides (NOx), smoke and irritating vapours as products of incomplete combustion.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Low fire hazard. This material must be heated before ignition will occur.

Special remarks on explosion hazards : Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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6 . Accidental release measures

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	**ACGIH TLV (United States). Notes: (Mineral oil)** TWA: 5 mg/m³, (Inhalable fraction) 8 hour(s).

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: organic vapor filter

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Recommended: neoprene, nitrile, polyvinyl alcohol (PVA), Viton®.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

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8 . Exposure controls/personal protection

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Viscous liquid.

Flash point : Closed cup: 160°C (320°F) [Pensky-Martens.]
Open cup: 189°C (372.2°F) [Cleveland.]

Auto-ignition temperature : Fire Point: 212°C (413.6°F)

Flammable limits : Not available.

Color : Dark red.

Odor : No odor or slight petroleum oil like.

Odor threshold : Not available.

pH : Not available.

Boiling/condensation point : Not available.

Melting/freezing point : Not available.

Relative density : 0.8544 kg/L @ 15°C (59°F)

Vapor pressure : Not available.

Vapor density : Not available.

Volatility : Not available.

Evaporation rate : Not available.

Viscosity : 34.3 cSt @ 40°C (104°F), 7.8 cSt @ 100°C (212°F), VI=208

Pour point : -45°C (-49°F)

Solubility : Insoluble in water.

10 . Stability and reactivity

Chemical stability : The product is stable.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Materials to avoid : Reactive with oxidizing agents, reducing agents and acids.

Hazardous decomposition products : May release COx, NOx, smoke and irritating vapours when heated to decomposition.

11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>5.2 mg/l	4 hours

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

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11 . Toxicological information

Sensitizer

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Mixture of severely hydrotreated and hydrocracked base oil (petroleum).	A4	-	-	-	-	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	Not regulated.	-	-	-		-
DOT Classification	Not available.	Not available.	Not available.	-		-

PG* : Packing group

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15 . Regulatory information

United States

HCS Classification : Not regulated.

U.S. Federal regulations / State regulations : California Prop. 65: This product contains an ingredient(s) for which the State of California has found to cause cancer, birth defects or other reproductive harm, which would require a warning under the statute.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

Canada inventory : All components are listed or exempted.

United States inventory (TSCA 8b) : All components are listed or exempted.

Europe inventory : All components are listed or exempted.

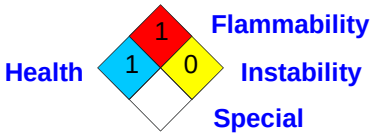
International lists : **Australia inventory (AICS)**: All components are listed or exempted.
China inventory (IECSC): All components are listed or exempted.
Japan inventory: All components are listed or exempted.
Korea inventory: All components are listed or exempted.
Philippines inventory (PICCS): All components are listed or exempted.

16 . Other information

Hazardous Material Information System (U.S.A.) :

Health	1
Flammability	1
Physical hazards	0
Personal protection	B

National Fire Protection Association (U.S.A.) :



References : Available upon request.
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Date of printing : **8/2/2012.**

Date of issue : 2 August 2012

Date of previous issue : 5/27/2009.

Responsible name : **Product Safety - JDW**

Indicates information that has changed from previously issued version.

For Copy of (M)SDS : Internet: lubricants.petro-canada.ca/msds

Telephone: 1-800-268-5850; Fax: 1-800-201-6285

For Product Safety Information: (905) 804-4752

Notice to reader

16 . Other information

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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Permatex, Inc.
10 Columbus Blvd.
Hartford, CT 06106 USA
Telephone: 1-87-Permatex
(877) 376-2839
Emergency: 800-255-3924
International Emergency: 813-348-0585

Material Safety Data Sheet

1. PRODUCT IDENTIFICATION

Product Name: **FAST ORANGE PUMICE LOTION 1GAL**
Item No: **25219**
Product Type: **Waterless hand cleaner**

2. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	Percent	ACGIH 8 Hr. TWA:	OSHA 8 Hr. TWA:
Water 7732-18-5	75-85	Not Listed	Not Listed
PUMICE 1332-09-8	5-15	10 mg/m^3 (inhal); 3 mg/m^3 (resp)	15 mg/m^3 (total); 5 mg/m^3 (resp)
D-Limonene 5989-27-5	5-15	Not Established	Not Established
ETHOXYLATED C11-C16 ALCOHOL 127036-24-2	1-10	Not Listed	Not Listed
SILICA, QUARTZ 14808-60-7	0.1-1.0	0.1 mg/m^3 TWA respirable	0.1 mg/m^3 TWA respirable

3. HAZARDS IDENTIFICATION

Toxicity: Oral LD50 greater than 5000 mg/kg. Primary irritation tests show that this product is not a primary irritant.
Primary Routes of Entry: Eye and skin contact, ingestion, inhalation.
Signs and Symptoms of Exposure: None under normal conditons of use.

Ingredients	Percent	NTP:	ACGIH Carcinogens	IARC:
D-Limonene 5989-27-5	5-15	male rat-clear evidence; female rat-no evidence; male mice-no evidence; female mice-no evidence		
SILICA, QUARTZ 14808-60-7	0.1-1.0	Known Carcinogen	Not known	Group 1; Vol. 68; 1997

Medical Conditions Recognized as Being Aggravated by Exposure: None known

4. FIRST AID MEASURES

Ingestion: If swallowed, seek medical advice immediately and show this container or label
Inhalation: Immediate medical attention is not required.
Skin Contact: none under normal use
Eye Contact: In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice

5. FIRE FIGHTING MEASURES

Flash Point (°F/C): 193 degrees F. Method: Setaflash Closed Cup
Recommended Extinguishing Media: Carbon dioxide, chemical powder
Special Fire-Fighting Procedures: No special procedures.
Hazardous Products Formed by Fire or Thermal Decomposition: None anticipated
Unusual Fire/Explosion Hazards: None

Lower Explosive Limit: Not determined.

Upper Explosive Limit: Not determined.

6. ACCIDENTAL RELEASE MEASURES

Spill Procedures: Rinse away with water or wipe up with a towel.

7. HANDLING AND STORAGE

Storage: Hand cleaner should be stored at temperatures between 40 degrees F. and 100 degrees F.
Handling: Follow all general safety precautions.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eyes: Not required
Skin: Not required
Ventilation: Provide adequate ventilation
Respiratory Protection: not required under normal use

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: White lotion with pumice
Odor: orange
Boiling Point (°F): Not determined.
pH: 7.0
Solubility in Water: SOLUBLE
Specific Gravity: 1.03
VOC Content(Wt.%): 7 % by weight
Vapor Pressure: Not Determined
Vapor Density (Air=1): Not Determined
Evaporation Rate: Not Determined

10. STABILITY AND REACTIVITY

Chemical Stability: Stable at normal conditions
Hazardous Polymerization: WILL NOT OCCUR
Incompatabilities: None known
Conditions to Avoid: Freezing
Hazardous Products Formed by Fire or Thermal Decomposition: None anticipated

11. TOXICOLOGICAL INFORMATION

See Section 3

12. ECOLOGICAL INFORMATION

No data available

13. DISPOSAL CONSIDERATIONS

Recommended Method of Disposal: Dispose of uncontaminated material through sewer system with permission of the authority responsible for that system.
US EPA Waste Number: NH - Not a RCRA Hazardous Waste Material

14. TRANSPORTATION INFORMATION

DOT (49CFR 172)

Domestic Ground Transport

DOT Shipping Name: Unrestricted
Hazard Class: NONE
UN/ID Number: None
Marine Pollutant: None

IATA

Proper Shipping Name: not regulated
Class or Division: None
UN/NA Number: None

IMDG

Proper Shipping: Unrestricted

Hazard Class: None
UN Number: None

15. REGULATORY INFORMATION

SARA 313 Chemicals: The following component(s) is listed as a SARA Section 313 Toxic Chemical.

SARA 313 Information
NONE

CALIFORNIA PROP 65:
No California Prop 65 chemicals are known to be present at or above the No Significant Risk Level.

TSCA Inventory Status:
Listed on Inventory: YES All components of this product are listed (or exempt) on the EPA TSCA inventory.

16. OTHER INFORMATION

Estimated NFPA Rating: HEALTH 1, FLAMMABILITY 2 , REACTIVITY 0
Estimated HMIS Classification: HEALTH 1, FLAMMABILITY 2, PHYSICAL HAZARD 0
NFPA is a registered trademark of the National Fire Protection Assn.
HMIS is a registered trademark of the National Paint and Coatings Assn.

Prepared By: Denise Boyd, Health and Safety Manager
Company: Permatex. Inc. 10 Columbus Blvd. Hartford, CT USA 06106
Telephone Number: 1-87-Permatex (877) 376-2839

Revision Date: 01/23/2003
Revision Number: 1

Material Safety Data Sheet

PRECISION ™ SYNTHETIC EP00

1 . Product and company identification

Product name : PRECISION ™ SYNTHETIC EP00

Code : PS00

Material uses : Precision Synthetic EP00 is a multi-service industrial and automotive, high temperature synthetic EP grease. It is recommended for the following applications: The lubrication of all makes of truck trailer wheel-end bearings designed to use oil and leaky gearcases subjected to high temperatures.

Manufacturer : Petro-Canada Lubricants Inc.
2310 Lakeshore Road West
Mississauga, Ontario
Canada L5J 1K2

In case of emergency : Suncor Energy: 403-296-3000
Canutec Transportation: 613-996-6666
Poison Control Centre: Consult local telephone directory for emergency number(s).

2 . Hazards identification

Physical state : Smooth, stringy, semi-fluid.

Odor : Mild grease like.

WHMIS (Canada) : Not controlled under WHMIS (Canada).

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency overview : No specific hazard.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Skin : Slightly irritating to the skin.

Eyes : Slightly irritating to the eyes.

Potential chronic health effects

Chronic effects : No known significant effects or critical hazards.

Carcinogenicity : Not listed as carcinogenic by OSHA, NTP or IARC.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure : Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated skin exposure can produce local skin destruction or dermatitis.

See toxicological information (Section 11)

3 . Composition/information on ingredients

Name	CAS number	%
Synthetic Hydrocarbons with less than 15% HT Base Oil mixture.	Mixture	-

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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3 . Composition/information on ingredients

The base oil may be a mixture of the following CAS#s: 8042-47-5, 64741-95-3, 64742-01-4, 64742-46-7, 64742-47-8, 64742-53-6, 64742-54-7, 64742-55-8, 64742-62-7, 72623-83-7, 72623-84-8, 72623-85-9, 72623-86-0, 72623-87-1, 178603-64-0, 178603-65-1, 178603-66-2, 445411-73-4

4 . First aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

Flammability of the product : May be combustible at high temperature.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Products of combustion : Carbon oxides (CO, CO2), nitrogen oxides (NOx), hydrogen sulfide (H_2S), phosphorus oxides (POx), asphyxiants, ammonia, aldehydes, hydrocarbons, smoke and irritating vapours as products of incomplete combustion.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Low fire hazard. This material must be heated before ignition will occur.

Special remarks on explosion hazards : Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

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6 . Accidental release measures

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Ingredient	Exposure limits
Synthetic Hydrocarbons with less than 15% HT Base Oil mixture.	**ACGIH TLV (United States). Notes: (Mineral oil)** TWA: 5 mg/m³, (Inhalable fraction) 8 hour(s).

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: organic vapor filter

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8 . Exposure controls/personal protection

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Recommended: neoprene, nitrile, polyvinyl alcohol (PVA), Viton®.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Smooth, stringy, semi-fluid.

Flash point : Base Fluid Blend: Open cup: 263°C (505.4°F) [Cleveland.]

Auto-ignition temperature : Base Fluid Blend: Fire Point: 293°C (559.4°F)

Flammable limits : Not available.

Color : Gold

Odor : Mild grease like.

Odor threshold : Not available.

pH : Not available.

Boiling/condensation point : Not available.

Melting/freezing point : Not available.

Relative density : Base Fluid Blend: 0.8868 kg/L @ 15°C (59°F)

Vapor pressure : Not available.

Vapor density : Not available.

Volatility : Not available.

Evaporation rate : Not available.

Viscosity : Base Fluid Blend: 506.7 cSt @ 40°C (104°F), 45.4 cSt @ 100°C (212°F), VI=143

Pour point : -36°C (-33°F)

Penetration : 404 (60 strokes) @ 25°C (77°F)

Dropping Point : 286°C (546.8°F)

Solubility : Insoluble in water.

10 . Stability and reactivity

Chemical stability : The product is stable.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Materials to avoid : Reactive with oxidizing agents, acids, alkalis, reducing agents and acidic clay.

Hazardous decomposition products : May release COx, NOx, SOx, POx, H_2S, metal oxides, asphyxiants, smoke and irritating vapours when heated to decomposition.

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11 . Toxicological information

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Synthetic Hydrocarbons with less than 15% HT Base Oil mixture.	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Dusts and mists	Rat	>5.2 mg/l	4 hours

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitizer

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Synthetic Hydrocarbons with less than 15% HT Base Oil mixture.	A4	-	-	-	-	-

Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

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13 . Disposal considerations

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	Not regulated.	-	-	-		-
DOT Classification	Not available.	Not available.	Not available.	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Not regulated.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

Canada inventory : All components are listed or exempted.

United States inventory (TSCA 8b) : All components are listed or exempted.

Europe inventory : At least one component is not listed in EINECS but all such components are listed in ELINCS.
Please contact your supplier for information on the inventory status of this material.

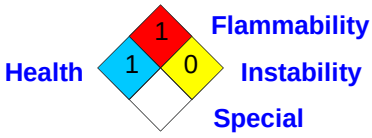
International lists : **China inventory (IECSC)**: All components are listed or exempted.

16 . Other information

Hazardous Material Information System (U.S.A.) :

Health	1
Flammability	1
Physical hazards	0
Personal protection	B

National Fire Protection Association (U.S.A.) :



References : Available upon request.
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Date of printing : **11/9/2012.**

Date of issue : 9 November 2012

Date of previous issue : 3/3/2011.

Responsible name : **Product Safety - RS**

Indicates information that has changed from previously issued version.

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16 . Other information

For Copy of (M)SDS : Internet: lubricants.petro-canada.ca/msds

Telephone: 1-800-268-5850; Fax: 1-800-201-6285

For Product Safety Information: (905) 804-4752

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

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Material Safety Data Sheet

PRECISION ™ SYNTHETIC MOLY

1 . Product and company identification

Product name : PRECISION ™ SYNTHETIC MOLY

Code : PSM

Material uses : PRECISION SYNTHETIC MOLY is a synthetic, high performance, all season EP grease with long life and improved low temperature properties where shock loading conditions are encountered.

Manufacturer : Petro-Canada Lubricants Inc.
2310 Lakeshore Road West
Mississauga, Ontario
Canada L5J 1K2

In case of emergency : Suncor Energy: 403-296-3000
Canutec Transportation: 613-996-6666
Poison Control Centre: Consult local telephone directory for emergency number(s).

2 . Hazards identification

Physical state : Buttery, smooth, semi-solid

Odour : Mild grease like.

WHMIS (Canada) : Not controlled under WHMIS (Canada).

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency overview : No specific hazard.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Skin : Slightly irritating to the skin.

Eyes : Slightly irritating to the eyes.

Potential chronic health effects

Chronic effects : No known significant effects or critical hazards.

Carcinogenicity : Not listed as carcinogenic by OSHA, NTP or IARC.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure : Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated skin exposure can produce local skin destruction or dermatitis.

See toxicological information (Section 11)

3 . Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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4 . First-aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

Flammability of the product : May be combustible at high temperature.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Products of combustion : Carbon oxides (CO, CO2), nitrogen oxides (NOx), phosphorus oxides (POx), hydrogen sulfide (H_2S), ammonia, smoke and irritating vapours as products of incomplete combustion.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Low fire hazard. This material must be heated before ignition will occur.

Special remarks on explosion hazards : Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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6 . Accidental release measures

Large spill : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: organic vapour filter

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Recommended: neoprene, nitrile, polyvinyl alcohol (PVA), Viton®.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

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8 . Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Buttery, smooth, semi-solid

Flash point : Base Fluid Blend: Open cup: 187°C (368.6°F) [Cleveland.]

Auto-ignition temperature : Base Fluid Blend: 203°C (397.4°F)

Flammable limits : Not available.

Colour : Grey.

Odour : Mild grease like.

Odour threshold : Not available.

pH : Not available.

Boiling/condensation point : Not available.

Melting/freezing point : Not available.

Relative density : 0.9098 kg/L @ 15°C (59°F)

Vapour pressure : Not available.

Vapour density : Not available.

Volatility : Not available.

Evaporation rate : Not available.

Viscosity : Base Fluid Blend: 129.8 cSt @ 40°C (104°F), 15.6 cSt @ 100°C (212°F), VI=126

Pour point : Base Fluid Blend: -54°C (-65.2°F)

Penetration : 318 (60 strokes) @ 25°C (77°F)

Dropping Point : 296°C (511°F)

Solubility : Insoluble in water.

10 . Stability and reactivity

Chemical stability : The product is stable.

Hazardous polymerisation : Under normal conditions of storage and use, hazardous polymerisation will not occur.

Materials to avoid : Reactive with oxidising agents, reducing agents, acids, alkalis and acidic clay.

Hazardous decomposition products : May release COx, NOx, SOx, POx, H_2S, MoOx, metal oxides, lithium compounds, smoke and irritating vapours when heated to decomposition.

11 . Toxicological information

Acute toxicity

Conclusion/Summary : Not available.

Chronic toxicity

Conclusion/Summary : Not available.

Irritation/Corrosion

Conclusion/Summary : Not available.

Sensitiser

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Not available.

Mutagenicity

Conclusion/Summary : Not available.

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11 . Toxicological information

Teratogenicity

Conclusion/Summary : Not available.

Reproductive toxicity

Conclusion/Summary : Not available.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	Not regulated.	-	-	-		-
DOT Classification	Not available.	Not available.	Not available.	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Not regulated.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

Canada inventory : All components are listed or exempted.

Petro-Canada is a Suncor Energy business ™ Trademark of Suncor Energy Inc. Used under licence.

15 . Regulatory information

United States inventory (TSCA 8b) : All components are listed or exempted.

Europe inventory : At least one component is not listed in EINECS but all such components are listed in ELINCS.
Please contact your supplier for information on the inventory status of this material.

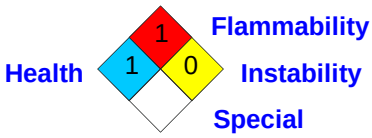
International lists : **China inventory (IECSC)**: All components are listed or exempted.

16 . Other information

Hazardous Material Information System (U.S.A.) :

Health	1
Flammability	1
Physical hazards	0
Personal protection	B

National Fire Protection Association (U.S.A.) :



References : Available upon request.
™ Trademark of Suncor Energy Inc. Used under licence.

Date of printing : **2/14/2013.**

Date of issue : 14 February 2013

Date of previous issue : 6/6/2011.

Responsible name : **Product Safety - RS**

Indicates information that has changed from previously issued version.

For Copy of (M)SDS : The Canadian Controlled Products Regulations (CPR) (Under the Hazardous Products Act, part of the WHMIS legislation) only apply to WHMIS Controlled (i.e., hazardous) products. Therefore, the CPR and the 3-year update rule specified therein do not apply to WHMIS Non-Controlled products. Although this is true, customarily Petro-Canada reviews and updates Non-Controlled product MSDS if a customer requests such an update. These Non-Controlled product updates are given a lower priority than Controlled products but are handled as soon as practicable. If you would like to verify if the MSDS you have is the most current, or you require any further information, please contact:

Internet: lubricants.petro-canada.ca/msds

Lubricants:
Western Canada, telephone: 1-800-661-1199; fax: 1-800-378-4518
Ontario & Central Canada, telephone: 1-800-268-5850; fax: 1-800-201-6285
Quebec & Eastern Canada, telephone: 1-800-576-1686; fax: 1-800-201-6285

For Product Safety Information: (905) 804-4752

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Date: 18 December 2013
Supercedes: 12 January 2011

MATERIAL SAFETY DATA SHEET

IN CASE OF EMERGENCY CALL CHEMTREC AT 1-800-424-9300

1. PRODUCT IDENTIFICATION AND COMPANY IDENTIFICATION:

Product Name: **PURELL® SF607™ Instant Hand Sanitizing Foam**

Company Name & Address: GOJO Industries, Inc.
One GOJO Plaza, Suite 500
Akron, OH 44311

Emergency Phone: **1-800-424-9300 CHEMTREC**
Non-Emergency Phone: (330) 255-6000
MSDS Request Phone: (330) 255-6000 x8804

2. INFORMATION ON INGREDIENTS:

HAZARDOUS INGREDIENTS	CAS NUMBER	OSHA PEL	ACGIH TLV	% RANGE
None				

Other ingredient(s) with notification requirements:	CAS NUMBER	List
None		

3. HAZARDS IDENTIFICATION:

EMERGENCY OVERVIEW

When used according to instructions, the product applicable to this MSDS is safe and presents no immediate or long-term health hazard. However, abnormal entry routes, such as gross ingestion, may require immediate medical attention.

Potential Health Effects:

HMIS: Health 1 Flammability 0 Reactivity 0 Personal Protection None

Eye Contact: May cause eye irritation.
Skin Contact: No irritation or reaction expected.
Inhalation: Not an expected route of exposure
Ingestion: May cause upset stomach, nausea (Abnormal entry route).
Carcinogenicity: Not listed as a carcinogen by NTP, IARC, OSHA or ACGIH.

4. FIRST AID MEASURES:

Eye Contact: Do not rub eyes. Flush eyes thoroughly with water for 15 minutes. If condition worsens or irritation persists, contact physician.
Skin Contact: In the case of allergic reaction, see a physician.
Inhalation: Move to fresh air
Ingestion: Do not induce vomiting. Contact a physician or Poison Control Center.

5. FIRE FIGHTING MEASURES:

NFPA: Health 0 Fire 0 Reactivity 0

Flashpoint °F/°C (PMCC method): > 212°F/ > 100°C
Unusual Fire and Explosion Hazards: None known.
Special Fire Fighting Procedures: None known.

Extinguishing Media: X Water Fog X Alcohol Foam X CO_2 X Dry Chemical ____ Other

6. ACCIDENTAL RELEASE MEASURES:

No special requirements. Water clean up and rinse. CAUTION – WILL CAUSE SLIPPERY SURFACES.

7. HANDLING AND STORAGE:

Store at normal room temperature away from reach of small children. Keep containers sealed. Use older containers first. Avoid freezing conditions.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

Eye Protection:	None required under normal conditions.
Skin Protection:	None required under normal conditions.
Respiratory Protection:	None required under normal conditions.
Ventilation:	None required under normal conditions.
Protective Equipment or Clothing:	None required under normal conditions.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Appearance and Odor	Clear to cloudy, wáter-thin liquid, no added fragrance
pH (liquid):	5.5 – 8.5
VOC , %:	< 1%

10. STABILITY AND REACTIVITY:

Stable/Non reactive product.

11. TOXICOLOGICAL INFORMATION:

No acute or chronic toxic effects expected when used according to directions.

12. ECOLOGICAL CONSIDERATIONS:

No ecological or special considerations when used according to directions. Not considered environmentally harmful from normal dilution, expected usage and typical drainage to sewers, septic systems and treatment plants.

13. DISPOSAL CONSIDERATIONS:

No special considerations when disposed according to local, state and Federal regulations.

14. TRANSPORT INFORMATION:

Not classified as a hazardous material.

15. REGULATORY AND OTHER INFORMATION:

TSCA: All ingredients are listed or exempt per reference 15 USC 2602 (2)(B)(vi).

Complies with current FDA regulations for cosmetic and/or over-the-counter drug products.

WHMIS: Exempt under the Food and Drug Act

Notice: The information herein is based on data considered to be accurate as of the date of preparation of this material safety data sheet. However, no warranty or representation, expressed or implied, is made as to the accuracy or completeness of the foregoing data and safety information. The user assumes all liability for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices or from any hazards inherent in the nature of the product.

Material Safety Data Sheet

following EU-guideline 91/155/EU

Printing Date: 27.01.2012

Updated on: 01.01.2012

1. NAME OF SUBSTANCE / PREPARATION AND COMPANY

Trade Name: pr88 - the wash-off hand protection -
(water-soluble skin protection cream)

Company Name: Ursula Rath GmbH & Co.KG
Messingweg 11
D-48308 Senden
Phone: +49 / 2597 / 96 24-0
Fax : +49 / 2597 / 63 70

Imported by: **Pan Tec** (Div. of Thomas Machinery)
5 - 31 Arrow Rd.
Guelph, ON.
N1K 1S8
Phone/Fax: (519) 824-5617

2. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical characterisation: Cosmetic O/W-emulsion

Contains no dangerous substance according to the German Dangerous Substances Ordinance
Does not contain silicones or preservatives

Ingredients:
(declaration acc. to the European Cosmetics Directive acc. to INCI)

INCI-Name
Aqua (water)
Glycerine
Sodium Silicate
Sodium Tallowate
Ceteareth-5
Sodium Palmcernelate
Paraffin
Parfum (fragrance)

3. HAZARDS IDENTIFICATION

Harmless product as far as can be ascertained, when used - as intended - as a cosmetic product for skin protection.

4. FIRST AID MEASURES

Eye contact: rinse with plenty of water, if necessary consult a doctor
Ingestion: drink plenty of water, if necessary consult a doctor

5. FIRE FIGHTING MEASURES

Suitable extinguishing media: all standard extinguishing media
Particular threat: none

6. ACCIDENTAL RELEASE MEASURES

Cleansing / Wiping up procedure: Dispose of in a suitable container or rinse with water, remainders to be cleaned away by means of cleansing agents to avoid eventual danger of slipping.

7. HANDLING AND STORAGE

Handling: Skin protection cream to be rubbed into the skin before work and washed-off with water after work

Storage: Keep containers tightly closed, temperature -15°C to a max. of +35°C
Storage stability at room temperature (25°C) > 3 years

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Skin protection preparation can be used on the skin without any time limit.
The product is personal protection itself acc. to EU-directive 89/656/EU.

9. PHYSICAL AND CHEMICAL PROPERTIES

Form:	foamy/creamy
Colour:	white
Odour:	almond-like
pH-value:	upon application: neutral Acidic or alcaline reactions are as an effect of appropriate ions only possible in aqueous solutions. Therefore, the dry pr88 skin protection film is neutral. During the process of hand washing, for a short period of time, a pH-value of approx. 9,5 is effective, i.e. as washing soap would be used for hand washing.
Change in physical state:	approx. 40 °C
Ignition temperature:	after evaporation of water > 370 °C
Flash point:	after evaporation of water > 190 °C
Explosion limits:	unknown
Density:	(20 °C) abt. 0,5 g/cm^3
Vapour pressure:	(20 °C) abt.. 20 mbar
Viscosity:	(20 °C) structural viscous
Solubility in water:	(20 °C) > 90%

10. STABILITY AND REACTIVITY

Stability:	The product is stable from -15 °C to a max. of +40°C.
Reactivity:	Even at extreme working conditions, no reactions with working media or working substances are to be expected.

11. INFORMATION ON TOXICITY

All ingredients are raw materials defined for the production of cosmetics and subject to an appropriate quality control.
In the case of many years of application, no toxical or allergic reactions have been ascertained.

12. INFORMATION ON ECOLOGY

Biological Degradability:	acc. to OECD testing very good (> 97%) BSB_5 (523.700 mg O_2/l) 83,5%
Water danger class:	Water danger class 0 (self-classification)

13. DISPOSAL

Product:	pr88 can be burnt together with domestic garbage with local regulations or, piped into the sewer system after dissolving in water, waste key: 070 699.
Packaging:	Disposal according to governmental regulations. If not officially regulated, packagings can be treated like domestic garbage or be lead into a recycling system.

14. INFORMATION ON TRANSPORT

No dangerous goods according to transport regulations

15. REGULATIONS

The product is subject to the Cosmetics Directive

Symbols:	none
R-phrases:	none
S-phrases:	none

16. OTHER INFORMATION

This information is based on our knowledge data at this time and refers to the product in condition of delivery. It describes our product in regard to safety requirements and therefore does not represent a guarantee of particular qualities.

www.pr88.com

NEW RAPID TAP (#393)

Revision Date: 2011/08/11

Section 1: PRODUCT INFORMATION

Chemical family: Paraffin, chlorinated.

Product uses: Chemical.

Product name: New Rapid Tap (#393)

Manufacturer: Relton Corporation
317 Rolyn Place
Arcadia, CA 91007−2838.

Manufacturer emergency phone number: Chemtrec 800−424−9300 (24h).

Information phone number: 323−681−2551

Supplier: Bessey Tools North America
1555 Bishop Street, Unit #6
Cambridge, Ontario
N1R 7J4
Tel.: 519−621−7240
Fax: 519−621−3442.

TDG classification: Not regulated.

WHMIS classification: Not controlled.

DSL status: The substance(s) which appear in section 2 with CAS numbers appear on the Domestic Substances List.

Supplier MSDS date: 2011/01/10

Section 2: HAZARDOUS INGREDIENTS

C.A.S.	CONCENTRATION %	Ingredient Name	T.L.V.	LD/50	LC/50
61788−76−9	<40	ALKANES, CHLORO	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
64742−58−1	<50	PETROLEUM OIL PARAFINIE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
8013−07−8	>1	EPOXIDIZED SOYBEAN OIL	NOT AVAILABLE	40,000 MG/KG RAT ORAL	NOT AVAILABLE
	TRACE	CINNAMON OIL PERFUME − NO CAS #DISCLOSED	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
	<1	OLEFIN SULPHIDE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE
	<8	METAL−CUTTING−FLUID ADDITIVE	NOT AVAILABLE	NOT AVAILABLE	NOT AVAILABLE

Section 2A: ADDITIONAL INGREDIENT INFORMATION

Note: (supplier).
CAS# 64742−58−1: TLV 5 mg/m3.
Additives − TLV 5 mg/m3.
Olefin sulfide − TLV 5 mg/m3.

Section 3: PHYSICAL DATA

Physical state: Liquid.

Appearance & odor: Mild sweet odor.
Light amber.

Odor threshold (ppm):	Not available.
Vapour pressure (mmHg):	Not available.
Vapour density (air=1):	Not available.
Volatiles (%)	
By volume:	Not applicable.
Evaporation rate (butyl acetate = 1):	(water = 1). Slower than water.
Boiling point (°C):	232.2
Freezing point (°C):	−20F (−28.8C)
pH:	Not applicable.
Specific gravity @ 20 °C:	(water = 1). 1.02 @ 25C
Solubility in water (%):	<0.2
Coefficient of water\oil dist.:	Not available.
VOC:	Negligible.

Section 4: FIRE & EXPLOSION DATA

Flammability:	Not flammable.
Conditions of flammability:	At temperatures at or above flash point.
Extinguishing media:	Carbon dioxide, dry chemical, foam. Water spray.
Special procedures:	Wear a positive−pressure, self−contained breathing apparatus and full protective equipment. Treat as an oil fire. Use water spray to cool fire exposed containers.
Auto−ignition temperature (°C):	Not available.
Flash point (°C), method:	Cleveland Open Cup. 176.6 (350°F)
Lower flammability limit (% vol):	Not available.
Upper flammability limit (% vol):	Not available.
Explosion Data	
Sensitivity to static discharge:	Not available.
Sensitivity to mechanical impact:	Not available.
Hazardous combustion products:	Hydrogen chloride (HCl). Hydrogen sulfide (H2S).
Explosive power:	Container explosion may occur when heated.

Section 5: REACTIVITY DATA

Chemical stability: Product is stable.

Conditions of instability: Elevated temperatures.

Hazardous polymerization: Will not occur.

Incompatible substances: Strong alkalies.
Zinc (Zn).
Iron (Fe).
Strong reducing agents.
Strong oxidizing agents.

Hazardous decomposition products: Oxides of nitrogen (NOx).
Aldehydes.
Hydrogen chloride.
Oxides of carbon.
Oxides of sulfur.
Traces of hydrogen sulfide.
Incompletely burned hydrocarbon products.

Section 6: TOXICOLOGICAL PROPERTIES

Route of entry: Skin contact, eye contact, inhalation and ingestion.

Effects of acute exposure

Eye contact: May cause mild irritation.

Skin contact: May cause mild irritation.

Inhalation: May cause mild upper respiratory tract irritation.

Ingestion: May cause nausea.

Effects of chronic exposure: Not available.

LD50 of product, species & route: Not available for mixture, see the ingredients section.

LC50 of product, species & route: Not available.

Exposure limit of material: 5 mg/m3 (oil mists).

Sensitization to product: Not available.

Carcinogenic effects: Not listed as a carcinogen.

Reproductive effects: Not available.

Teratogenicity: Not available.

Mutagenicity: Not available.

Synergistic materials: Not available.

Section 7: PREVENTATIVE MEASURES

Precautionary Measures

Gloves/Type:



Rubber gloves.
Cotton gloves.
Nitrile gloves.

Respiratory/Type:



Wear a NIOSH approved respirator.
If oil mists are generated.

Eye/Type:



Splash proof chemical safety goggles or face shield.

Footwear/Type: Safety shoes per local regulations.

Clothing/Type: As required to prevent skin contact.



Chemical resistant clothing or apron.

Other/Type: Eye wash facility should be in close proximity.
Emergency shower should be in close proximity.

Ventilation requirements: As needed to stay below TLV.
Local and mechanical exhaust ventilation.

Leak/Spill: Absorb with inert material.
Prevent entry into drains, sewers, and other waterways.
Wear appropriate protective equipment.
Place in appropriate container.
Clean up spills immediately.
Notify the appropriate authorities as required.
Vacuum up residue.

Waste disposal: Dispose of all waste in accordance with Local, State, and Federal regulations.

Handling procedures and equipment: Avoid breathing vapors/mists.
Use adequate ventilation.
Wash thoroughly after using, particularly before eating or smoking.
Wear personal protective equipment appropriate to task.
Wash clothing before re−use.
Avoid contact with skin, eyes and clothing.
Keep away from food and food products.

Storage requirements: Store away from incompatible materials.
Keep containers closed when not in use.
Store in a dry place.
Provide adequate ventilation.
Store below 37.7°C (100°F).
Store away from food.
Do not store in zinc or iron container.

TDG classification: Not regulated.

Special shipping information: See transportation information.

Section 8: FIRST AID MEASURES

Skin contact: Remove contaminated clothing.
Wash thoroughly with soap and water.
Seek medical attention if irritation persists.

Eye contact: Flush with water for at least 15 minutes.
Consult a physician if irritation persists.

Inhalation: Remove victim to fresh air.
If irritation occurs, consult a physician.

Ingestion: Do not induce vomiting, seek medical attention.
Never give anything by mouth to an unconscious person.
Drink a large amount of water.

Additional information: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. This company shall not be held liable for any inaccuracies.

Section 9: ADDITIONAL INFORMATION

General note: This material safety data sheet was prepared from information obtained from various sources, including product suppliers and the Canadian Center for Occupational Health and Safety.

This MSDS was generated by *Conform−Plus* Application Service. Visit us at www.netmsds.com.

Material Safety Data Sheet

24 Hour Assistance:
1-847-367-7700
Rust-Oleum Corp.
www.rustoleum.com

Section 1 - Chemical Product / Company Information

Product Name:	CONSAV 1GL MAINT FLR PNT SFTY YEL	Revision Date:	12/09/2011
Identification Number:	251286		
Product Use/Class:	Floor Paint/Concrete Saver		
Supplier:	Rust-Oleum Corporation 11 Hawthorn Parkway Vernon Hills, IL 60061 USA	Manufacturer:	Rust-Oleum Corporation 11 Hawthorn Parkway Vernon Hills, IL 60061 USA
Preparer:	Regulatory Department		

Section 2 - Composition / Information On Ingredients

Chemical Name	CAS Number	Weight % Less Than	ACGIH TLV-TWA	ACGIH TLV-STEL	OSHA PEL-TWA	OSHA PEL CEILING
Titanium Dioxide	13463-67-7	10.0	10 mg/m3	N.E.	15 mg/m3	N.E.
Ester Alcohol	25265-77-4	5.0	N.E.	N.E.	N.E.	N.E.

Section 3 - Hazards Identification

*** Emergency Overview ***: Use ventilation necessary to keep exposures below recommended exposure limits, if any.

Effects Of Overexposure - Eye Contact: Causes eye irritation.

Effects Of Overexposure - Skin Contact: Substance may cause slight skin irritation.

Effects Of Overexposure - Inhalation: Low hazard for usual industrial handling or commercial handling by trained personnel.

Effects Of Overexposure - Ingestion: Substance may be harmful if swallowed.

Effects Of Overexposure - Chronic Hazards: Contains Titanium Dioxide. Titanium Dioxide is listed as a Group 2B-"Possibly carcinogenic to humans" by

IARC. Significant exposure is not anticipated during brush application or drying. Risk of overexposure depends on duration and level of exposure to dust from repeated sanding of surfaces or spray mist and the actual concentration of Titanium Dioxide in the formula.

Primary Route(s) Of Entry: Skin Contact, Skin Absorption, Inhalation, Ingestion, Eye Contact

Section 4 - First Aid Measures

First Aid - Eye Contact: Immediately flush eyes with plenty of water for at least 15 minutes holding eyelids open. Get medical attention. Do NOT allow rubbing of eyes or keeping eyes closed.

First Aid - Skin Contact: Wash with soap and water. Get medical attention if irritation develops or persists.

First Aid - Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get immediate medical attention. Do NOT use mouth-to-mouth resuscitation.

First Aid - Ingestion: Swallowing less than an ounce will not cause significant harm. For larger amounts, do not induce vomiting, but give one or two glasses of water to drink and get medical attention.

Section 5 - Fire Fighting Measures

Flash Point: >200 F (Setaflash)

Extinguishing Media: Film Forming Foam, Carbon Dioxide, Dry Chemical, Dry Sand, Water Fog

Unusual Fire And Explosion Hazards: FLASH POINT IS TESTED TO BE GREATER THAN 200 DEGREES F.

Special Firefighting Procedures: Water may be used to cool closed containers to prevent buildup of steam.

Section 6 - Accidental Release Measures

Steps To Be Taken If Material Is Released Or Spilled: Dispose of according to local, state (provincial) and federal regulations. Do not incinerate closed containers.

Section 7 - Handling And Storage

Handling: Wash thoroughly after handling. Wash hands before eating. Avoid contact with eyes.

Storage: Keep container closed when not in use. Keep from freezing.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Prevent build-up of vapors by opening all doors and windows to achieve cross-ventilation.

Respiratory Protection: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use.

Skin Protection: Use gloves to prevent prolonged skin contact. Nitrile or Neoprene gloves may afford adequate skin protection.

Eye Protection: Use safety eyewear designed to protect against splash of liquids.

Other protective equipment: Refer to safety supervisor or industrial hygienist for further information regarding personal protective equipment and its application.

Hygienic Practices: Wash thoroughly with soap and water before eating, drinking or smoking.

Section 9 - Physical And Chemical Properties

Vapor Density:	Heavier than Air	Odor:	Mild
Appearance:	Liquid	Evaporation Rate:	Slower than Ether
Solubility in H2O:	Miscible	Freeze Point:	N.D.
Specific Gravity:	0.881	pH:	N.D.
Physical State:	Liquid		

(See section 16 for abbreviation legend)

Section 10 - Stability And Reactivity

Conditions To Avoid: Avoid contact with strong acid and strong bases.

Incompatibility: Incompatible with strong oxidizing agents, strong acids and strong alkalies.

Hazardous Decomposition: When heated to decomposition, it emits acrid smoke and irritating fumes. By open flame, carbon monoxide and carbon dioxide.

Hazardous Polymerization: Will not occur under normal conditions.

Stability: This product is stable under normal storage conditions.

Section 11 - Toxicological Information

Chemical Name	LD50	LC50
Titanium Dioxide	N.E.	N.E.
Ester Alcohol	6517 mg/kg (Rat, Oral)	>3.55 mg/L (Rat, Inhalation, 6Hr)

Section 12 - Ecological Information

Ecological Information: Product is a mixture of listed components.

Section 13 - Disposal Information

Disposal Information: Dispose of material in accordance to local, state and federal regulations and ordinances. Do not allow to enter storm drains or sewer systems.

Section 14 - Transportation Information

	Domestic (USDOT)	International (IMDG)	Air (IATA)
Proper Shipping Name:	Not Regulated	Not Regulated	Not Regulated
Hazard Class:	N.A.	N.A.	N.A.
UN Number:	N.A.	N.A.	N.A.
Packing Group:	N.A.	N.A.	N.A.
Limited Quantity:	No	No	No

Section 15 - Regulatory Information

CERCLA - SARA Hazard Category

This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

CHRONIC HEALTH HAZARD

SARA Section 313:

Listed below are the substances (if any) contained in this product that are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

Toxic Substances Control Act:

Listed below are the substances (if any) contained in this product that are subject to the reporting requirements of TSCA 12(B) if exported from the United States:

International Regulations: As follows -

CANADIAN WHMIS:

This MSDS has been prepared in compliance with Controlled Product Regulations except for the use of the 16 headings.

CANADIAN WHMIS CLASS: D2A

Section 16 - Other Information

HMIS Ratings:

Health: 1*	Flammability: 1	Physical Hazard: 0	Personal Protection: X

NFPA Ratings:

Health: 2	Flammability: 1	Instability: 0

VOLATILE ORGANIC COMPOUNDS, g/L: 93

REASON FOR REVISION: Regulatory Update

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

Rust-Oleum Corporation believes, to the best of its knowledge, information and belief, the information contained herein to be accurate and reliable as of the date of this material safety data sheet. However, because the conditions of handling, use, and storage of these materials are beyond our control, we assume no responsibility or liability for personal injury or property damage incurred by the use of these materials. Rust-Oleum Corporation makes no

warranty, expressed or implied, regarding the accuracy or reliability of the data or results obtained from their use. All materials may present unknown hazards and should be used with caution. The information and recommendations in this material safety data sheet are offered for the users' consideration and examination. It is the responsibility of the user to determine the final suitability of this information and to comply with all applicable international, federal, state, and local laws and regulations.

Material Safety Data Sheet

24 Hour Assistance:
1-847-367-7700
Rust-Oleum Corp.
www.rustoleum.com

Section 1 - Chemical Product / Company Information

Product Name:	Industrial Choice Aerosol - Solvent Based Inverted Marking Paint	Revision Date:	03/22/2007
Identification Number:	203022, 203024, 203025, 203026, 203029, 203030, 1634838, 1668838, 1675838, 201516, 1652838, 239007, 1663838		
Product Use/Class:	Industrial Choice - Precision Line Marking Paint/Aerosol		
Supplier:	Rust-Oleum Corporation 11 Hawthorn Parkway Vernon Hills, IL 60061 USA	Manufacturer:	Rust-Oleum Corporation 11 Hawthorn Parkway Vernon Hills, IL 60061 USA
Preparer:	Department, Regulatory		

Section 2 - Composition / Information On Ingredients

Chemical Name	CAS Number	Weight % Less Than	ACGIH TLV-TWA	ACGIH TLV-STEL	OSHA PEL-TWA	OSHA PEL-CEILING
Liquefied Petroleum Gas	68476-86-8	35.0	1000 PPM	N.E.	1000 PPM	N.E.
Acetone	67-64-1	30.0	500 PPM	750 PPM	750 PPM	N.E.
Toluene	108-88-3	20.0	50 PPM	150 PPM	200 PPM	300 PPM
Aliphatic Hydrocarbon	64742-89-8	15.0	300 PPM	N.E.	300 PPM	N.E.
Xylene	1330-20-7	15.0	100 PPM	150 PPM	100 PPM	N.E.
Titanium Dioxide	13463-67-7	15.0	10 mg/m3	N.E.	10 mg/m3	N.E.
N-Butyl Acetate	123-86-4	15.0	150 PPM	200 PPM	150 PPM	N.E.
Aliphatic Petroleum Distillates	64742-48-9	10.0	400 PPM	N.E.	400 PPM	N.E.
Naphtha	8032-32-4	10.0	300 PPM	N.E.	N.E.	N.E.
Magnesium Silicate	14807-96-6	5.0	10 mg/m3	N.E.	15 mg/m3	N.E.
Ethylbenzene	100-41-4	5.0	100 PPM	125 PPM	100 PPM	N.E.
Aluminum Flake	7429-90-5	5.0	10 mg/m3	N.E.	15 mg/m3	N.E.
Pigment Black 7	1333-86-4	5.0	3.5 mg/m3	N.E.	3.5 mg/m3	N.E.
Calcined Aluminum Silicate	1332-58-7	5.0	2 mg/m3	N.E.	5 mg/m3	N.E.
Pigment Red 122	980-26-7	1.0	15mg/m3	N.E.	5mg/m3	N.E.
Microcrystalline Silica	14808-60-7	1.0	0.025 mg/m3	N.E.	0.10 mg/m3 respirable quartz	N.E.

Section 3 - Hazards Identification

*** Emergency Overview ***: Contents Under Pressure. Harmful if inhaled. May affect the brain or nervous system causing dizziness, headache or nausea. Vapors may cause flash fire or explosion. Extremely flammable liquid and vapor. Harmful if swallowed.

Effects Of Overexposure - Eye Contact: Causes eye irritation.

Effects Of Overexposure - Skin Contact: Prolonged or repeated contact may cause skin irritation. Substance may cause slight skin irritation.

Effects Of Overexposure - Inhalation: High vapor concentrations are irritating to the eyes, nose, throat and lungs. Avoid breathing vapors or mists. High gas, vapor, mist or dust concentrations may be harmful if inhaled. Harmful if

inhaled.

Effects Of Overexposure - Ingestion: Aspiration hazard if swallowed; can enter lungs and cause damage. Substance may be harmful if swallowed.

Effects Of Overexposure - Chronic Hazards: IARC lists Ethylbenzene as a possible human carcinogen (group 2B). May cause central nervous system disorder (e,g.,narcosis involving a loss of coordination, weakness, fatigue, mental confusion, and blurred vision) and/or damage. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Overexposure to xylene in laboratory animals has been associated with liver abnormalities, kidney, lung, spleen, eye and blood damage as well as reproductive disorders. Effects in humans, due to chronic overexposure, have included liver, cardiac abnormalities and nervous system damage. Overexposure to toluene in laboratory animals has been associated with liver abnormalities, kidney, lung and spleen damage. Effects in humans have included liver and cardiac abnormalities.
Contains carbon black. Chronic inflammation, lung fibrosis, and lung tumors have been observed in some rats experimentally exposed for long periods of time to excessive concentrations of carbon black and several insoluble fine dust particles. Tumors have not been observed in other animal species (i.e., mouse and hampster) under similar circumstances and study conditions. Epidemiological studies of North American workers show no evidence of clinically significant adverse health effects due to occupational exposure to carbon black.
Carbon black is listed as a Group 2B-"Possibly carcinogenic to humans" by IARC and is proposed to be listed as A4- "not classified as a human carcinogen" by the American Conference of Govermental Industrial Hygienists. Significant exposure is not anticipated during brush application or drying. Risk of overexposure depends on duration and level of exposure to dust from repeated sanding of surfaces or spray mist and the actual concentration of carbon black in the formula. Contains crystalline silica as silicon dioxide. Excessive inhalation of respirable crystalline silica dust may cause lung disease, silicosis or lung cancer. Significant exposure is not anticipated during brush or trowel application or drying. Risk of overexposure depends on the duration and level of exposure to dust from repeated sanding of surfaces, mechanical abrasion or spray mist and actual concentration of crystalline silica in the formula. Crystalline silica is listed as Group 1 "carcinogenic to humans" by the International Agency for Research on Cancer (IARC,) and Group 2, "reasonably anticipated to be a carcinogen" by the National Toxicology Program (NTP)

Primary Route(s) Of Entry: Skin Contact, Skin Absorption, Inhalation, Eye Contact

Section 4 - First Aid Measures

First Aid - Eye Contact: Hold eyelids apart and flush with plenty of water for at least 15 minutes. Get medical attention.

First Aid - Skin Contact: Wash with soap and water. Get medical attention if irritation develops or persists.

First Aid - Inhalation: If you experience difficulty in breathing, leave the area to obtain fresh air. If continued difficulty is experienced, get medical assistance immediately.

First Aid - Ingestion: Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. Get immediate medical attention.

Section 5 - Fire Fighting Measures

Flash Point: -156 F
(Setaflash)

LOWER EXPLOSIVE LIMIT: 0.7 %
UPPER EXPLOSIVE LIMIT : 12.8 %

Extinguishing Media: Dry Chemical, Foam, Water Fog

Unusual Fire And Explosion Hazards: FLASH POINT IS LESS THAN 20 °. F. - EXTREMELY FLAMMABLE LIQUID AND VAPOR! Water spray may be ineffective. Closed containers may explode when exposed to extreme heat.

Vapors may form explosive mixtures with air. Vapors can travel to a source of ignition and flash back. Perforation of the pressurized container may cause bursting of the can. Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame.

Special Firefighting Procedures: Evacuate area and fight fire from a safe distance.

Section 6 - Accidental Release Measures

Steps To Be Taken If Material Is Released Or Spilled: Remove all sources of ignition, ventilate area and remove with inert absorbent and non-sparking tools. Contain spilled liquid with sand or earth. DO NOT use combustible materials such as sawdust. Dispose of according to local, state (provincial) and federal regulations. Do not incinerate closed containers.

Section 7 - Handling And Storage

Handling: Wash hands before eating. Wash thoroughly after handling. Avoid breathing vapor or mist. Use only in a well-ventilated area. Follow all MSDS/label precautions even after container is emptied because it may retain product residues.

Storage: Contents under pressure. Do not expose to heat or store above 120 ° F. Do not store above 120 ° F. Store large quantities in buildings designed and protected for storage of NFPA Class I flammable liquids. Keep containers tightly closed. Isolate from heat, electrical equipment, sparks and open flame.

Section 8 - Exposure Controls / Personal Protection

Engineering Controls: Prevent build-up of vapors by opening all doors and windows to achieve cross-ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof ventilation equipment.

Respiratory Protection: A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. A NIOSH/MSHA approved air purifying respirator with an organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits.

Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

Skin Protection: Nitrile or Neoprene gloves may afford adequate skin protection. Use impervious gloves to prevent skin contact and absorption of this material through the skin.

Eye Protection: Use safety eyewear designed to protect against splash of liquids.

Other protective equipment: Refer to safety supervisor or industrial hygienist for further information regarding personal protective equipment and its application.

Hygienic Practices: Wash thoroughly with soap and water before eating, drinking or smoking.

Section 9 - Physical And Chemical Properties

Boiling Range:	-34 - 900 F	Vapor Density:	Heavier than air
Odor:	Solvent Like	Odor Threshold:	ND

Appearance:	Liquid	Evaporation Rate:	Faster than Ether
Solubility in H2O:	Slight		
Freeze Point:	ND	Specific Gravity:	
Vapor Pressure:		PH:	NE
Physical State:	Liquid		

(See section 16 for abbreviation legend)

Section 10 - Stability And Reactivity

Conditions To Avoid: Avoid temperatures above 120 ° F. Avoid all possible sources of ignition. Flammable hydrogen gas will evolve when product comes in contact with water or damp air. Heat will be generated. The amount of heat generated will depend upon the volume of material in contact.

Incompatibility: Incompatible with strong oxidizing agents, strong acids and strong alkalies.

Hazardous Decomposition: When heated to decomposition, it emits acrid smoke and irritating fumes. By open flame, carbon monoxide and carbon dioxide.

Hazardous Polymerization: Will not occur under normal conditions.

Stability: This product is stable under normal storage conditions.

Section 11 - Toxicological Information

Product LD50: ND

Product LC50: ND

Chemical Name	LD50	LC50
Liquefied Petroleum Gas	N.D.	N.D.
Acetone	N.D.	N.D.
Toluene	N.D.	N.D.
Aliphatic Hydrocarbon	N.D.	N.D.
Xylene	N.D.	N.D.
Titanium Dioxide	>7500 mg/kg (ORAL, RAT)	N.D.
N-Butyl Acetate	13100 mg/kg (ORAL, RAT)	2000 PPM (INH 4 Hr, RAT)
Aliphatic Petroleum Distillates	N.D.	N.D.
Naphtha	>5000 mg/kg (ORAL, RAT)	N.D.
Magnesium Silicate	N.D.	TCLo:11mg/m3 inh.
Ethylbenzene	3500 mg/kg (ORAL, RAT)	N.D.
Aluminum Flake	N.D.	N.D.
Pigment Black 7	>8000 mg/kg (ORAL, RAT)	N.D.
Calcined Aluminum Silicate	5000 mg/kg (oral Rat)	N.D.
Pigment Red 122	N.D.	N.D.
Microcrystalline Silica	N.D.	N.D.

Section 12 - Ecological Information

Ecological Information: Product is a mixture of listed components.

Section 13 - Disposal Information

Disposal Information: Dispose of material in accordance to local, state and federal regulations and ordinances. Do not allow to enter storm drains or sewer systems.

Section 14 - Transportation Information

DOT Proper Shipping Name:	Aerosol	Packing Group:	---
DOT Technical Name:	---	Hazard Subclass:	---
DOT Hazard Class:	2.1	Resp. Guide Page:	126
DOT UN/NA Number:	UN1950		

Section 15 - Regulatory Information

CERCLA - SARA Hazard Category

This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

IMMEDIATE HEALTH HAZARD, CHRONIC HEALTH HAZARD, FIRE HAZARD

SARA Section 313:

Listed below are the substances (if any) contained in this product that are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372:

Chemical Name	CAS Number
Toluene	108-88-3
Xylene	1330-20-7
Ethylbenzene	100-41-4

Toxic Substances Control Act:

Listed below are the substances (if any) contained in this product that are subject to the reporting requirements of TSCA 12(B) if exported from the United States:

None known

U.S. State Regulations: As follows -

New Jersey Right-to-Know:

The following materials are non-hazardous, but are among the top five components in this product.

Chemical Name	CAS Number
Calcium Carbonate	1317-65-3
C-9 HYDROCARBON RESIN UNSATURATED	71302-83-5

Pennsylvania Right-to-Know:

The following non-hazardous ingredients are present in the product at greater than 3%.

Chemical Name	CAS Number
Calcium Carbonate	1317-65-3
C-9 HYDROCARBON RESIN UNSATURATED	71302-83-5
Modified Alkyd	PROPRIETARY
Modified Alkyd	PROPRIETARY
Water	7732-18-5
Barium Sulfate	7727-43-7

California Proposition 65:

Warning: The following ingredients present in the product are known to the state of California to cause Cancer:

Chemical Name	CAS Number
Ethylbenzene	100-41-4
Microcrystalline Silica	14808-60-7
Benzene	71-43-2
Lead Compounds	NOT SPECIFIED
Formaldehyde	50-00-0
Cadmium Compounds	NOT SPECIFIED
Arsenic Compounds	NOT SPECIFIED
Nickel Compounds	NOT SPECIFIED
Acetaldehyde	75-07-0

Warning: The following ingredients present in the product are known to the state of California to cause birth defects, or other reproductive hazards.

Chemical Name	CAS Number
Toluene	108-88-3
Benzene	71-43-2
Mercury Compounds	NOT SPECIFIED
Lead Compounds	NOT SPECIFIED
Cadmium Compounds	NOT SPECIFIED
Arsenic Compounds	NOT SPECIFIED

International Regulations: As follows -

CANADIAN WHMIS:

This MSDS has been prepared in compliance with Controlled Product Regulations except for the use of the 16 headings.

CANADIAN WHMIS CLASS: AB5, D2A, D2B

Section 16 - Other Information

HMIS Ratings:

Health: 2 Flammability: 4 Reactivity: 0 Personal Protection: X

VOLATILE ORGANIC COMPOUNDS, g/l: NA

REASON FOR REVISION:

Legend: N.A. - Not Applicable, N.E. - Not Established, N.D. - Not Determined

The information contained on this MSDS has been checked and should be accurate. However, it is the responsibility of the user to comply with all Federal, State, and Local laws and regulations.

DEB CANADA

MATERIAL SAFETY DATA SHEET

D.I.N. 02208164

SECTION I

WHMIS NON-CONTROLLED

PRODUCT NAME AND DESCRIPTION **SBS 40 MEDICATED SKIN CREAM**	EMERGENCY TELEPHONE NO. (519) 443-8697
MANUFACTURER'S NAME AND ADDRESS DEB SBS Inc., Stanley, NC 28164, USA	DANGEROUS GOODS CLASS None.
SUPPLIER'S NAME AND ADDRESS Deb Canada, 42 Thompson Road West, Waterford, Ontario N0E 1Y0	FORMULA 40153

SECTION II - COMPOSITION

CHEMICAL NAME		CAS or RD NUMBER	PERCENTAGE
Active Ingredients	Allantoin	97-59-6	0.20%
	Chloroxylenol	88-04-0	0.20%
Balance Not Applicable - Drug Product.			

SECTION III - PHYSICAL DATA

APPEARANCE AND ODOUR: Lightly scented white semi-solid.	
BOILING POINT ºC: 100ºC	MELTING POINT ºC: Not Applicable.
SPECIFIC GRAVITY (H_2O=1): 1.024	EVAPORATION RATE (H_2O=1): 1.0
SOLUBILITY IN WATER: Appreciable.	pH VALUE CONCENTRATE: 5.3-6.3
PERCENTAGE VOLATILE AT 25ºC: Not Available	pH VALUE DILUTION: Not Applicable.
VAPOUR PRESSURE (mm Hg) (psi): Not Applicable.	VAPOUR DENSITY (Air = 1): Not Applicable.

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

FLASH POINT (F):	FLAMMABLE LIMITS:	LEL	UEL
No flash to 100ºC	Not Applicable.		
EXTINGUISHING MEDIA: Water spray (fog), foam, dry chemical, carbon dioxide.			
SPECIAL FIRE FIGHTING PROCEDURES: Blanket fire with extinguishing medium. Water or foam may cause frothing.			
UNUSUAL FIRE AND EXPLOSION HAZARDS: Not Applicable.			

SBS 40 MEDICATED SKIN CREAM **WHMIS NON-CONTROLLED**

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE: None.
FIRST AID AND EMERGENCY PROCEDURES - SKIN CONTACT: Not Applicable.
EYE CONTACT: Wash well with water for at least 10 minutes.
INGESTION: Give water to drink. Obtain medical advice.
INHALATION: Not Applicable.

SECTION VI - REACTIVITY DATA

STABILITY	UNSTABLE	CONDITIONS TO AVOID: Protect from freezing.
	STABLE X	
INCOMPATIBILITY (Materials to avoid) - None.		
HAZARDOUS DECOMPOSITION PRODUCTS: None.		
HAZARDOUS POLYMERIZATION	MAY OCCUR	CONDITIONS TO AVOID: None.
	WILL NOT OCCUR X	

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Hose away with water.
WASTE DISPOSAL METHOD: Dilute with water to drains.

SECTION VIII - SPECIAL PROTECTION INFORMATION

PROTECTIVE CLOTHING: Not required.	PROTECTIVE GLOVES: Not required.	EYE PROTECTION: Not required.
OTHER: Not Applicable.		
RESPIRATORY PROTECTION (specify types): Not Applicable.		
VENTILATION:	LOCAL EXHAUST (Specify rate): Not Applicable.	SPECIAL: Not Applicable.
	MECHANICAL (General) (Specify rate): Not Applicable.	OTHER: Not Applicable.

SECTION IX - STORING AND HANDLING

STORING PRECAUTIONS: Store in original closed containers at normal room temperature.	
HANDLING PRECAUTIONS: None.	OTHER PRECAUTIONS: None.
SIGNED:  Asghar Ali, QA Manager	DATE: February 2, 2011

Material Safety Data Sheet

According to the Controlled Product Regulations

1. MATERIAL AND COMPANY IDENTIFICATION

Material Name : **AeroShell Grease 7**
Uses : Synthetic grease for aircraft. For further details consult the AeroShell Book on www.shell.com/aviation.
Product Code : 001A0065

Manufacturer/Supplier : **Shell Canada Products**
400 - 4th Avenue S.W
Calgary AB T2P 0J4
Canada
Telephone : (+1) 8006611600
Fax : (+1) 4033848345

Emergency Telephone Number
: CHEMTREC (24 hr): (+1) 800-424-9300
CANUTEC (24 hr): (+1) 613-996-6666

2. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture Description: : Synthetic oil grease thickened with clay, containing additives.

WHMIS Controlled Ingredients

Chemical Identity	CAS No.	Conc. W/W
N-phenyl-1-naphthylamine	90-30-2	1.00- 5.00 %

Refer to Chapter 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION



WHMIS Class/Description : Class D2B Other Toxic Effects - Skin Sensitization
Routes of Exposure : Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Health Hazards : May cause sensitisation by skin contact. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. High-pressure injection under the skin may cause serious damage including local necrosis. Used grease may contain harmful impurities.
Signs and Symptoms : Skin sensitisation (allergic skin reaction) signs and symptoms may include itching and/or a rash. Local necrosis is evidenced

		by delayed onset of pain and tissue damage a few hours following injection. Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.
Safety Hazards	:	Not classified as flammable but will burn.
Environmental Hazards	:	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4. FIRST AID MEASURES

Inhalation	:	No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
Skin Contact	:	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop. Obtain medical attention even in the absence of apparent wounds.
Eye Contact	:	Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
Ingestion	:	In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
Advice to Physician	:	Treat symptomatically. High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point	:	> 215 °C / 419 °F (COC)
Upper / lower Flammability or Explosion limits	:	Typical 1 - 10 %(V)
Auto ignition temperature	:	> 320 °C / 608 °F
Hazardous Combustion Products and Specific Hazards	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.

Suitable Extinguishing Media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	:	Do not use water in a jet.
Protective Equipment for Firefighters	:	Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

Protective Measures	:	Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Clean Up Methods	:	Shovel into a suitable clearly marked container for disposal or reclamation in accordance with local regulations.

7. HANDLING AND STORAGE

General Precautions	:	Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Handling	:	Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
Storage	:	Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Storage Temperature: -50 - 50 °C / -58 - 122 °F
Recommended Materials	:	For containers or container linings, use mild steel or high density polyethylene.
Unsuitable Materials	:	PVC.
Additional Information	:	Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Phenothiazine	ACGIH	TWA		5 mg/m3	

	ACGIH	SKIN_DES			Can be absorbed through the skin.

Consult local authorities for acceptable exposure limits within their jurisdiction.

Additional Information : Due to the product's semi-solid consistency, generation of mists and dusts is unlikely to occur.

Exposure Controls : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

Personal Protective Equipment : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory Protection : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].

Hand Protection : Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.

Eye Protection : Wear safety glasses or full face shield if splashes are likely to occur.

Protective Clothing : Skin protection not ordinarily required beyond standard issue work clothes.

Monitoring Methods : Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also

be appropriate.

Environmental Exposure Controls	:	Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Yellow brown. Semi-solid at ambient temperature.
Odour	:	Slight hydrocarbon.
Odour threshold	:	Data not available
pH	:	Not applicable.
Initial Boiling Point and Boiling Range	:	Data not available
Dropping point	:	> 260 °C / 500 °F
Vapour pressure	:	< 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Specific gravity	:	Typical 0.966 at 15 °C / 59 °F
Density	:	Typical 966 kg/m3 at 15 °C / 59 °F
Water solubility	:	Negligible.
n-octanol/water partition coefficient (log Pow)	:	> 6 (based on information on similar products)
Kinematic viscosity	:	Not applicable.
Vapour density (air=1)	:	> 1 (estimated value(s))
Evaporation rate (nBuAc=1)	:	Data not available

10. STABILITY AND REACTIVITY

Stability	:	Stable.
Conditions to Avoid	:	Extremes of temperature and direct sunlight.
Materials to Avoid	:	Strong oxidising agents.
Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage.
Hazardous Polymerisation	:	No
Sensitivity to Mechanical Impact	:	No
Sensitivity to Static Discharge	:	No

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	:	Information given is based on data on the components and the toxicology of similar products.
Routes of Exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Acute Oral Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat.
Acute Dermal Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit.
Acute Inhalation Toxicity	:	Not considered to be an inhalation hazard under normal conditions of use.
Skin Irritation	:	Expected to be slightly irritating. Prolonged or repeated skin

contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.

Eye Irritation	:	Expected to be slightly irritating.
Respiratory Irritation	:	Inhalation of vapours or mists may cause irritation.
Sensitisation	:	Expected to be a skin sensitizer. Reports of photosensitization by phenothiazine are inconclusive.
Repeated Dose Toxicity	:	Not expected to be a hazard.
Mutagenicity	:	Not considered a mutagenic hazard.
Carcinogenicity	:	Components are not known to be associated with carcinogenic effects.
Reproductive and Developmental Toxicity	:	Not expected to be a hazard.
Additional Information	:	Used grease may contain harmful impurities that have accumulated during use. The concentration of such harmful impurities will depend on use and they may present risks to health and the environment on disposal. ALL used grease should be handled with caution and skin contact avoided as far as possible. High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed.

12. ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Acute Toxicity	:	Poorly soluble mixture.May cause physical fouling of aquatic organisms.Expected to be harmful:LL/EL/IL50 10-100 mg/l(to aquatic organisms)(LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).
Mobility	:	Semi-solid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.
Persistence/degradability	:	Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.
Bioaccumulation	:	Contains components with the potential to bioaccumulate.
Other Adverse Effects	:	Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

13. DISPOSAL CONSIDERATIONS

Material Disposal	:	Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in

drains or in water courses.

Container Disposal	:	Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
Local Legislation	:	Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification

This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Class/Description	:	Class D2B Other Toxic Effects - Skin Sensitization

Inventory Status

EINECS	:	All components listed or polymer exempt.
TSCA	:	All components listed.
DSL	:	All components listed.

16. OTHER INFORMATION

MSDS Version Number	:	1.0
MSDS Effective Date	:	12-09-2011
MSDS Revisions	:	A vertical bar (|) in the left margin indicates an amendment from the previous version.
MSDS Regulation	:	The content and format of this (M)SDS is in accordance with the Controlled Product Regulations.
MSDS Prepared By	:	Shell Product Stewardship; 1-800-661-1600
Uses and Restrictions	:	This product should not be used with certain types of rubber without first determining the compatibility between the rubber and the grease.Contains a synthetic oil and should not be used in contact with incompatible seal materials.This product must

be used, handled and applied in accordance with the requirements of the equipment manufacturer's manuals, bulletins and other documentation.

MSDS Distribution : The information in this document should be made available to all who may handle the product.

Disclaimer : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

Shell Canada Limited
Material Safety Data Sheet

Effective Date: 2011-02-28
Supersedes: None

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **Shell Air Tool Oil S2 A 100**
PRODUCT USE: Lubricating oil
PRODUCT CODE: **417-853**

SUPPLIER
Shell Canada Limited (SCL)
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS

Shell Emergency Number	1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER	1-613-996-6666
For general information:	1-800-661-1600
	www.shell.ca

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.
*An asterisk in the product name designates a trade-mark of Shell Brands International AG. Used under license.

2. HAZARDS IDENTIFICATION

Physical Description: Tacky Liquid Amber colour

Routes of Exposure: Exposure will most likely occur through skin contact or from inhalation of mechanically or thermally generated oil mists.

Hazards:

This product is not expected to be irritating and has a low level of toxicity under normal use.
Inhalation of oil mist or vapours from hot oil may cause irritation of the upper respiratory tract.

For further information on health effects, see Section 11.

3. COMPOSITION / INFORMATION ON INGREDIENTS

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
See Section 8 for Occupational Exposure Guidelines.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wipe excess from skin. Wash contaminated skin with mild soap and water for at least 15 minutes. If irritation occurs and persists, obtain medical attention. If material is injected under the skin, get medical attention promptly to prevent serious damage; do not wait for symptoms to develop.

Ingestion: Not normally required; obtain medical attention if large amounts have been ingested. Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

Inhalation: Remove victim from further exposure. Additional first aid treatment is not ordinarily

required.

Notes to Physician: In general, lubricating oils have low oral toxicity. High pressure injection under the skin may have serious consequences and may require urgent treatment.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical
Carbon Dioxide
Foam
Water Fog

Firefighting Instructions: Caution, spilled material is slippery. Material will not burn unless preheated. Product will float and can be reignited on surface of water. Do not use a direct stream of water as it may spread fire. Use water to cool fire exposed containers. Water may be used to flush spills away from exposure. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.

Hazardous Combustion Products: Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

6. ACCIDENTAL RELEASE MEASURES

Eliminate all ignition sources. Isolate hazard area and restrict access. Avoid prolonged or repeated contact with skin. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Spilled material is slippery. Dike and contain land spills; contain spills to water by booming. For large spills remove by mechanical means and place in containers. Adsorb residue or small spills with adsorbent material and remove to non-leaking containers for disposal. Notify appropriate environmental agency(ies). After area has been cleaned up to the satisfaction of regulatory authorities, flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations.

7. HANDLING AND STORAGE

Handling: Avoid excessive heat, formation of oil mist, breathing of vapours and mist of hot oil and prolonged or repeated contact with skin. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse.

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

The following information, while appropriate for this product, is general in nature. The selection of personal protective equipment will vary depending on the conditions of use.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

The exposure limits listed here are provided for guidance only. Consult local, provincial and territorial authorities for specific values.

Mineral oil, pure, highly and severely refined, excluding metal working fluids: 5 mg/m3 (inhalable fraction)

Mechanical Ventilation: Not normally required. Local ventilation is recommended if oil mist is present or if exposure limit is exceeded. Make up air should always be supplied to balance air exhausted (either generally or locally).

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: No special eye protection is routinely necessary. Wear safety glasses as appropriate.

Skin Protection: Not normally needed. Chemically-resistant gloves should be worn for frequent or prolonged contact with this product.

Respiratory Protection: Not normally required under intended conditions of use. If airborne concentration is high (e.g. when product is heated), use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges in combination with a P95 particulate filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Tacky Liquid	**Odour:**	
Appearance:	Amber colour	**Odour Threshold:**	Not available
Pour Point	-24 °C	**Boiling Point**	> 315 °C
Vapour Pressure (absolute):	< 0.5 Pa @ 20 °C	**Vapour Density (air = 1):**	Not available
Density:	877 kg/m3 @ 15 °C	**Flash Point**	COC 254 °C
Specific Gravity (Water = 1):	0.88	**Lower Flammable Limit:**	Not available
pH:	Not applicable	**Upper Flammable Limit:**	Not available
Viscosity:	95 - 105 mm2/s @ 40 °C	**Auto-ignition Temperature:**	Not available
Evaporation Rate (n-BuAc = 1):	Not available	**Partition Coefficient (log K_{OW}):**	Not available
Water Solubility:	Insoluble	**Molecular Weight:**	
Other Solvents:	Hydrocarbon Solvents	**Formula:**	

10. STABILITY AND REACTIVITY

Chemically Stable: Yes **Hazardous Polymerization:** No

Sensitive to Mechanical Impact: No **Sensitive to Static Discharge:** No

Hazardous Decomposition Products: Hazardous decomposition products are not expected to form during normal storage.

Incompatible Materials: Avoid strong oxidizing agents.

Conditions of Reactivity: Avoid excessive heat, formation of vapours or mists.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure: Exposure will most likely occur through skin contact or from inhalation of mechanically or thermally generated oil mists.

Irritancy: This product is not a primary skin irritant after exposure of short duration, is not a skin sensitizer and is not irritating to the eyes.

Acute Toxicity: This product is not expected to be irritating and has a low level of toxicity under normal use.

Chronic Effects: Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Long term intensive exposure to oil mist may cause benign lung fibrosis.

12. ECOLOGICAL INFORMATION

Environmental Effects: The immediate effect of a release is the physical impairment of the environment from the coating of surfaces, resulting in the disruption of oxygen, water and light to flora and fauna. Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches.

Biodegradability: Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification:
This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* (CPR) and the MSDS contains all the information required by the CPR.

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

DSL/NDSL Status: This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.

Other Regulatory Status: The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

16. OTHER INFORMATION

Revisions: This is a new MSDS.

Shell Canada Limited
Material Safety Data Sheet

Effective Date: 2011-02-28
Supersedes: None

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **Shell Air Tool Oil S2 A 32**
PRODUCT USE: Lubricating oil
PRODUCT CODE: **417-855**

SUPPLIER
Shell Canada Limited (SCL)
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS

Shell Emergency Number	1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER	1-613-996-6666
For general information:	1-800-661-1600
	www.shell.ca

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.
*An asterisk in the product name designates a trade-mark of Shell Brands International AG. Used under license.

2. HAZARDS IDENTIFICATION

Physical Description: Tacky Liquid Amber colour

Routes of Exposure: Exposure will most likely occur through skin contact or from inhalation of mechanically or thermally generated oil mists.

Hazards:

This product is not expected to be irritating and has a low level of toxicity under normal use.
Inhalation of oil mist or vapours from hot oil may cause irritation of the upper respiratory tract.

For further information on health effects, see Section 11.

3. COMPOSITION / INFORMATION ON INGREDIENTS

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
See Section 8 for Occupational Exposure Guidelines.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wipe excess from skin. Wash contaminated skin with mild soap and water for at least 15 minutes. If irritation occurs and persists, obtain medical attention. If material is injected under the skin, get medical attention promptly to prevent serious damage; do not wait for symptoms to develop.

Ingestion: Not normally required; obtain medical attention if large amounts have been ingested. Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

Inhalation: Remove victim from further exposure. Additional first aid treatment is not ordinarily

required.

Notes to Physician: In general, lubricating oils have low oral toxicity. High pressure injection under the skin may have serious consequences and may require urgent treatment.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical
Carbon Dioxide
Foam
Water Fog

Firefighting Instructions: Caution, spilled material is slippery. Material will not burn unless preheated. Product will float and can be reignited on surface of water. Do not use a direct stream of water as it may spread fire. Use water to cool fire exposed containers. Water may be used to flush spills away from exposure. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.

Hazardous Combustion Products: Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

6. ACCIDENTAL RELEASE MEASURES

Eliminate all ignition sources. Isolate hazard area and restrict access. Avoid prolonged or repeated contact with skin. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Spilled material is slippery. Dike and contain land spills; contain spills to water by booming. For large spills remove by mechanical means and place in containers. Adsorb residue or small spills with adsorbent material and remove to non-leaking containers for disposal. Notify appropriate environmental agency(ies). After area has been cleaned up to the satisfaction of regulatory authorities, flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations.

7. HANDLING AND STORAGE

Handling: Avoid excessive heat, formation of oil mist, breathing of vapours and mist of hot oil and prolonged or repeated contact with skin. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse.

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

The following information, while appropriate for this product, is general in nature. The selection of personal protective equipment will vary depending on the conditions of use.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

The exposure limits listed here are provided for guidance only. Consult local, provincial and territorial authorities for specific values.

Mineral oil, pure, highly and severely refined, excluding metal working fluids: 5 mg/m3 (inhalable fraction)

Mechanical Ventilation: Not normally required. Local ventilation is recommended if oil mist is present or if exposure limit is exceeded. Make up air should always be supplied to balance air exhausted (either generally or locally).

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: No special eye protection is routinely necessary. Wear safety glasses as appropriate.

Skin Protection: Not normally needed. Chemically-resistant gloves should be worn for frequent or prolonged contact with this product.

Respiratory Protection: Not normally required under intended conditions of use. If airborne concentration is high (e.g. when product is heated), use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges in combination with a P95 particulate filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Tacky Liquid	**Odour:**	
Appearance:	Amber colour	**Odour Threshold:**	Not available
Pour Point	-33 °C	**Boiling Point**	> 280 °C
Vapour Pressure (absolute):	< 0.5 Pa @ 20 °C	**Vapour Density (air = 1):**	Not available
Density:	871 kg/m3 @ 15 °C	**Flash Point**	COC 200 °C
Specific Gravity (Water = 1):	0.87	**Lower Flammable Limit:**	Not available
pH:	Not applicable	**Upper Flammable Limit:**	Not available
Viscosity:	32 mm2/s @ 40 °C	**Auto-ignition Temperature:**	Not available
Evaporation Rate (n-BuAc = 1):	Not available	**Partition Coefficient (log K_{OW}):**	Not available
Water Solubility:	Insoluble	**Molecular Weight:**	
Other Solvents:	Hydrocarbon Solvents	**Formula:**	

10. STABILITY AND REACTIVITY

Chemically Stable: Yes **Hazardous Polymerization:** No

Sensitive to Mechanical Impact: No **Sensitive to Static Discharge:** No

Hazardous Decomposition Products: Hazardous decomposition products are not expected to form during normal storage.

Incompatible Materials: Avoid strong oxidizing agents.

Conditions of Reactivity: Avoid excessive heat, formation of vapours or mists.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure: Exposure will most likely occur through skin contact or from inhalation of mechanically or thermally generated oil mists.

Irritancy: This product is not a primary skin irritant after exposure of short duration, is not a skin sensitizer and is not irritating to the eyes.

Acute Toxicity: This product is not expected to be irritating and has a low level of toxicity under normal use.

Chronic Effects: Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Long term intensive exposure to oil mist may cause benign lung fibrosis.

12. ECOLOGICAL INFORMATION

Environmental Effects: The immediate effect of a release is the physical impairment of the environment from the coating of surfaces, resulting in the disruption of oxygen, water and light to flora and fauna. Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches.

Biodegradability: Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification:
This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* (CPR) and the MSDS contains all the information required by the CPR.

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

DSL/NDSL Status: This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.

Other Regulatory Status: The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

16. OTHER INFORMATION

Revisions: This is a new MSDS.

Shell Canada Limited
Material Safety Data Sheet

Effective Date: 2011-02-28
Supersedes: None

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **Shell Corena* S4 R 46**
PRODUCT USE: Synthetic Lubricating Oil
PRODUCT CODE: **417-943**

SUPPLIER
Shell Canada Limited (SCL)
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS	
Shell Emergency Number	1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER	1-613-996-6666
For general information:	1-800-661-1600
	www.shell.ca

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.
*An asterisk in the product name designates a trade-mark of Shell Brands International AG. Used under license.

2. HAZARDS IDENTIFICATION

Physical Description: Liquid Light Amber Mild Hydrocarbon Odour

Routes of Exposure: Exposure will most likely occur through skin contact or from inhalation of mechanically or thermally generated oil mists.

Hazards:

This product is not expected to be irritating and has a low level of toxicity under normal use.
Inhalation of oil mist or vapours from hot oil may cause irritation of the upper respiratory tract.

For further information on health effects, see Section 11.

3. COMPOSITION / INFORMATION ON INGREDIENTS

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
See Section 8 for Occupational Exposure Guidelines.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wipe excess from skin. Wash contaminated skin with mild soap and water for at least 15 minutes. If irritation occurs and persists, obtain medical attention. If material is injected under the skin, get medical attention promptly to prevent serious damage; do not wait for symptoms to develop.

Ingestion: Not normally required; obtain medical attention if large amounts have been ingested. Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

Inhalation: Remove victim from further exposure. Additional first aid treatment is not ordinarily

required.

Notes to Physician: In general, lubricating oils have low oral toxicity. High pressure injection under the skin may have serious consequences and may require urgent treatment.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical
Carbon Dioxide
Foam
Water Fog

Firefighting Instructions: Caution, spilled material is slippery. Material will not burn unless preheated. Product will float and can be reignited on surface of water. Do not use a direct stream of water as it may spread fire. Use water to cool fire exposed containers. Water may be used to flush spills away from exposure. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide and dense smoke are produced on combustion.

6. ACCIDENTAL RELEASE MEASURES

Eliminate all ignition sources. Isolate hazard area and restrict access. Avoid prolonged or repeated contact with skin. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Spilled material is slippery. Dike and contain land spills; contain spills to water by booming. For large spills remove by mechanical means and place in containers. Adsorb residue or small spills with adsorbent material and remove to non-leaking containers for disposal. Notify appropriate environmental agency(ies). After area has been cleaned up to the satisfaction of regulatory authorities, flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations.

7. HANDLING AND STORAGE

Handling: Avoid excessive heat, formation of oil mist, breathing of vapours and mist of hot oil and prolonged or repeated contact with skin. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse.

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

The following information, while appropriate for this product, is general in nature. The selection of personal protective equipment will vary depending on the conditions of use.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

The exposure limits listed here are provided for guidance only. Consult local, provincial and territorial authorities for specific values.

Mineral oil, pure, highly and severely refined, excluding metal working fluids: 5 mg/m3 (inhalable fraction)

Mechanical Ventilation: Not normally required. Local ventilation is recommended if oil mist is present or if exposure limit is exceeded. Make up air should always be supplied to balance air exhausted (either generally or locally).

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: No special eye protection is routinely necessary. Wear safety glasses as appropriate.

Skin Protection: Not normally needed. Chemically-resistant gloves should be worn for frequent or prolonged contact with this product.

Respiratory Protection: Not normally required under intended conditions of use. If airborne concentration is high (e.g. when product is heated), use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges in combination with a P95 particulate filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid	**Odour:**	Mild Hydrocarbon Odour
Appearance:	Light Amber	**Odour Threshold:**	Not available
Pour Point	< -50 °C	**Boiling Point**	Not available
Vapour Pressure (absolute):		**Vapour Density (air = 1):**	Not available
Density:	845 kg/m3 @ 15 °C	**Flash Point**	COC > 220 °C
Specific Gravity (Water = 1):	0.85	**Lower Flammable Limit:**	Not available
pH:	Not available	**Upper Flammable Limit:**	Not available
Viscosity:	41 - 51 mm2/s @ 40 °C	**Auto-ignition Temperature:**	
Evaporation Rate (n-BuAc = 1):	Not available	**Partition Coefficient (log K_{OW}):**	Not available
Water Solubility:	Negligible	**Molecular Weight:**	

10. STABILITY AND REACTIVITY

Chemically Stable: Yes **Hazardous Polymerization:** No

Sensitive to Mechanical Impact: No **Sensitive to Static Discharge:** No

Hazardous Decomposition Products: Hazardous decomposition products are not expected to form during normal storage.

Incompatible Materials: Avoid strong oxidizing agents.

Conditions of Reactivity: Avoid excessive heat, formation of vapours or mists.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure: Exposure will most likely occur through skin contact or from inhalation of mechanically or thermally generated oil mists.

Irritancy: This product is not a primary skin irritant after exposure of short duration, is not a skin sensitizer and is not irritating to the eyes.

Acute Toxicity: This product is not expected to be irritating and has a low level of toxicity under normal use.

Chronic Effects: Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Long term intensive exposure to oil mist may cause benign lung fibrosis.

12. ECOLOGICAL INFORMATION

Environmental Effects: The immediate effect of a release is the physical impairment of the environment from the coating of surfaces, resulting in the disruption of oxygen, water and light to flora and fauna. Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches.

Biodegradability: Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification:
This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* (CPR) and the MSDS contains all the information required by the CPR.

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

DSL/NDSL Status:	This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.
Other Regulatory Status:	The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

16. OTHER INFORMATION

Revisions:	This is a new MSDS.

Material Safety Data Sheet

According to the Controlled Product Regulations

1. MATERIAL AND COMPANY IDENTIFICATION

Material Name	:	**Shell Donax TC Multiseason**
Uses	:	Transmission oil.
Product Code	:	001B8342
Manufacturer/Supplier	:	**Shell Canada Products** 400 - 4th Avenue S.W Calgary AB T2P 0J4 Canada
Telephone	:	(+1) 8006611600
Fax	:	(+1) 4033848345

Emergency Telephone Number

: CHEMTREC (24 hr): (+1) 800-424-9300
CANUTEC (24 hr): (+1) 613-996-6666

2. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture Description: : Highly refined mineral oils and additives.

The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

Refer to Chapter 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

WHMIS Class/Description	:	THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
Routes of Exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Health Hazards	:	Not expected to be a health hazard when used under normal conditions. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. Used oil may contain harmful impurities.
Signs and Symptoms	:	Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.
Safety Hazards	:	Not classified as flammable but will burn.
Environmental Hazards	:	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4. FIRST AID MEASURES

General Information : Not expected to be a health hazard when used under normal

conditions.

Inhalation	:	No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
Skin Contact	:	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.
Eye Contact	:	Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
Ingestion	:	In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
Advice to Physician	:	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point	:	> 120 °C / 248 °F estimated value(s)
Upper / lower Flammability or Explosion limits	:	Typical 1 - 10 %(V)(based on mineral oil)
Auto ignition temperature	:	> 320 °C / 608 °F
Hazardous Combustion Products and Specific Hazards	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
Suitable Extinguishing Media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	:	Do not use water in a jet.
Protective Equipment for Firefighters	:	Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

Protective Measures	:	Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Clean Up Methods	:	Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
Additional Advice	:	Local authorities should be advised if significant spillages cannot be contained.

7. HANDLING AND STORAGE

General Precautions	:	Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent

fires. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

Handling : Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.

Storage : Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Store at ambient temperature.

Recommended Materials : For containers or container linings, use mild steel or high density polyethylene.

Unsuitable Materials : PVC.

Additional Information : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Oil mist, mineral	ACGIH	TWA(Inhalable fraction.)		5 mg/m3	

Consult local authorities for acceptable exposure limits within their jurisdiction.

Exposure Controls : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

Personal Protective Equipment : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory Protection : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where

		air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].
Hand Protection	:	Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Eye Protection	:	Wear safety glasses or full face shield if splashes are likely to occur.
Protective Clothing	:	Skin protection not ordinarily required beyond standard issue work clothes.
Monitoring Methods	:	Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Environmental Exposure Controls	:	Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Amber. Liquid at room temperature.
Odour	:	Slight hydrocarbon.
Odour threshold	:	Data not available
pH	:	Not applicable.
Initial Boiling Point and Boiling Range	:	> 280 °C / 536 °F estimated value(s)
Pour point	:	Typical -51 °C / -60 °F
Vapour pressure	:	< 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Specific gravity	:	Data not available
Density	:	Data not available
Water solubility	:	Negligible.
n-octanol/water partition coefficient (log Pow)	:	> 6 (based on information on similar products)
Kinematic viscosity	:	Typical 55.5 mm2/s at 40 °C / 104 °F
Vapour density (air=1)	:	> 1 (estimated value(s))
Evaporation rate (nBuAc=1)	:	Data not available

10. STABILITY AND REACTIVITY

Stability	:	Stable.
Conditions to Avoid	:	Extremes of temperature and direct sunlight.
Materials to Avoid	:	Strong oxidising agents.
Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage.
Hazardous Polymerisation	:	No
Sensitivity to Mechanical Impact	:	No
Sensitivity to Static Discharge	:	No

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	:	Information given is based on data on the components and the toxicology of similar products.
Routes of Exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Acute Oral Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat.
Acute Dermal Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit.
Acute Inhalation Toxicity	:	Not considered to be an inhalation hazard under normal conditions of use.
Skin Irritation	:	Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Eye Irritation	:	Expected to be slightly irritating.
Respiratory Irritation	:	Inhalation of vapours or mists may cause irritation.
Sensitisation	:	Not expected to be a skin sensitiser.
Repeated Dose Toxicity	:	Not expected to be a hazard.
Mutagenicity	:	Not considered a mutagenic hazard.
Carcinogenicity	:	Product contains mineral oils of types shown to be non-carcinogenic in animal skin-painting studies. Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC). Other components are not known to be associated with carcinogenic effects.
Reproductive and Developmental Toxicity	:	Not expected to be a hazard.
Additional Information	:	Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible.

12. ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Acute Toxicity : Poorly soluble mixture.May cause physical fouling of aquatic organisms.Expected to be harmful:LL/EL/IL50 10-100 mg/l(to aquatic organisms)(LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).

Mobility : Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.

Persistence/degradability : Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.

Bioaccumulation : Contains components with the potential to bioaccumulate.

Other Adverse Effects : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

13. DISPOSAL CONSIDERATIONS

Material Disposal : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.

Container Disposal : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Local Legislation : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification

This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Class/Description : THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

Inventory Status

EINECS	:	All components listed or polymer exempt.
TSCA	:	All components listed.
DSL	:	All components listed.

16. OTHER INFORMATION

MSDS Version Number : 1.0

MSDS Effective Date : 12-09-2011

MSDS Revisions : A vertical bar (|) in the left margin indicates an amendment from the previous version.

MSDS Regulation : The content and format of this (M)SDS is in accordance with the Controlled Product Regulations.

MSDS Prepared By : Shell Product Stewardship; 1-800-661-1600

MSDS Distribution : The information in this document should be made available to all who may handle the product.

Disclaimer : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

Material Safety Data Sheet

According to the Controlled Product Regulations

1. MATERIAL AND COMPANY IDENTIFICATION

Material Name	:	**Shell Gadus S2 V30KXD 1**
Uses	:	Automotive and industrial grease.
Product Code	:	001D8542
Manufacturer/Supplier	:	**Shell Canada Products** 400 - 4th Avenue S.W Calgary AB T2P 0J4 Canada
Telephone	:	(+1) 8006611600
Fax	:	(+1) 4033848345
Emergency Telephone Number	:	CHEMTREC (24 hr): (+1) 800-424-9300 CANUTEC (24 hr): (+1) 613-996-6666

2. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture Description: : A lubricating grease containing highly-refined mineral oils, polyalphaolefins and additives.

The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

Refer to Chapter 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

WHMIS Class/Description	:	THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
Routes of Exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Health Hazards	:	Not expected to be a health hazard when used under normal conditions. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. High-pressure injection under the skin may cause serious damage including local necrosis. Used grease may contain harmful impurities.
Signs and Symptoms	:	Local necrosis is evidenced by delayed onset of pain and tissue damage a few hours following injection. Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.
Safety Hazards	:	Not classified as flammable but will burn.
Environmental Hazards	:	Not classified as dangerous for the environment.

4. FIRST AID MEASURES

General Information	:	Not expected to be a health hazard when used under normal conditions.
Inhalation	:	No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
Skin Contact	:	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop. Obtain medical attention even in the absence of apparent wounds.
Eye Contact	:	Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
Ingestion	:	In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
Advice to Physician	:	Treat symptomatically. High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point	:	> 180 °C / 356 °F (COC)
Upper / lower Flammability or Explosion limits	:	Typical 1 - 10 %(V)(based on mineral oil)
Auto ignition temperature	:	> 320 °C / 608 °F
Hazardous Combustion Products and Specific Hazards	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
Suitable Extinguishing Media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	:	Do not use water in a jet.
Protective Equipment for Firefighters	:	Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

Protective Measures	:	Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Clean Up Methods	:	Shovel into a suitable clearly marked container for disposal or reclamation in accordance with local regulations.

7. HANDLING AND STORAGE

General Precautions	:	Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Handling	:	Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
Storage	:	Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Store at ambient temperature.
Recommended Materials	:	For containers or container linings, use mild steel or high density polyethylene.
Unsuitable Materials	:	PVC.
Additional Information	:	Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Oil mist, mineral	ACGIH	TWA(Inhalable fraction.)		5 mg/m3	

Consult local authorities for acceptable exposure limits within their jurisdiction.

Additional Information	:	Due to the product's semi-solid consistency, generation of mists and dusts is unlikely to occur.
Exposure Controls	:	The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
Personal Protective Equipment	:	Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
Respiratory Protection	:	No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].
Hand Protection	:	Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Eye Protection	:	Wear safety glasses or full face shield if splashes are likely to occur.
Protective Clothing	:	Skin protection not ordinarily required beyond standard issue work clothes.
Monitoring Methods	:	Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Environmental Exposure Controls	:	Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Grey. Semi-solid at ambient temperature.

Odour	:	Slight hydrocarbon.
Odour threshold	:	Data not available
pH	:	Not applicable.
Initial Boiling Point and Boiling Range	:	Data not available
Dropping point	:	Typical 175 °C / 347 °F
Vapour pressure	:	< 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Specific gravity	:	Typical 0.9 at 15 °C / 59 °F
Density	:	Typical 900 kg/m3 at 15 °C / 59 °F
Water solubility	:	Negligible.
n-octanol/water partition coefficient (log Pow)	:	> 6 (based on information on similar products)
Kinematic viscosity	:	Not applicable.
Vapour density (air=1)	:	> 1 (estimated value(s))
Evaporation rate (nBuAc=1)	:	Data not available

10. STABILITY AND REACTIVITY

Stability	:	Stable.
Conditions to Avoid	:	Extremes of temperature and direct sunlight.
Materials to Avoid	:	Strong oxidising agents.
Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage.
Hazardous Polymerisation	:	No
Sensitivity to Mechanical Impact	:	No
Sensitivity to Static Discharge	:	No

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	:	Information given is based on data on the components and the toxicology of similar products.
Routes of Exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Acute Oral Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat.
Acute Dermal Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit.
Acute Inhalation Toxicity	:	Not considered to be an inhalation hazard under normal conditions of use.
Skin Irritation	:	Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Eye Irritation	:	Expected to be slightly irritating.
Respiratory Irritation	:	Inhalation of vapours or mists may cause irritation.
Sensitisation	:	Not expected to be a skin sensitiser.
Repeated Dose Toxicity	:	Not expected to be a hazard.
Mutagenicity	:	Not considered a mutagenic hazard.
Carcinogenicity	:	Product contains mineral oils of types shown to be non-

carcinogenic in animal skin-painting studies. Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC). Other components are not known to be associated with carcinogenic effects.

Material	:	**Carcinogenicity Classification**
Distillates (petroleum), hydrotreated heavy naphthenic	:	IARC: Not classifiable as to carcinogenicity to humans.

Reproductive and Developmental Toxicity : Not expected to be a hazard.

Additional Information : Used grease may contain harmful impurities that have accumulated during use. The concentration of such harmful impurities will depend on use and they may present risks to health and the environment on disposal.
ALL used grease should be handled with caution and skin contact avoided as far as possible.
High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed.

12. ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Acute Toxicity : Poorly soluble mixture.May cause physical fouling of aquatic organisms.Expected to be practically non toxic:LL/EL/IL50 > 100 mg/l(to aquatic organisms)(LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.

Mobility : Semi-solid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.

Persistence/degradability : Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.

Bioaccumulation : Contains components with the potential to bioaccumulate.

Other Adverse Effects : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

13. DISPOSAL CONSIDERATIONS

Material Disposal : Recover or recycle if possible. It is the responsibility of the

waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.

Container Disposal : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Local Legislation : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification

This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Class/Description : THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

Inventory Status

EINECS : All components listed or polymer exempt.

TSCA : All components listed.

DSL : All components listed.

16. OTHER INFORMATION

MSDS Version Number : 1.1

MSDS Effective Date : 12-09-2011

MSDS Revisions : A vertical bar (|) in the left margin indicates an amendment from the previous version.

MSDS Regulation : The content and format of this (M)SDS is in accordance with the Controlled Product Regulations.

MSDS Prepared By	:	Shell Product Stewardship; 1-800-661-1600
MSDS Distribution	:	The information in this document should be made available to all who may handle the product.
Disclaimer	:	The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

Material Safety Data Sheet

1. MATERIAL AND COMPANY IDENTIFICATION

Material Name : **Shell Gadus S2 V220 2**
Uses : Automotive and industrial grease.
Product Code : 001D8451

Manufacturer/Supplier : **Shell Canada Products**
400 - 4th Avenue S.W
Calgary AB T2P 0J4
Canada
Telephone : (+1) 8006611600
Fax : (+1) 4033848345

Emergency Telephone Number
: CHEMTREC (24 hr): (+1) 800-424-9300
CANUTEC (24 hr): (+1) 613-996-6666

2. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture Description: : A lubricating grease containing highly-refined mineral oils and additives.

The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

Refer to Chapter 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

WHMIS Class/Description : THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
Routes of Exposure : Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Health Hazards : Not expected to be a health hazard when used under normal conditions. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. High-pressure injection under the skin may cause serious damage including local necrosis. Used grease may contain harmful impurities.
Signs and Symptoms : Local necrosis is evidenced by delayed onset of pain and tissue damage a few hours following injection. Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.
Safety Hazards : Not classified as flammable but will burn.
Environmental Hazards : Not classified as dangerous for the environment.

4. FIRST AID MEASURES

General Information	:	Not expected to be a health hazard when used under normal conditions.
Inhalation	:	No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
Skin Contact	:	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention. When using high pressure equipment, injection of product under the skin can occur. If high pressure injuries occur, the casualty should be sent immediately to a hospital. Do not wait for symptoms to develop. Obtain medical attention even in the absence of apparent wounds.
Eye Contact	:	Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
Ingestion	:	In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
Advice to Physician	:	Treat symptomatically. High pressure injection injuries require prompt surgical intervention and possibly steroid therapy, to minimise tissue damage and loss of function. Because entry wounds are small and do not reflect the seriousness of the underlying damage, surgical exploration to determine the extent of involvement may be necessary. Local anaesthetics or hot soaks should be avoided because they can contribute to swelling, vasospasm and ischaemia. Prompt surgical decompression, debridement and evacuation of foreign material should be performed under general anaesthetics, and wide exploration is essential.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point	:	> 180 °C / 356 °F (COC)
Upper / lower Flammability or Explosion limits	:	Typical 1 - 10 %(V)(based on mineral oil)
Auto ignition temperature	:	> 320 °C / 608 °F
Hazardous Combustion Products and Specific Hazards	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
Suitable Extinguishing Media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	:	Do not use water in a jet.
Protective Equipment for Firefighters	:	Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

Protective Measures	:	Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Clean Up Methods	:	Shovel into a suitable clearly marked container for disposal or reclamation in accordance with local regulations.

7. HANDLING AND STORAGE

General Precautions	:	Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Handling	:	Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
Storage	:	Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Store at ambient temperature.
Recommended Materials	:	For containers or container linings, use mild steel or high density polyethylene.
Unsuitable Materials	:	PVC.
Additional Information	:	Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Oil mist, mineral	ACGIH	TWA(Inhalable fraction.)		5 mg/m3	

Consult local authorities for acceptable exposure limits within their jurisdiction.

Additional Information	:	Due to the product's semi-solid consistency, generation of mists and dusts is unlikely to occur.
Exposure Controls	:	The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
Personal Protective Equipment	:	Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
Respiratory Protection	:	No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].
Hand Protection	:	Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Eye Protection	:	Wear safety glasses or full face shield if splashes are likely to occur.
Protective Clothing	:	Skin protection not ordinarily required beyond standard issue work clothes.
Monitoring Methods	:	Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Environmental Exposure Controls	:	Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Brown. Semi-solid at ambient temperature.

Odour	:	Slight hydrocarbon.
Odour threshold	:	Data not available
pH	:	Not applicable.
Initial Boiling Point and Boiling Range	:	Data not available
Dropping point	:	> 180 °C / 356 °F
Vapour pressure	:	< 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Specific gravity	:	Typical 0.9 at 15 °C / 59 °F
Density	:	Typical 900 kg/m3 at 15 °C / 59 °F
Water solubility	:	Negligible.
n-octanol/water partition coefficient (log Pow)	:	> 6 (based on information on similar products)
Kinematic viscosity	:	Not applicable.
Vapour density (air=1)	:	> 1 (estimated value(s))
Evaporation rate (nBuAc=1)	:	Data not available

10. STABILITY AND REACTIVITY

Stability	:	Stable.
Conditions to Avoid	:	Extremes of temperature and direct sunlight.
Materials to Avoid	:	Strong oxidising agents.
Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage.
Hazardous Polymerisation	:	No
Sensitivity to Mechanical Impact	:	No
Sensitivity to Static Discharge	:	No

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	:	Information given is based on data on the components and the toxicology of similar products.
Routes of Exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Acute Oral Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat.
Acute Dermal Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit.
Acute Inhalation Toxicity	:	Not considered to be an inhalation hazard under normal conditions of use.
Skin Irritation	:	Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Eye Irritation	:	Expected to be slightly irritating.
Respiratory Irritation	:	Inhalation of vapours or mists may cause irritation.
Sensitisation	:	Not expected to be a skin sensitiser.
Repeated Dose Toxicity	:	Not expected to be a hazard.
Mutagenicity	:	Not considered a mutagenic hazard.
Carcinogenicity	:	Product contains mineral oils of types shown to be non-

carcinogenic in animal skin-painting studies. Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC). Other components are not known to be associated with carcinogenic effects.

Reproductive and Developmental Toxicity : Not expected to be a hazard.

Additional Information : Used grease may contain harmful impurities that have accumulated during use. The concentration of such harmful impurities will depend on use and they may present risks to health and the environment on disposal.
ALL used grease should be handled with caution and skin contact avoided as far as possible.
High pressure injection of product into the skin may lead to local necrosis if the product is not surgically removed.

12. ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Acute Toxicity : Poorly soluble mixture.May cause physical fouling of aquatic organisms.Expected to be practically non toxic:LL/EL/IL50 > 100 mg/l(to aquatic organisms)(LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.

Mobility : Semi-solid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.

Persistence/degradability : Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.

Bioaccumulation : Contains components with the potential to bioaccumulate.

Other Adverse Effects : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

13. DISPOSAL CONSIDERATIONS

Material Disposal : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.

Container Disposal : Dispose in accordance with prevailing regulations, preferably to

		a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
Local Legislation	:	Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification

This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Class/Description	:	THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

Inventory Status

EINECS	:	All components listed or polymer exempt.
TSCA	:	All components listed.
DSL	:	All components listed.

16. OTHER INFORMATION

MSDS Version Number	:	1.1
MSDS Effective Date	:	12-09-2011
MSDS Revisions	:	A vertical bar (|) in the left margin indicates an amendment from the previous version.
MSDS Regulation	:	The content and format of this (M)SDS is in accordance with the Controlled Product Regulations.
MSDS Prepared By	:	Shell Product Stewardship; 1-800-661-1600
MSDS Distribution	:	The information in this document should be made available to all who may handle the product.
Disclaimer	:	The information contained herein is based on our current knowledge of the underlying data and is intended to describe

the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

Shell Canada Limited
Material Safety Data Sheet

Effective Date: 2011-02-11
Supersedes: None

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **Shell Gadus* S5 U100KD 1**
PRODUCT USE: Lubricating Grease
PRODUCT CODE: **506-574**

SUPPLIER
Shell Canada Limited (SCL)
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS	
Shell Emergency Number	1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER	1-613-996-6666
For general information:	1-800-661-1600
	www.shell.ca

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.
*An asterisk in the product name designates a trade-mark of Shell Brands International AG. Used under license.

2. HAZARDS IDENTIFICATION

Physical Description: Smooth Semi-Solid Grease Blue-Grey colour Hydrocarbon Odour

Routes of Exposure: Exposure will most likely occur through skin or eye contact. Inhalation is only possible if the product is heated or mists are generated.

Hazards:

This product is not expected to be irritating and has a low level of toxicity under normal use.
May be slightly irritating to the eyes.
Inhalation of oil mist or vapours from hot oil may cause irritation of the upper respiratory tract.

For further information on health effects, see Section 11.

3. COMPOSITION / INFORMATION ON INGREDIENTS

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
See Section 8 for Occupational Exposure Guidelines.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wipe excess from skin. Wash contaminated skin with mild soap and water for at least 15 minutes. If irritation occurs and persists, obtain medical attention. If material is injected under the skin, get medical attention promptly to prevent serious damage; do not wait for symptoms to develop.

Ingestion: Not normally required; obtain medical attention if large amounts have been ingested. Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

Inhalation: Remove victim from further exposure. Additional first aid treatment is not ordinarily required.

Notes to Physician: In general, lubricating oils have low oral toxicity. High pressure injection under the skin may have serious consequences and may require urgent treatment.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical
Carbon Dioxide
Foam
Water Fog

Firefighting Instructions: Material will not burn unless preheated. Caution, spilled material is slippery. Product will float and can be reignited on surface of water. Do not use a direct stream of water as it may spread fire. Use water to cool fire exposed containers. Water may be used to flush spills away from exposure. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide and dense smoke are produced on combustion.

6. ACCIDENTAL RELEASE MEASURES

Isolate hazard area and restrict access. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Spilled material is slippery. Dike and contain land spills; contain spills to water by booming. For large spills remove by mechanical means and place in containers. Adsorb residue or small spills with adsorbent material and remove to non-leaking containers for disposal. Notify appropriate environmental agency(ies). After area has been cleaned up to the satisfaction of regulatory authorities, flush area with water to remove trace residue.

7. HANDLING AND STORAGE

Handling: Avoid excessive heat, formation of oil mist, breathing of vapours and mist of hot oil and prolonged or repeated contact with skin. Launder contaminated clothing prior to reuse. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Use good personal hygiene.

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

The following information, while appropriate for this product, is general in nature. The selection of personal protective equipment will vary depending on the conditions of use.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):
The exposure limits listed here are provided for guidance only. Consult local, provincial and territorial authorities for specific values.
Mineral oil, pure, highly and severely refined, excluding metal working fluids: 5 mg/m3 (inhalable fraction)

Mechanical Ventilation: Not normally required. Local ventilation is recommended if oil mist is present or if exposure limit is exceeded. Make up air should always be supplied to balance air exhausted (either generally or locally).

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: No special eye protection is routinely necessary. Wear safety glasses as appropriate.
Skin Protection: Not normally needed. Chemically-resistant gloves should be worn for frequent or prolonged contact with this product.
Respiratory Protection: Not normally required under intended conditions of use. If vaporization of oil component is occurring (i.e. under conditions of high heat), use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges in combination with a P95 particulate filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Smooth Semi-Solid Grease	**Odour:**	Hydrocarbon Odour
Appearance:	Blue-Grey colour	**Odour Threshold:**	Not available
Pour Point	Dropping Point > 260 °C	**Boiling Point**	> 315 °C
Vapour Pressure (absolute):	Not available	**Vapour Density (air = 1):**	Not available
Density:	Not available	**Flash Point**	Not available
Specific Gravity (Water = 1):		**Lower Flammable Limit:**	Not available
pH:	Not applicable	**Upper Flammable Limit:**	Not available
Viscosity:	(Baseoil) 98 - 102 mm2/s @ 40 °C	**Auto-ignition Temperature:**	Not available
Evaporation Rate (n-BuAc = 1):	Not available	**Partition Coefficient (log K_{OW}):**	Not available
Water Solubility:	Insoluble	**Molecular Weight:**	
Other Solvents:	Hydrocarbon Solvents	**Formula:**	

10. STABILITY AND REACTIVITY

Chemically Stable: Yes
Hazardous Polymerization: No
Sensitive to Mechanical Impact: No
Sensitive to Static Discharge: No
Incompatible Materials: Avoid strong oxidizing agents.
Conditions of Reactivity: Avoid excessive heat, formation of vapours or mists.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure: Exposure will most likely occur through skin or eye contact. Inhalation is only possible if the product is heated or mists are generated.
Irritancy: This product is not a primary skin irritant after exposure of short duration, is not a skin sensitizer and is not irritating to the eyes.
Acute Toxicity: This product is not expected to be irritating and has a low level of toxicity under normal use.
Chronic Effects: Prolonged or repeated contact may cause various forms of dermatitis including folliculitis and oil acne. Long term intensive exposure to oil mist may cause benign lung fibrosis.

12. ECOLOGICAL INFORMATION

Environmental Effects: Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. The immediate effect of a release is the physical impairment of the environment from the coating of surfaces, resulting in the disruption of oxygen, water and light to flora and fauna.

Biodegradability: Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification:
This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* (CPR) and the MSDS contains all the information required by the CPR.

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

DSL/NDSL Status: This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.

Other Regulatory Status: The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

16. OTHER INFORMATION

Revisions: This is a new MSDS.

Shell Canada Limited
Material Safety Data Sheet

Effective Date: 2011-02-11
Supersedes: None

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **Shell Gadus* S5 U100KD 1**
PRODUCT USE: Lubricating Grease
PRODUCT CODE: **506-574**

SUPPLIER
Shell Canada Limited (SCL)
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS	
Shell Emergency Number	1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER	1-613-996-6666
For general information:	1-800-661-1600
	www.shell.ca

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.
*An asterisk in the product name designates a trade-mark of Shell Brands International AG. Used under license.

2. HAZARDS IDENTIFICATION

Physical Description: Smooth Semi-Solid Grease Blue-Grey colour Hydrocarbon Odour

Routes of Exposure: Exposure will most likely occur through skin or eye contact. Inhalation is only possible if the product is heated or mists are generated.

Hazards:

This product is not expected to be irritating and has a low level of toxicity under normal use.
May be slightly irritating to the eyes.
Inhalation of oil mist or vapours from hot oil may cause irritation of the upper respiratory tract.

For further information on health effects, see Section 11.

3. COMPOSITION / INFORMATION ON INGREDIENTS

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
See Section 8 for Occupational Exposure Guidelines.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wipe excess from skin. Wash contaminated skin with mild soap and water for at least 15 minutes. If irritation occurs and persists, obtain medical attention. If material is injected under the skin, get medical attention promptly to prevent serious damage; do not wait for symptoms to develop.

Ingestion: Not normally required; obtain medical attention if large amounts have been ingested. Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

Inhalation: Remove victim from further exposure. Additional first aid treatment is not ordinarily required.

Notes to Physician: In general, lubricating oils have low oral toxicity. High pressure injection under the skin may have serious consequences and may require urgent treatment.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical
Carbon Dioxide
Foam
Water Fog

Firefighting Instructions: Material will not burn unless preheated. Caution, spilled material is slippery. Product will float and can be reignited on surface of water. Do not use a direct stream of water as it may spread fire. Use water to cool fire exposed containers. Water may be used to flush spills away from exposure. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide and dense smoke are produced on combustion.

6. ACCIDENTAL RELEASE MEASURES

Isolate hazard area and restrict access. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Spilled material is slippery. Dike and contain land spills; contain spills to water by booming. For large spills remove by mechanical means and place in containers. Adsorb residue or small spills with adsorbent material and remove to non-leaking containers for disposal. Notify appropriate environmental agency(ies). After area has been cleaned up to the satisfaction of regulatory authorities, flush area with water to remove trace residue.

7. HANDLING AND STORAGE

Handling: Avoid excessive heat, formation of oil mist, breathing of vapours and mist of hot oil and prolonged or repeated contact with skin. Launder contaminated clothing prior to reuse. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Use good personal hygiene.

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

The following information, while appropriate for this product, is general in nature. The selection of personal protective equipment will vary depending on the conditions of use.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):
The exposure limits listed here are provided for guidance only. Consult local, provincial and territorial authorities for specific values.
Mineral oil, pure, highly and severely refined, excluding metal working fluids: 5 mg/m3 (inhalable fraction)

Mechanical Ventilation: Not normally required. Local ventilation is recommended if oil mist is present or if exposure limit is exceeded. Make up air should always be supplied to balance air exhausted (either generally or locally).

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: No special eye protection is routinely necessary. Wear safety glasses as appropriate.
Skin Protection: Not normally needed. Chemically-resistant gloves should be worn for frequent or prolonged contact with this product.
Respiratory Protection: Not normally required under intended conditions of use. If vaporization of oil component is occurring (i.e. under conditions of high heat), use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges in combination with a P95 particulate filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Smooth Semi-Solid Grease	**Odour:**	Hydrocarbon Odour
Appearance:	Blue-Grey colour	**Odour Threshold:**	Not available
Pour Point	Dropping Point > 260 °C	**Boiling Point**	> 315 °C
Vapour Pressure (absolute):	Not available	**Vapour Density (air = 1):**	Not available
Density:	Not available	**Flash Point**	Not available
Specific Gravity (Water = 1):		**Lower Flammable Limit:**	Not available
pH:	Not applicable	**Upper Flammable Limit:**	Not available
Viscosity:	(Baseoil) 98 - 102 mm2/s @ 40 °C	**Auto-ignition Temperature:**	Not available
Evaporation Rate (n-BuAc = 1):	Not available	**Partition Coefficient (log K_{OW}):**	Not available
Water Solubility:	Insoluble	**Molecular Weight:**	
Other Solvents:	Hydrocarbon Solvents	**Formula:**	

10. STABILITY AND REACTIVITY

Chemically Stable: Yes
Hazardous Polymerization: No
Sensitive to Mechanical Impact: No
Sensitive to Static Discharge: No
Incompatible Materials: Avoid strong oxidizing agents.
Conditions of Reactivity: Avoid excessive heat, formation of vapours or mists.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure: Exposure will most likely occur through skin or eye contact. Inhalation is only possible if the product is heated or mists are generated.
Irritancy: This product is not a primary skin irritant after exposure of short duration, is not a skin sensitizer and is not irritating to the eyes.
Acute Toxicity: This product is not expected to be irritating and has a low level of toxicity under normal use.
Chronic Effects: Prolonged or repeated contact may cause various forms of dermatitis including folliculitis and oil acne. Long term intensive exposure to oil mist may cause benign lung fibrosis.

12. ECOLOGICAL INFORMATION

Environmental Effects: Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. The immediate effect of a release is the physical impairment of the environment from the coating of surfaces, resulting in the disruption of oxygen, water and light to flora and fauna.

Biodegradability: Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification:
This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* (CPR) and the MSDS contains all the information required by the CPR.

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

DSL/NDSL Status: This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.

Other Regulatory Status: The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

16. OTHER INFORMATION

Revisions: This is a new MSDS.

Shell Canada Limited
Material Safety Data Sheet

Effective Date: 2011-02-11
Supersedes: None

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **Shell Gadus* S5 V100 2**
PRODUCT USE: Lubricating Grease
PRODUCT CODE: **506-219**

SUPPLIER
Shell Canada Limited (SCL)
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS	
Shell Emergency Number	1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER	1-613-996-6666
For general information:	1-800-661-1600
	www.shell.ca

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.
*An asterisk in the product name designates a trade-mark of Shell Brands International AG. Used under license.

2. HAZARDS IDENTIFICATION

Physical Description: Smooth Semi-Solid Grease Light Brown Mild Hydrocarbon Odour

Routes of Exposure: Exposure will most likely occur through skin or eye contact. Inhalation is only possible if the product is heated or mists are generated.

Hazards:

This product is not expected to be irritating and has a low level of toxicity under normal use.
Inhalation of oil mist or vapours from hot oil may cause irritation of the upper respiratory tract.

For further information on health effects, see Section 11.

3. COMPOSITION / INFORMATION ON INGREDIENTS

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
See Section 8 for Occupational Exposure Guidelines.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wipe excess from skin. Wash contaminated skin with mild soap and water for at least 15 minutes. If irritation occurs and persists, obtain medical attention. If material is injected under the skin, get medical attention promptly to prevent serious damage; do not wait for symptoms to develop.

Ingestion: Not normally required; obtain medical attention if large amounts have been ingested. Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

Inhalation: Remove victim from further exposure. Additional first aid treatment is not ordinarily

required.

Notes to Physician: In general, lubricating oils have low oral toxicity. High pressure injection under the skin may have serious consequences and may require urgent treatment.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical
Carbon Dioxide
Water Fog

Firefighting Instructions: Material will not burn unless preheated. Caution, spilled material is slippery. Product will float and can be reignited on surface of water. Do not use a direct stream of water as it may spread fire. Use water to cool fire exposed containers. Water may be used to flush spills away from exposure. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide and dense smoke are produced on combustion.

6. ACCIDENTAL RELEASE MEASURES

Isolate hazard area and restrict access. Spilled material is slippery. Stop leak only if safe to do so. Dike and contain land spills; contain spills to water by booming. For large spills remove by mechanical means and place in containers. Adsorb residue or small spills with adsorbent material and remove to non-leaking containers for disposal. Notify appropriate environmental agency(ies). After area has been cleaned up to the satisfaction of regulatory authorities, flush area with water to remove trace residue.

7. HANDLING AND STORAGE

Handling: Avoid excessive heat, formation of oil mist, breathing of vapours and mist of hot oil and prolonged or repeated contact with skin. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse. Use good personal hygiene.

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

The following information, while appropriate for this product, is general in nature. The selection of personal protective equipment will vary depending on the conditions of use.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):
The exposure limits listed here are provided for guidance only. Consult local, provincial and territorial authorities for specific values.
Mineral oil, pure, highly and severely refined, excluding metal working fluids: 5 mg/m3 (inhalable fraction)

Mechanical Ventilation: Not normally required. Local ventilation is recommended if oil mist is present or if exposure limit is exceeded. Make up air should always be supplied to balance air exhausted (either generally or locally).

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: No special eye protection is routinely necessary. Wear safety glasses as appropriate.

Skin Protection: Not normally needed. Chemically-resistant gloves should be worn for frequent or prolonged contact with this product.

Respiratory Protection: Not normally required under intended conditions of use. If vaporization of oil component is occurring (i.e. under conditions of high heat), use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges in combination with a P95 particulate filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Smooth Semi-Solid Grease	**Odour:**	Mild Hydrocarbon Odour
Appearance:	Light Brown	**Odour Threshold:**	Not available
Pour Point	Dropping Point > 260 °C	**Boiling Point**	
Vapour Pressure (absolute):	< 0.5 Pa @ 20 °C	**Vapour Density (air = 1):**	Not available
Density:	900 kg/m3	**Flash Point**	> 150 °C
Specific Gravity (Water = 1):		**Lower Flammable Limit:**	Not available
pH:	Not applicable	**Upper Flammable Limit:**	Not available
Viscosity:		**Auto-ignition Temperature:**	> 320 °C
Evaporation Rate (n-BuAc = 1):	Not available	**Partition Coefficient (log K_{OW}):**	Not available
Water Solubility:	Insoluble	**Molecular Weight:**	
Other Solvents:	Hydrocarbon Solvents	**Formula:**	

10. STABILITY AND REACTIVITY

Chemically Stable: Yes **Hazardous Polymerization:** No
Sensitive to Mechanical Impact: No **Sensitive to Static Discharge:** No
Incompatible Materials: Avoid strong oxidizing agents.
Conditions of Reactivity: Avoid excessive heat, formation of vapours or mists.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure: Exposure will most likely occur through skin or eye contact. Inhalation is only possible if the product is heated or mists are generated.
Irritancy: This product is not a primary skin irritant after exposure of short duration, is not a skin sensitizer and is not irritating to the eyes.
Acute Toxicity: This product is not expected to be irritating and has a low level of toxicity under normal use.
Chronic Effects: Prolonged or repeated contact may cause various forms of dermatitis including folliculitis and oil acne. Long term intensive exposure to oil mist may cause benign lung fibrosis.
Pre-existing Conditions: Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.

12. ECOLOGICAL INFORMATION

Environmental Effects: The immediate effect of a release is the physical impairment of the environment from the coating of surfaces, resulting in the disruption of oxygen, water and light to flora and fauna. Block off drains and ditches. Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways.
Biodegradability: Not readily biodegradable. Does not bioaccumulate.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification:

This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations* (CPR) and the MSDS contains all the information required by the CPR.

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

DSL/NDSL Status:	This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act.
Other Regulatory Status:	The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

16. OTHER INFORMATION

Revisions:	This is a new MSDS.

Shell Canada Limited
Material Safety Data Sheet

Effective Date: 2011-02-28
Supersedes: None

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **Shell Omala* S4 GX 150**
PRODUCT USE: Lubricating oil
PRODUCT CODE: **417-546**

SUPPLIER
Shell Canada Limited (SCL)
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS

Shell Emergency Number	1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER	1-613-996-6666
For general information:	1-800-661-1600
	www.shell.ca

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.
*An asterisk in the product name designates a trade-mark of Shell Brands International AG. Used under license.

2. HAZARDS IDENTIFICATION

Physical Description: Liquid Pale yellow Clear Mild Hydrocarbon Odour

Routes of Exposure: Exposure will most likely occur through skin contact or from inhalation of mechanically or thermally generated oil mists.

Hazards:

This product is not expected to be irritating and has a low level of toxicity under normal use.
Product may cause an allergic skin reaction in sensitive individuals. Product may be slightly irritating to skin.
Inhalation of oil mist or vapours from hot oil may cause irritation of the upper respiratory tract.

For further information on health effects, see Section 11.

3. COMPOSITION / INFORMATION ON INGREDIENTS

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
See Section 8 for Occupational Exposure Guidelines.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wipe excess from skin. Wash contaminated skin with mild soap and water for at least 15 minutes. If irritation occurs and persists, obtain medical attention. If material is injected under the skin, get medical attention promptly to prevent serious damage; do not wait for symptoms to develop.

Ingestion: Not normally required; obtain medical attention if large amounts have been ingested. Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent

aspiration of liquid into the lungs.

Inhalation: Remove victim from further exposure. Additional first aid treatment is not ordinarily required.

Notes to Physician: In general, lubricating oils have low oral toxicity. High pressure injection under the skin may have serious consequences and may require urgent treatment.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical
Carbon Dioxide
Foam
Water Fog

Firefighting Instructions: Caution, spilled material is slippery. Material will not burn unless preheated. Product will float and can be reignited on surface of water. Do not use a direct stream of water as it may spread fire. Use water to cool fire exposed containers. Water may be used to flush spills away from exposure. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide and dense smoke are produced on combustion.

6. ACCIDENTAL RELEASE MEASURES

Eliminate all ignition sources. Isolate hazard area and restrict access. Avoid prolonged or repeated contact with skin. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Spilled material is slippery. Dike and contain land spills; contain spills to water by booming. For large spills remove by mechanical means and place in containers. Adsorb residue or small spills with adsorbent material and remove to non-leaking containers for disposal. Notify appropriate environmental agency(ies). After area has been cleaned up to the satisfaction of regulatory authorities, flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations.

7. HANDLING AND STORAGE

Handling: Avoid excessive heat, formation of oil mist, breathing of vapours and mist of hot oil and prolonged or repeated contact with skin. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse.

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

The following information, while appropriate for this product, is general in nature. The selection of personal protective equipment will vary depending on the conditions of use.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):
The exposure limits listed here are provided for guidance only. Consult local, provincial and territorial authorities for specific values.
Mineral oil, pure, highly and severely refined, excluding metal working fluids: 5 mg/m3 (inhalable fraction)

Mechanical Ventilation: Not normally required. Local ventilation is recommended if oil mist is present or if exposure limit is exceeded. Make up air should always be supplied to balance air exhausted (either generally or locally).

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: No special eye protection is routinely necessary. Wear safety glasses as appropriate.

Skin Protection: Not normally needed. Chemically-resistant gloves should be worn for frequent or prolonged contact with this product.

Respiratory Protection: Not normally required under intended conditions of use. If airborne concentration is high (e.g. when product is heated), use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges in combination with a P95 particulate filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid	**Odour:**	Mild Hydrocarbon Odour
Appearance:	Pale yellow Clear	**Odour Threshold:**	Not available
Pour Point	< -39 °C	**Boiling Point**	Not available
Vapour Pressure (absolute):	< 0.5 Pa @ 20 °C	**Vapour Density (air = 1):**	> 1
Density:	877 kg/m3 @ 15 °C	**Flash Point**	COC 238 °C
Specific Gravity (Water = 1):		**Lower Flammable Limit:**	Not available
pH:	Not available	**Upper Flammable Limit:**	Not available
Viscosity:	150 - 160 mm2/s @ 40 °C	**Auto-ignition Temperature:**	> 320 °C
Evaporation Rate (n-BuAc = 1):	Not available	**Partition Coefficient (log K_{OW}):**	Not available
Water Solubility:	Negligible	**Molecular Weight:**	

10. STABILITY AND REACTIVITY

Chemically Stable: Yes **Hazardous Polymerization:** No

Sensitive to Mechanical Impact: No **Sensitive to Static Discharge:** No

Hazardous Decomposition Products: Hazardous decomposition products are not expected to form during normal storage.

Incompatible Materials: Avoid strong oxidizing agents.

Conditions of Reactivity: Avoid excessive heat, formation of vapours or mists.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure: Exposure will most likely occur through skin contact or from inhalation of mechanically or thermally generated oil mists.

Irritancy: This product is not a primary skin irritant after exposure of short duration, is not a skin sensitizer and is not irritating to the eyes.

Acute Toxicity: This product is not expected to be irritating and has a low level of toxicity under normal use.

Chronic Effects: Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Long term intensive exposure to oil mist may cause benign lung fibrosis.

12. ECOLOGICAL INFORMATION

Environmental Effects: The immediate effect of a release is the physical impairment of the environment from the coating of surfaces, resulting in the disruption of oxygen, water and light to flora and fauna. Do not allow product or runoff from fire control to enter storm or sanitary

sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches.

Biodegradability: Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification:

This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations (CPR)* and the MSDS contains all the information required by the CPR.

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

DSL/NDSL Status: This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.

Other Regulatory Status: The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

16. OTHER INFORMATION

Revisions: This is a new MSDS.

Material Safety Data Sheet

According to the Controlled Product Regulations

1. MATERIAL AND COMPANY IDENTIFICATION

Material Name	:	**Shell Rotella T Triple Protection 15W-40**
Uses	:	Engine oil.
Product Code	:	001D5439
Manufacturer/Supplier	:	**Shell Canada Products** 400 - 4th Avenue S.W Calgary AB T2P 0J4 Canada
Telephone	:	(+1) 8006611600
Fax	:	(+1) 4033848345
Emergency Telephone Number	:	CHEMTREC (24 hr): (+1) 800-424-9300 CANUTEC (24 hr): (+1) 613-996-6666

2. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture Description: : Highly refined mineral oils and additives.

The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

Refer to Chapter 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

WHMIS Class/Description	:	THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
Routes of Exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Health Hazards	:	Not expected to be a health hazard when used under normal conditions. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. Used oil may contain harmful impurities.
Signs and Symptoms	:	Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.
Safety Hazards	:	Not classified as flammable but will burn.
Environmental Hazards	:	Not classified as dangerous for the environment.

4. FIRST AID MEASURES

General Information	:	Not expected to be a health hazard when used under normal conditions.

Inhalation	:	No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
Skin Contact	:	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.
Eye Contact	:	Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
Ingestion	:	In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
Advice to Physician	:	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point	:	> 230 °C / 446 °F (COC)
Upper / lower Flammability or Explosion limits	:	Typical 1 - 10 %(V)(based on mineral oil)
Auto ignition temperature	:	> 320 °C / 608 °F
Hazardous Combustion Products and Specific Hazards	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
Suitable Extinguishing Media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	:	Do not use water in a jet.
Protective Equipment for Firefighters	:	Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

Protective Measures	:	Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Clean Up Methods	:	Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
Additional Advice	:	Local authorities should be advised if significant spillages cannot be contained.

7. HANDLING AND STORAGE

General Precautions	:	Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use the information in this data sheet as input to a risk

assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

Handling : Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.

Storage : Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Store at ambient temperature.

Recommended Materials : For containers or container linings, use mild steel or high density polyethylene.

Unsuitable Materials : PVC.

Additional Information : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Oil mist, mineral	ACGIH	TWA(Inhalable fraction.)		5 mg/m3	

Consult local authorities for acceptable exposure limits within their jurisdiction.

Exposure Controls : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

Personal Protective Equipment : Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.

Respiratory Protection : No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate

combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].

Hand Protection	:	Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Eye Protection	:	Wear safety glasses or full face shield if splashes are likely to occur.
Protective Clothing	:	Skin protection not ordinarily required beyond standard issue work clothes.
Monitoring Methods	:	Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Environmental Exposure Controls	:	Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Amber. Liquid at room temperature.
Odour	:	Slight hydrocarbon.
Odour threshold	:	Data not available
pH	:	Not applicable.
Initial Boiling Point and Boiling Range	:	> 280 °C / 536 °F estimated value(s)
Pour point	:	Typical -34.44 °C / -29.99 °F
Vapour pressure	:	< 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Specific gravity	:	
Density	:	Typical 879 kg/m3 at 15 °C / 59 °F
Water solubility	:	Negligible.
n-octanol/water partition coefficient (log Pow)	:	> 6 (based on information on similar products)
Kinematic viscosity	:	Typical 120 mm2/s at 40 °C / 104 °F
Vapour density (air=1)	:	> 1 (estimated value(s))
Evaporation rate (nBuAc=1)	:	Data not available

10. STABILITY AND REACTIVITY

Stability	:	Stable.

Conditions to Avoid	:	Extremes of temperature and direct sunlight.
Materials to Avoid	:	Strong oxidising agents.
Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage.
Hazardous Polymerisation	:	No
Sensitivity to Mechanical Impact	:	No
Sensitivity to Static Discharge	:	No

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	:	Information given is based on data on the components and the toxicology of similar products.
Routes of Exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Acute Oral Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat.
Acute Dermal Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit.
Acute Inhalation Toxicity	:	Not considered to be an inhalation hazard under normal conditions of use.
Skin Irritation	:	Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Eye Irritation	:	Expected to be slightly irritating.
Respiratory Irritation	:	Inhalation of vapours or mists may cause irritation.
Sensitisation	:	Not expected to be a skin sensitiser.
Repeated Dose Toxicity	:	Not expected to be a hazard.
Mutagenicity	:	Not considered a mutagenic hazard.
Carcinogenicity	:	Product contains mineral oils of types shown to be non-carcinogenic in animal skin-painting studies. Highly refined mineral oils are not classified as carcinogenic by the International Agency for Research on Cancer (IARC). Other components are not known to be associated with carcinogenic effects.
Reproductive and Developmental Toxicity	:	Not expected to be a hazard.
Additional Information	:	Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible. Continuous contact with used engine oils has caused skin cancer in animal tests.

12. ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Acute Toxicity : Poorly soluble mixture.May cause physical fouling of aquatic organisms.Expected to be practically non toxic:LL/EL/IL50 > 100 mg/l(to aquatic organisms)(LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).Mineral oil is not expected to cause any chronic effects to aquatic organisms at concentrations less than 1 mg/l.

Mobility : Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.

Persistence/degradability : Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.

Bioaccumulation : Contains components with the potential to bioaccumulate.

Other Adverse Effects : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

13. DISPOSAL CONSIDERATIONS

Material Disposal : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.

Container Disposal : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Local Legislation : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification

This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Class/Description : THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

Inventory Status

EINECS	:	All components listed or polymer exempt.
TSCA	:	All components listed.
DSL	:	All components listed.

16. OTHER INFORMATION

MSDS Version Number : 1.1

MSDS Effective Date : 12-09-2011

MSDS Revisions : A vertical bar (|) in the left margin indicates an amendment from the previous version.

MSDS Regulation : The content and format of this (M)SDS is in accordance with the Controlled Product Regulations.

MSDS Prepared By : Shell Product Stewardship; 1-800-661-1600

MSDS Distribution : The information in this document should be made available to all who may handle the product.

Disclaimer : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

Shell Canada Limited
Material Safety Data Sheet

Effective Date: 2011-03-30
Supersedes: 2008-04-11

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **ROTELLA T* SB 100% SYNTHETIC 0W-40**
SYNONYMS: AUTOMOTIVE ENGINE OIL
PRODUCT USE: Lubricating oil
PRODUCT CODE: **431-634**

SUPPLIER
Shell Canada Limited (SCL)
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS
Shell Emergency Number 1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER 1-613-996-6666
For general information: 1-800-661-1600
www.shell.ca

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.
*An asterisk in the product name designates a trade-mark of Shell Brands International AG. Used under license.

2. HAZARDS IDENTIFICATION

Physical Description: Liquid Light Brown Hydrocarbon Odour

Routes of Exposure: Exposure will most likely occur through skin contact or from inhalation of mechanically or thermally generated oil mists.

Hazards:

This product is not expected to be irritating and has a low level of toxicity under normal use.
Inhalation of oil mist or vapours from hot oil may cause irritation of the upper respiratory tract.

For further information on health effects, see Section 11.

3. COMPOSITION / INFORMATION ON INGREDIENTS

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
See Section 8 for Occupational Exposure Guidelines.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wipe excess from skin. Wash contaminated skin with mild soap and water for at least 15 minutes. If irritation occurs and persists, obtain medical attention. If material is injected under the skin, get medical attention promptly to prevent serious damage; do not wait for symptoms to develop.

Ingestion: Not normally required; obtain medical attention if large amounts have been ingested. Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

Inhalation:	Remove victim from further exposure. Additional first aid treatment is not ordinarily required.
Notes to Physician:	In general, lubricating oils have low oral toxicity. High pressure injection under the skin may have serious consequences and may require urgent treatment.

5. FIRE FIGHTING MEASURES

Extinguishing Media:	Dry Chemical Carbon Dioxide Foam Water Fog
Firefighting Instructions:	Caution, spilled material is slippery. Material will not burn unless preheated. Product will float and can be reignited on surface of water. Do not use a direct stream of water as it may spread fire. Use water to cool fire exposed containers. Water may be used to flush spills away from exposure. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.
Hazardous Combustion Products:	Carbon monoxide, carbon dioxide and dense smoke are produced on combustion.

6. ACCIDENTAL RELEASE MEASURES

Eliminate all ignition sources. Isolate hazard area and restrict access. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Spilled material is slippery. Dike and contain land spills; contain spills to water by booming. For large spills remove by mechanical means and place in containers. Adsorb residue or small spills with adsorbent material and remove to non-leaking containers for disposal. Notify appropriate environmental agency(ies). After area has been cleaned up to the satisfaction of regulatory authorities, flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations.

7. HANDLING AND STORAGE

Handling:	Avoid excessive heat, formation of oil mist, breathing of vapours and mist of hot oil and prolonged or repeated contact with skin. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse. Use good personal hygiene.
Storage:	Store in a cool, dry, well ventilated area, away from heat and ignition sources.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

The following information, while appropriate for this product, is general in nature. The selection of personal protective equipment will vary depending on the conditions of use.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):
The exposure limits listed here are provided for guidance only. Consult local, provincial and territorial authorities for specific values.
Mineral oil, pure, highly and severely refined, excluding metal working fluids: 5 mg/m3 (inhalable fraction)

Mechanical Ventilation:	Not normally required. Local ventilation is recommended if oil mist is present or if exposure limit is exceeded. Make up air should always be supplied to balance air exhausted (either generally or locally).

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: No special eye protection is routinely necessary. Wear safety glasses as appropriate.

Skin Protection: Not normally needed. Chemically-resistant gloves should be worn for frequent or prolonged contact with this product.

Respiratory Protection: Not normally required under intended conditions of use. If airborne concentration is high (e.g. when product is heated), use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges in combination with a P95 particulate filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid	**Odour:**	Hydrocarbon Odour
Appearance:	Light Brown	**Odour Threshold:**	Not available
Pour Point	< -39 °C	**Boiling Point**	
Vapour Pressure (absolute):	< 0.1 mm Hg @ 20 °C	**Vapour Density (air = 1):**	> 1
Density:		**Flash Point**	COC 219 °C
Specific Gravity (Water = 1):	< 1	**Lower Flammable Limit:**	Not available
pH:		**Upper Flammable Limit:**	Not available
Viscosity:	14.4 - 15.4 mm2/s @ 100 °C	**Auto-ignition Temperature:**	Not available
Evaporation Rate (n-BuAc = 1):	Not available	**Partition Coefficient (log K_{OW}):**	Not available
Water Solubility:	Insoluble	**Molecular Weight:**	

10. STABILITY AND REACTIVITY

Chemically Stable: Yes **Hazardous Polymerization:** No

Sensitive to Mechanical Impact: No **Sensitive to Static Discharge:** No

Incompatible Materials: Avoid strong oxidizing agents.

Conditions of Reactivity: Avoid excessive heat, formation of vapours or mists.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure: Exposure will most likely occur through skin contact or from inhalation of mechanically or thermally generated oil mists.

Irritancy: This product is not a primary skin irritant after exposure of short duration, is not a skin sensitizer and is not irritating to the eyes.

Acute Toxicity: This product is not expected to be irritating and has a low level of toxicity under normal use.

Chronic Effects: Prolonged or repeated contact may cause various forms of dermatitis including folliculitis and oil acne. Long term intensive exposure to oil mist may cause benign lung fibrosis. Used engine oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on actual conditions but the impurities may present risks to health or the environment on disposal. It is possible that prolonged or repeated exposure to used engine oils may cause skin disorders in humans. All used oils should be handled with caution and skin contact avoided as much as possible.

12. ECOLOGICAL INFORMATION

Environmental Effects: The immediate effect of a release is the physical impairment of the environment from the coating of surfaces, resulting in the disruption of oxygen, water and light to flora and fauna. Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities.

Biodegradability: Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification:
This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations (CPR)* and the MSDS contains all the information required by the CPR.

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

DSL/NDSL Status: This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.

Other Regulatory Status: The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

16. OTHER INFORMATION

Revisions: This MSDS has been reviewed and updated. Changes have been made to: Section 8 Section 15

Shell Canada Limited
Material Safety Data Sheet

Effective Date: 2011-02-28
Supersedes: None

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **Shell Spirax* S3 TLV**
PRODUCT USE: Lubricating oil
PRODUCT CODE: **486-103**

SUPPLIER
Shell Canada Limited (SCL)
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS	
Shell Emergency Number	1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER	1-613-996-6666
For general information:	1-800-661-1600
	www.shell.ca

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.
*An asterisk in the product name designates a trade-mark of Shell Brands International AG. Used under license.

2. HAZARDS IDENTIFICATION

Physical Description: Liquid Brown Colour Hydrocarbon Odour

Routes of Exposure: Exposure will most likely occur through skin contact or from inhalation of mechanically or thermally generated oil mists.

Hazards:

This product is not expected to be irritating and has a low level of toxicity under normal use.
Inhalation of oil mist or vapours from hot oil may cause irritation of the upper respiratory tract.

For further information on health effects, see Section 11.

3. COMPOSITION / INFORMATION ON INGREDIENTS

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
See Section 8 for Occupational Exposure Guidelines.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wipe excess from skin. Wash contaminated skin with mild soap and water for at least 15 minutes. If irritation occurs and persists, obtain medical attention. If material is injected under the skin, get medical attention promptly to prevent serious damage; do not wait for symptoms to develop.

Ingestion: Not normally required; obtain medical attention if large amounts have been ingested. Do not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

Inhalation: Remove victim from further exposure. Additional first aid treatment is not ordinarily

required.

Notes to Physician: In general, lubricating oils have low oral toxicity. High pressure injection under the skin may have serious consequences and may require urgent treatment.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical
Carbon Dioxide
Foam
Water Fog

Firefighting Instructions: Caution, spilled material is slippery. Material will not burn unless preheated. Product will float and can be reignited on surface of water. Do not use a direct stream of water as it may spread fire. Use water to cool fire exposed containers. Water may be used to flush spills away from exposure. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.

Hazardous Combustion Products: Carbon monoxide, carbon dioxide and dense smoke are produced on combustion.

6. ACCIDENTAL RELEASE MEASURES

Eliminate all ignition sources. Isolate hazard area and restrict access. Avoid prolonged or repeated contact with skin. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Spilled material is slippery. Dike and contain land spills; contain spills to water by booming. For large spills remove by mechanical means and place in containers. Adsorb residue or small spills with adsorbent material and remove to non-leaking containers for disposal. Notify appropriate environmental agency(ies). After area has been cleaned up to the satisfaction of regulatory authorities, flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations.

7. HANDLING AND STORAGE

Handling: Avoid excessive heat, formation of oil mist, breathing of vapours and mist of hot oil and prolonged or repeated contact with skin. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities. Launder contaminated clothing prior to reuse.

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

The following information, while appropriate for this product, is general in nature. The selection of personal protective equipment will vary depending on the conditions of use.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

The exposure limits listed here are provided for guidance only. Consult local, provincial and territorial authorities for specific values.

Mineral oil, pure, highly and severely refined, excluding metal working fluids: 5 mg/m3 (inhalable fraction)

Mechanical Ventilation: Not normally required. Local ventilation is recommended if oil mist is present or if exposure limit is exceeded. Make up air should always be supplied to balance air exhausted (either generally or locally).

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: No special eye protection is routinely necessary. Wear safety glasses as appropriate.

Skin Protection: Not normally needed. Chemically-resistant gloves should be worn for frequent or prolonged contact with this product.

Respiratory Protection: Not normally required under intended conditions of use. If airborne concentration is high (e.g. when product is heated), use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges in combination with a P95 particulate filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid	**Odour:**	Hydrocarbon Odour
Appearance:	Brown Colour	**Odour Threshold:**	Not available
Pour Point	< -36 °C	**Boiling Point**	> 315 °C
Vapour Pressure (absolute):	< 0.5 Pa @ 20 °C	**Vapour Density (air = 1):**	Not available
Density:	877 kg/m3 @ 15 °C	**Flash Point**	COC > 200 °C
Specific Gravity (Water = 1):		**Lower Flammable Limit:**	Not available
pH:	Not applicable	**Upper Flammable Limit:**	Not available
Viscosity:	56 mm2/s @ 40 °C	**Auto-ignition Temperature:**	Not available
Evaporation Rate (n-BuAc = 1):	Not available	**Partition Coefficient (log K_{OW}):**	Not available
Water Solubility:	Insoluble	**Molecular Weight:**	
Other Solvents:	Hydrocarbon Solvents	**Formula:**	

10. STABILITY AND REACTIVITY

Chemically Stable: Yes **Hazardous Polymerization:** No

Sensitive to Mechanical Impact: No **Sensitive to Static Discharge:** No

Hazardous Decomposition Products: Hazardous decomposition products are not expected to form during normal storage.

Incompatible Materials: Avoid strong oxidizing agents.

Conditions of Reactivity: Avoid excessive heat, formation of vapours or mists.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure: Exposure will most likely occur through skin contact or from inhalation of mechanically or thermally generated oil mists.

Irritancy: This product is not a primary skin irritant after exposure of short duration, is not a skin sensitizer and is not irritating to the eyes.

Acute Toxicity: This product is not expected to be irritating and has a low level of toxicity under normal use.

Chronic Effects: Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Long term intensive exposure to oil mist may cause benign lung fibrosis.

12. ECOLOGICAL INFORMATION

Environmental Effects: The immediate effect of a release is the physical impairment of the environment from the coating of surfaces, resulting in the disruption of oxygen, water and light to flora and fauna. Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches.

Biodegradability: Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification:
This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations (*CPR*)* and the MSDS contains all the information required by the CPR.

THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

DSL/NDSL Status: This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.

Other Regulatory Status: The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

16. OTHER INFORMATION

Revisions: This is a new MSDS.

Safety Data Sheet

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product Identifier

Material Name : **Shell Spirax S6 ATF A295**
Product Code : 001D8305

1.2 Relevant identified uses of the substance or mixture and uses advised against

Product Use : Transmission oil.

Uses Advised Against : This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier.

1.3 Details of the Supplier of the safety data sheet

Manufacturer/Supplier : **Shell UK Oil Products Limited**
Shell Centre
London
SE1 7NA
United Kingdom

Telephone : (+44) 08708500939
Email Contact for Safety Data Sheet : If you have any enquiries about the content of this SDS please email lubricantSDS@shell.com

1.4 Emergency Telephone Number

: +44-(0) 151-350-4595

SECTION 2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

67/548/EEC or 1999/45/EC	
Hazard Characteristics	**R-phrase(s)**
Not classified as dangerous under EC criteria.;	

Sensitiser not sufficient to classify : Contains triazole derivatives. May produce an allergic reaction.

Safety Data Sheet

2.2 Label Elements

Labeling according to Directive 1999/45/EC

EC Symbols : No Hazard Symbol required

EC Classification : Not classified as dangerous under EC criteria.
EC Risk Phrases : Not classified.
EC Safety Phrases : Not classified.

2.3 Other Hazards

Health Hazards : Not expected to be a health hazard when used under normal conditions. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. Used oil may contain harmful impurities.

Safety Hazards : Not classified as flammable but will burn.

Environmental Hazards : Not classified as dangerous for the environment.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substance

Material Name : Not applicable.

3.2 Mixtures

Mixture Description : Blend of polyolefins, synthetic esters and additives.

Hazardous Components

Classification of components according to Regulation (EC) No 1272/2008

Chemical Name	CAS No.	EC Number	REACH Registration No.	Conc.
Substituted triazole	91273-04-0	401-280-0	Not available / Not applicable.	0.10 - 0.50%
Triazole derivative	80584-90-3	279-503-4	Not available / Not	0.10 - 0.50%

Safety Data Sheet

			applicable.	
Interchangeable low viscosity base oil (<20,5 cSt @40°C) *	*	*	*	0.00 - 90.00%

Chemical Name	Hazard Class & Category	Hazard Statement
Substituted triazole	Skin Corr., 1B; Skin Sens., 1; Aquatic Chronic, 2;	H314; H317; H411;
Triazole derivative	Skin Corr., 2; Skin Sens., 1; Aquatic Chronic, 2;	H315; H317; H411;
Interchangeable low viscosity base oil (<20,5 cSt @40°C) *	Asp. Tox., 1;	H304;

Classification of components according to 67/548/EEC

Chemical Name	CAS No.	EC Number	REACH Registration No.	Symbol(s)	R-phrase(s)	Conc.
Substituted triazole	91273-04-0	401-280-0	Not available / Not applicable.	C, N	R34; R43; R51/53	0.10 - 0.50%
Triazole derivative	80584-90-3	279-503-4	Not available / Not applicable.	Xi, N	R38; R43; R51/53	0.10 - 0.50%

Additional Information : The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346. The highly refined mineral oil is only present as additive diluent.

Refer to Ch 16 for full text of R- and H- phrases.

* contains one or more of the following CAS-numbers (REACH registration numbers): 64742-53-6 (01-2119480375-34), 64742-54-7 (01-2119484627-25), 64742-55-8 (01-2119487077-29), 64742-56-9 (01-2119480132-48), 64742-65-0 (01-2119471299-27), 68037-01-4 (01-2119486452-34), 72623-86-0 (01-2119474878-16), 72623-87-1 (01-2119474889-13), 8042-47-5 (01-2119487078-27), 848301-69-9 (01-0000020164-80).

This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.

SECTION 4. FIRST AID MEASURES

4.1 Description of First Aid Measures

General Information	:	Not expected to be a health hazard when used under normal conditions.
Inhalation	:	No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
Skin Contact	:	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.
Eye Contact	:	Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
Ingestion	:	In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
Self-protection of the first aider	:	When administering first aid, ensure that you are wearing the appropriate personal protective equipment according to the incident, injury and surroundings.
4.2 Most important symptoms and effects, both acute and delayed	:	Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.
4.3 Indication of any immediate medical attention and special treatment needed	:	Notes to doctor/physician: Treat symptomatically.

SECTION 5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

5.1 Extinguishing Media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	:	Do not use water in a jet.
5.2 Special hazards arising from the substance or mixture	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
5.3 Advice for firefighters	:	Proper protective equipment including chemical resistant gloves are to be worn; chemical resistant suit is indicated if large contact with spilled product is expected. Self-Contained Breathing Apparatus must be worn when approaching a fire in a confined space. Select fire fighter's clothing approved to

relevant Standards (e.g. Europe: EN469).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Avoid contact with spilled or released material. For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. Observe the relevant local and international regulations.

6.1 Personal Precautions, Protective Equipment and Emergency Procedures	:	6.1.1 For non emergency personnel: Avoid contact with skin and eyes. 6.1.2 For emergency responders: Avoid contact with skin and eyes.
6.2 Environmental Precautions	:	Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
6.3 Methods and Material for Containment and Cleaning Up	:	Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
Additional Advice	:	Local authorities should be advised if significant spillages cannot be contained.
6.4 Reference to other sections	:	For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter 13 of this Material Safety Data Sheet.

SECTION 7. HANDLING AND STORAGE

General Precautions	:	Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
7.1 Precautions for Safe Handling	:	Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers.
Product Transfer	:	This material has the potential to be a static accumulator.

Proper grounding and bonding procedures should be used during all bulk transfer operations.

7.2 Conditions for safe storage, including any incompatibilities : Store at ambient temperature.

Refer to section 15 for any additional specific legislation covering the packaging and storage of this product.
The storage of this product may be subject to the Control of Pollution (Oil Storage) (England) Regulations. Further guidance may be obtained from the local environmental agency office.

Recommended Materials : For containers or container linings, use mild steel or high density polyethylene.

Unsuitable Materials : PVC.

7.3 Specific end use(s) : Not applicable

Additional Information : Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.
Exposure to this product should be reduced as low as reasonably practicable. Reference should be made to the Health and Safety Executive's publication "COSHH Essentials".

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

8.1 Control Parameters

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Oil mist, mineral	ACGIH	TWA(Inhalable fraction.)		5 mg/m3	

Biological Exposure Index (BEI)
No biological limit allocated.

PNEC related information : Data not available

Monitoring Methods : Monitoring of the concentration of substances in the breathing

zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples analysed by an accredited laboratory. Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods http://www.cdc.gov/niosh/

Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods http://www.osha.gov/

Health and Safety Executive (HSE), UK: Methods for the Determination of Hazardous Substances http://www.hse.gov.uk/

Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany. http://www.dguv.de/inhalt/index.jsp

L'Institut National de Recherche et de Securité, (INRS), France http://www.inrs.fr/accueil

8.2 Exposure Controls

General Information : The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.

Define procedures for safe handling and maintenance of controls. Educate and train workers in the hazards and control measures relevant to normal activities associated with this product. Ensure appropriate selection, testing and maintenance of equipment used to control exposure, e.g. personal protective equipment, local exhaust ventilation. Drain

down system prior to equipment break-in or maintenance. Retain drain downs in sealed storage pending disposal or for subsequent recycle. Always observe good personal hygiene measures, such as washing hands after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

Occupational Exposure Controls

Personal Protective Equipment	:	The provided information is made in consideration of the PPE directive (Council Directive 89/686/EEC) and the CEN European Committee for Standardisation (CEN) standards. Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
Eye Protection	:	Wear safety glasses or full face shield if splashes are likely to occur. Approved to EU Standard EN166.
Hand Protection	:	Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended. For continuous contact we recommend gloves with breakthrough time of more than 240 minutes with preference for > 480 minutes where suitable gloves can be identified. For short-term/splash protection we recommend the same, but recognise that suitable gloves offering this level of protection may not be available and in this case a lower breakthrough time may be acceptable so long as appropriate maintenance and replacement regimes are followed. Glove thickness is not a good predictor of glove resistance to a chemical as it is dependent on the exact composition of the glove material.
Body protection	:	Skin protection not ordinarily required beyond standard issue work clothes.
Respiratory Protection	:	No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene

practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapors [Type A/Type P boiling point > 65°C (149°F)] meeting EN14387 and EN143.

Thermal Hazards : Not applicable.

Environmental Exposure Controls

Environmental exposure control measures : Take appropriate measures to fulfil the requirements of relevant environmental protection legislation. Avoid contamination of the environment by following advice given in Chapter 6. If necessary, prevent undissolved material from being discharged to waste water. Waste water should be treated in a municipal or industrial waste water treatment plant before discharge to surface water. Local guidelines on emission limits for volatile substances must be observed for the discharge of exhaust air containing vapour.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	:	Red. Liquid at room temperature.
Odour	:	Slight hydrocarbon.
Odour threshold	:	Data not available
pH	:	Not applicable.
Initial Boiling Point and Boiling Range	:	> 280 °C / 536 °F estimated value(s)
Pour point	:	Typical -51 °C / -60 °F
Flash point	:	Typical 235 °C / 455 °F (COC)
Upper / lower Flammability or Explosion limits	:	Typical 1 - 10 %(V)
Auto-ignition temperature	:	> 320 °C / 608 °F
Vapour pressure	:	< 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Relative Density	:	Typical 0.85 at 15 °C / 59 °F
Density	:	Typical 847 kg/m3 at 15 °C / 59 °F
Water solubility	:	Negligible.
Solubility in other solvents	:	Data not available

n-octanol/water partition coefficient (log Pow)	:	> 6 (based on information on similar products)
Dynamic viscosity	:	Data not available
Kinematic viscosity	:	Typical 35 - 40 mm2/s at 40 °C / 104 °F
Vapour density (air=1)	:	> 1 (estimated value(s))
Evaporation rate (nBuAc=1)	:	Data not available
Decomposition Temperature	:	Data not available
Flammability	:	Data not available
Oxidizing Properties	:	Data not available
Explosive Properties	:	Not classified

9.2 Other Information

Electrical conductivity	:	This material is not expected to be a static accumulator.
Other Information	:	not a VOC
Volatile organic compound	:	0 %

SECTION 10. STABILITY AND REACTIVITY

10.1 Reactivity	:	The product does not pose any further reactivity hazards in addition to those listed in the following sub-paragraph.
10.2 Chemical stability	:	No hazardous reaction is expected when handled and stored according to provisions.
10.3 Possibility of Hazardous Reactions	:	Reacts with strong oxidising agents.
10.4 Conditions to Avoid	:	Extremes of temperature and direct sunlight.
10.5 Incompatible Materials	:	Strong oxidising agents.
10.6 Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological effects

Basis for Assessment	:	Information given is based on data on the components and the toxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

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Likely Routes of Exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Acute Oral Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat
Acute Dermal Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit
Acute Inhalation Toxicity	:	Not considered to be an inhalation hazard under normal conditions of use.
Skin corrosion/irritation	:	Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Serious eye damage/irritation	:	Expected to be slightly irritating.
Respiratory Irritation	:	Inhalation of vapours or mists may cause irritation.
Respiratory or skin sensitisation	:	For respiratory and skin sensitisation: Not expected to be a sensitiser.
Aspiration Hazard	:	Not considered an aspiration hazard.
Germ cell mutagenicity	:	Not considered a mutagenic hazard.
Carcinogenicity	:	Not expected to be carcinogenic.

Material	:	**Carcinogenicity Classification**
Highly refined mineral oil (IP346 <3%)	:	ACGIH Group A4: Not classifiable as a human carcinogen.
Highly refined mineral oil (IP346 <3%)	:	IARC 3: Not classifiable as to carcinogenicity to humans.
Highly refined mineral oil (IP346 <3%)	:	GHS / CLP: No carcinogenicity classification

Reproductive and Developmental Toxicity	:	Not expected to be a hazard.

Summary on evaluation of the CMR properties

Carcinogenicity	:	This product does not meet the criteria for classification in categories 1A/1B.,
Mutagenicity	:	This product does not meet the criteria for classification in categories 1A/1B.
Reproductive Toxicity (fertility)	:	This product does not meet the criteria for classification in categories 1A/1B.
Specific target organ toxicity - single exposure	:	Not expected to be a hazard.
Specific target organ toxicity - repeated exposure	:	Not expected to be a hazard.
Additional Information	:	Used oils may contain harmful impurities that have

accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible. Classifications by other authorities under varying regulatory frameworks may exist.

SECTION 12. ECOLOGICAL INFORMATION

Basis for Assessment : Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products. Unless indicated otherwise, the data presented is representative of the product as a whole, rather than for individual component(s).

12.1 Toxicity
Acute Toxicity : Poorly soluble mixture. May cause physical fouling of aquatic organisms. Expected to be practically non toxic: LL/EL/IL50 > 100 mg/l (to aquatic organisms) LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract.

12.2 Persistence and degradability : Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.

12.3 Bioaccumulative Potential : Contains components with the potential to bioaccumulate.

12.4 Mobility in Soil : Liquid under most environmental conditions. If it enters soil, it will adsorb to soil particles and will not be mobile. Floats on water.

12.5 Result of PBT and vPvB assesment : This mixture does not contain any REACH registered substances that are assessed to be a PBT or a vPvB.

12.6 Other Adverse Effects : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

SECTION 13. DISPOSAL CONSIDERATIONS

13.1 Waste Treatment Methods

Material Disposal	:	Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.
Container Disposal	:	Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.
Local Legislation	:	Disposal should be in accordance with applicable regional, national, and local laws and regulations. EU Waste Disposal Code (EWC): 13 02 06 synthetic engine, gear and lubricating oils. Classification of waste is always the responsibility of the end user.

SECTION 14. TRANSPORT INFORMATION

Land transport (ADR/RID):
ADR
This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

RID
This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

Inland waterways transport (ADN):
This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

Sea transport (IMDG Code):
This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

Air transport (IATA):
This product is not classified as dangerous for this mode of transport. Therefore 14.1 UN Number, 14.2 UN Proper Shipping name, 14.3 Transport hazard class(es), 14.4 Packing group, 14.5 Environmental hazards, 14.6 Special precautions for user do not apply.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Pollution Category	:	Not applicable.
Ship Type	:	Not applicable.
Product Name	:	Not applicable.
Special Precaution	:	Not applicable.

Additional Information **:** MARPOL Annex 1 rules apply for bulk shipments by sea.

SECTION 15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Other regulatory Information

Authorisations and/or restrictions on use	:	Product is not subject to Authorisation under REACH.
Recommended Restrictions on Use (Advice Against)	:	This product must not be used in applications other than those recommended in Section 1, without first seeking the advice of the supplier.

Chemical Inventory Status

EINECS	:	All components listed or polymer exempt.
TSCA	:	All components listed.
Other Information	:	Environmental Protection Act 1990 (as amended). Health and Safety at Work etc. Act 1974. Consumers Protection Act 1987. Pollution Prevention and Control Act 1999. Environment Act 1995. Factories Act 1961. The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment (Amendment) Regulations 2011. Chemicals (Hazard Information and Packaging for Supply) Regulations 2009. Control of Substances Hazardous to Health Regulations 2002

(as amended).
Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997.
Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (as amended).
Personal Protective Equipment Regulations 2002.
Personal Protective Equipment at Work Regulations 1992.
Hazardous Waste (England and Wales) Regulations 2005(as amended).
Control of Major Accident Hazards Regulations 1999 (as amended).
Renewable Transport Fuel Obligations Order 2007 (as amended).
Energy Act 2011.
Environmental Permitting (England and Wales) Regulations 2010 (as amended).
Waste (England and Wales) Regulations 2011 (as amended).
Planning (Hazardous Substances) Act 1990 and associated regulations.
The Environmental Protection (Controls on Ozone-Depleting Substances) Regulations 2011.

15.2 Chemical Safety Assessment : No Chemical Safety Assessment has been carried out for this substance/mixture by the supplier.

SECTION 16. OTHER INFORMATION

R-phrase(s)

	Not classified.
R34	Causes burns.
R38	Irritating to skin.
R43	May cause sensitisation by skin contact.
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

CLP Hazard Statements

H304	May be fatal if swallowed and enters airways.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H411	Toxic to aquatic life with long lasting effects.

Safety Data Sheet

Additional Information : No Exposure Scenario annex is attached to this safety data sheet. It is a non-classified mixture containing hazardous substances as detailed in Section 3; relevant information from Exposure Scenarios for the hazardous substances contained have been integrated into the core sections 1-16 of this SDS.

Other Information

Abbreviations and Acronyms : Acute Tox. = Acute toxicity
Asp. Tox. = Aspiration hazard
Aquatic Acute = Acute hazards to the aquatic environment
Aquatic Chronic = Hazardous to the aquatic environment - Long-term Hazard
Eye Dam. = Serious eye damage/eye irritation
Flam. Liq. = Flammable liquids
Skin Corr. = Skin corrosion/irritation
Skin Sens. = Skin sensitizer
STOT SE = Specific target organ toxicity - single exposure
STOT RE = Specific target organ toxicity - repeated exposure

The standard abbreviations and acronyms used in this document can be looked up in reference literature (e.g. scientific dictionaries) and/or websites.

ACGIH = American Conference of Governmental Industrial Hygienists
ADR = European Agreement concerning the International Carriage of Dangerous Goods by Road
AICS = Australian Inventory of Chemical Substances
ASTM = American Society for Testing and Materials
BEL = Biological exposure limits
BTEX = Benzene, Toluene, Ethylbenzene, Xylenes
CAS = Chemical Abstracts Service
CEFIC = European Chemical Industry Council
CLP = Classification Packaging and Labelling
COC = Cleveland Open-Cup
DIN = Deutsches Institut fur Normung
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
DSL = Canada Domestic Substance List
EC = European Commission
EC50 = Effective Concentration fifty
ECETOC = European Center on Ecotoxicology and Toxicology Of Chemicals

Safety Data Sheet

ECHA = European Chemicals Agency
EINECS = The European Inventory of Existing Commercial Chemical Substances
EL50 = Effective Loading fifty
ENCS = Japanese Existing and New Chemical Substances Inventory
EWC = European Waste Code
GHS = Globally Harmonised System of Classification and Labelling of Chemicals
IARC = International Agency for Research on Cancer
IATA = International Air Transport Association
IC50 = Inhibitory Concentration fifty
IL50 = Inhibitory Level fifty
IMDG = International Maritime Dangerous Goods
INV = Chinese Chemicals Inventory
IP346 = Institute of Petroleum test method N° 346 for the determination of polycyclic aromatics DMSO-extractables
KECI = Korea Existing Chemicals Inventory
LC50 = Lethal Concentration fifty
LD50 = Lethal Dose fifty per cent.
LL/EL/IL = Lethal Loading/Effective Loading/Inhibitory loading
LL50 = Lethal Loading fifty
MARPOL = International Convention for the Prevention of Pollution From Ships
NOEC/NOEL = No Observed Effect Concentration / No Observed Effect Level
OE_HPV = Occupational Exposure - High Production Volume
PBT = Persistent, Bioaccumulative and Toxic
PICCS = Philippine Inventory of Chemicals and Chemical Substances
PNEC = Predicted No Effect Concentration
REACH = Registration Evaluation And Authorisation Of Chemicals
RID = Regulations Relating to International Carriage of Dangerous Goods by Rail
SKIN_DES = Skin Designation
STEL = Short term exposure limit
TRA = Targeted Risk Assessment
TSCA = US Toxic Substances Control Act
TWA = Time-Weighted Average
vPvB = very Persistent and very Bioaccumulative

SDS Distribution : The information in this document should be made available to all who may handle the product.

Safety Data Sheet

SDS Version Number	:	2.1
SDS Effective Date	:	10.06.2013
SDS Revisions	:	A vertical bar (|) in the left margin indicates an amendment from the previous version.
SDS Regulation	:	Regulation 1907/2006/EC as amended by Regulation (EU) 453/2010
Disclaimer	:	This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Material Safety Data Sheet

1. MATERIAL AND COMPANY IDENTIFICATION

Material Name	:	**Shell Spirax S6 AXME 75W-90**
Uses	:	Transmission fluid
Product Code	:	001D8290
Manufacturer/Supplier	:	**Shell Canada Products** 400 - 4th Avenue S.W Calgary AB T2P 0J4 Canada
Telephone	:	(+1) 8006611600
Fax	:	(+1) 4033848345
Emergency Telephone Number		
	:	CHEMTREC (24 hr): (+1) 800-424-9300 CANUTEC (24 hr): (+1) 613-996-6666

2. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture Description: : Blend of severely hydrotreated slack wax, synthetic esters, polyolefins and additives. Highly refined mineral oil.

The highly refined mineral oil contains <3% (w/w) DMSO-extract, according to IP346.

Refer to Chapter 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

WHMIS Class/Description	:	THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.
Routes of Exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Health Hazards	:	Not expected to be a health hazard when used under normal conditions. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis. Used oil may contain harmful impurities.
Signs and Symptoms	:	Oil acne/folliculitis signs and symptoms may include formation of black pustules and spots on the skin of exposed areas. Ingestion may result in nausea, vomiting and/or diarrhoea.
Safety Hazards	:	Not classified as flammable but will burn.
Environmental Hazards	:	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4. FIRST AID MEASURES

General Information	:	Not expected to be a health hazard when used under normal conditions.
Inhalation	:	No treatment necessary under normal conditions of use. If symptoms persist, obtain medical advice.
Skin Contact	:	Remove contaminated clothing. Flush exposed area with water and follow by washing with soap if available. If persistent irritation occurs, obtain medical attention.
Eye Contact	:	Flush eye with copious quantities of water. If persistent irritation occurs, obtain medical attention.
Ingestion	:	In general no treatment is necessary unless large quantities are swallowed, however, get medical advice.
Advice to Physician	:	Treat symptomatically.

5. FIRE FIGHTING MEASURES

Clear fire area of all non-emergency personnel.

Flash point	:	Typical 210 °C / 410 °F (COC)
Upper / lower Flammability or Explosion limits	:	Typical 1 - 10 %(V)
Auto ignition temperature	:	> 320 °C / 608 °F
Hazardous Combustion Products and Specific Hazards	:	Hazardous combustion products may include: A complex mixture of airborne solid and liquid particulates and gases (smoke). Carbon monoxide. Unidentified organic and inorganic compounds.
Suitable Extinguishing Media	:	Foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only.
Unsuitable Extinguishing Media	:	Do not use water in a jet.
Protective Equipment for Firefighters	:	Proper protective equipment including breathing apparatus must be worn when approaching a fire in a confined space.

6. ACCIDENTAL RELEASE MEASURES

Protective Measures	:	Avoid contact with skin and eyes. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers.
Clean Up Methods	:	Slippery when spilt. Avoid accidents, clean up immediately. Prevent from spreading by making a barrier with sand, earth or other containment material. Reclaim liquid directly or in an absorbent. Soak up residue with an absorbent such as clay, sand or other suitable material and dispose of properly.
Additional Advice	:	Local authorities should be advised if significant spillages cannot be contained.

7. HANDLING AND STORAGE

General Precautions	:	Use local exhaust ventilation if there is risk of inhalation of vapours, mists or aerosols. Properly dispose of any contaminated rags or cleaning materials in order to prevent fires. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.
Handling	:	Avoid prolonged or repeated contact with skin. Avoid inhaling vapour and/or mists. When handling product in drums, safety footwear should be worn and proper handling equipment should be used.
Storage	:	Keep container tightly closed and in a cool, well-ventilated place. Use properly labelled and closeable containers. Store at ambient temperature.
Recommended Materials	:	For containers or container linings, use mild steel or high density polyethylene.
Unsuitable Materials	:	PVC.
Additional Information	:	Polyethylene containers should not be exposed to high temperatures because of possible risk of distortion.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

If the American Conference of Governmental Industrial Hygienists (ACGIH) value is provided on this document, it is provided for information only.

Occupational Exposure Limits

Material	Source	Type	ppm	mg/m3	Notation
Oil mist, mineral	ACGIH	TWA(Inhalable fraction.)		5 mg/m3	

Consult local authorities for acceptable exposure limits within their jurisdiction.

Exposure Controls	:	The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. Appropriate measures include: Adequate ventilation to control airborne concentrations. Where material is heated, sprayed or mist formed, there is greater potential for airborne concentrations to be generated.
Personal Protective Equipment	:	Personal protective equipment (PPE) should meet recommended national standards. Check with PPE suppliers.
Respiratory Protection	:	No respiratory protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene

		practices, precautions should be taken to avoid breathing of material. If engineering controls do not maintain airborne concentrations to a level which is adequate to protect worker health, select respiratory protection equipment suitable for the specific conditions of use and meeting relevant legislation. Check with respiratory protective equipment suppliers. Where air-filtering respirators are suitable, select an appropriate combination of mask and filter. Select a filter suitable for combined particulate/organic gases and vapours [boiling point >65°C(149 °F)].
Hand Protection	:	Where hand contact with the product may occur the use of gloves approved to relevant standards (e.g. Europe: EN374, US: F739) made from the following materials may provide suitable chemical protection: PVC, neoprene or nitrile rubber gloves. Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material, glove thickness, dexterity. Always seek advice from glove suppliers. Contaminated gloves should be replaced. Personal hygiene is a key element of effective hand care. Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturizer is recommended.
Eye Protection	:	Wear safety glasses or full face shield if splashes are likely to occur.
Protective Clothing	:	Skin protection not ordinarily required beyond standard issue work clothes.
Monitoring Methods	:	Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with an OEL and adequacy of exposure controls. For some substances biological monitoring may also be appropriate.
Environmental Exposure Controls	:	Minimise release to the environment. An environmental assessment must be made to ensure compliance with local environmental legislation.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Amber. Liquid at room temperature.
Odour	:	Slight hydrocarbon.
Odour threshold	:	Data not available
pH	:	Not applicable.
Initial Boiling Point and Boiling Range	:	> 280 °C / 536 °F estimated value(s)
Pour point	:	Typical -42 °C / -44 °F
Vapour pressure	:	< 0.5 Pa at 20 °C / 68 °F (estimated value(s))
Specific gravity	:	
Density	:	Typical 878 kg/m3 at 15 °C / 59 °F
Water solubility	:	Negligible.
n-octanol/water partition coefficient (log Pow)	:	> 6 (based on information on similar products)

Kinematic viscosity	:	Typical 115 mm2/s at 40 °C / 104 °F
Vapour density (air=1)	:	> 1 (estimated value(s))
Evaporation rate (nBuAc=1)	:	Data not available

10. STABILITY AND REACTIVITY

Stability	:	Stable.
Conditions to Avoid	:	Extremes of temperature and direct sunlight.
Materials to Avoid	:	Strong oxidising agents.
Hazardous Decomposition Products	:	Hazardous decomposition products are not expected to form during normal storage.
Hazardous Polymerisation	:	No
Sensitivity to Mechanical Impact	:	No
Sensitivity to Static Discharge	:	No

11. TOXICOLOGICAL INFORMATION

Basis for Assessment	:	Information given is based on data on the components and the toxicology of similar products.
Routes of Exposure	:	Skin and eye contact are the primary routes of exposure although exposure may occur following accidental ingestion.
Acute Oral Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rat.
Acute Dermal Toxicity	:	Expected to be of low toxicity: LD50 > 5000 mg/kg , Rabbit.
Acute Inhalation Toxicity	:	Not considered to be an inhalation hazard under normal conditions of use. Low toxicity by inhalation.
Skin Irritation	:	Expected to be slightly irritating. Prolonged or repeated skin contact without proper cleaning can clog the pores of the skin resulting in disorders such as oil acne/folliculitis.
Eye Irritation	:	Expected to be slightly irritating.
Respiratory Irritation	:	Inhalation of vapours or mists may cause irritation.
Sensitisation	:	Not expected to be a skin sensitiser.
Repeated Dose Toxicity	:	Not expected to be a hazard.
Mutagenicity	:	Not considered a mutagenic hazard.
Carcinogenicity	:	Components are not known to be associated with carcinogenic effects.
Reproductive and Developmental Toxicity	:	Not expected to be a hazard.
Additional Information	:	Used oils may contain harmful impurities that have accumulated during use. The concentration of such impurities will depend on use and they may present risks to health and the environment on disposal. ALL used oil should be handled with caution and skin contact avoided as far as possible.

12. ECOLOGICAL INFORMATION

Ecotoxicological data have not been determined specifically for this product. Information given is based on a knowledge of the components and the ecotoxicology of similar products.

Acute Toxicity : Poorly soluble mixture.May cause physical fouling of aquatic organisms.Expected to be harmful:LL/EL/IL50 10-100 mg/l(to aquatic organisms)(LL/EL50 expressed as the nominal amount of product required to prepare aqueous test extract).

Mobility : Liquid under most environmental conditions. Floats on water. If it enters soil, it will adsorb to soil particles and will not be mobile.

Persistence/degradability : Expected to be not readily biodegradable. Major constituents are expected to be inherently biodegradable, but the product contains components that may persist in the environment.

Bioaccumulation : Contains components with the potential to bioaccumulate.

Other Adverse Effects : Product is a mixture of non-volatile components, which are not expected to be released to air in any significant quantities. Not expected to have ozone depletion potential, photochemical ozone creation potential or global warming potential.

13. DISPOSAL CONSIDERATIONS

Material Disposal : Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations. Do not dispose into the environment, in drains or in water courses.

Container Disposal : Dispose in accordance with prevailing regulations, preferably to a recognised collector or contractor. The competence of the collector or contractor should be established beforehand.

Local Legislation : Disposal should be in accordance with applicable regional, national, and local laws and regulations.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification

This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Class/Description : THIS PRODUCT IS NOT A WHMIS CONTROLLED SUBSTANCE.

Inventory Status

EINECS	:	All components listed or polymer exempt.
TSCA	:	All components listed.
DSL	:	All components listed.

16. OTHER INFORMATION

MSDS Version Number : 1.1

MSDS Effective Date : 12-09-2011

MSDS Revisions : A vertical bar (|) in the left margin indicates an amendment from the previous version.

MSDS Regulation : The content and format of this (M)SDS is in accordance with the Controlled Product Regulations.

MSDS Prepared By : Shell Product Stewardship; 1-800-661-1600

MSDS Distribution : The information in this document should be made available to all who may handle the product.

Disclaimer : The information contained herein is based on our current knowledge of the underlying data and is intended to describe the product for the purpose of health, safety and environmental requirements only. No warranty or guarantee is expressed or implied regarding the accuracy of these data or the results to be obtained from the use of the product.

Shell Canada Limited
Material Safety Data Sheet

Effective Date: 2011-03-03
Supersedes: None

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **Shell Tellus* S4 VX 32**
SYNONYMS: HYDRAULIC OIL
PRODUCT USE: Hydraulic Fluid
PRODUCT CODE: **417-170**

SUPPLIER
Shell Canada Limited (SCL)
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS	
Shell Emergency Number	1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER	1-613-996-6666
For general information:	1-800-661-1600
	www.shell.ca

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.
*An asterisk in the product name designates a trade-mark of Shell Brands International AG. Used under license.

2. HAZARDS IDENTIFICATION

Physical Description: Liquid Amber colour Hydrocarbon Odour

Routes of Exposure: Exposure will most likely occur through skin contact or from inhalation of mechanically or thermally generated oil mists.

Hazards:

This product is not expected to be irritating and has a low level of toxicity under normal use.
May be a reproductive hazard.
Inhalation of oil mist or vapours from hot oil may cause irritation of the upper respiratory tract.

Handling: Minimize skin contact.
Wash thoroughly after handling.

For further information on health effects, see Section 11.

3. COMPOSITION / INFORMATION ON INGREDIENTS

See Section 8 for Occupational Exposure Guidelines.

4. FIRST AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wipe excess from skin. Wash contaminated skin with mild soap and water for at least 15 minutes. If irritation occurs and persists, obtain medical attention. If material is injected under the skin, get medical attention promptly to prevent serious damage; do not wait for symptoms to develop.

Ingestion: Not normally required; obtain medical attention if large amounts have been ingested. Do

	not induce vomiting. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.
Inhalation:	Remove victim from further exposure. Additional first aid treatment is not ordinarily required.
Notes to Physician:	In general, lubricating oils have low oral toxicity. High pressure injection under the skin may have serious consequences and may require urgent treatment.

5. FIRE FIGHTING MEASURES

Extinguishing Media:	Dry Chemical Carbon Dioxide Foam Water Fog
Firefighting Instructions:	Material will not burn unless preheated. Product will float and can be reignited on surface of water. Do not use a direct stream of water as it may spread fire. Use water to cool fire exposed containers. Water may be used to flush spills away from exposure. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.
Hazardous Combustion Products:	Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

6. ACCIDENTAL RELEASE MEASURES

Eliminate all ignition sources. Isolate hazard area and restrict access. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Spilled material is slippery. Dike and contain land spills; contain spills to water by booming. For large spills remove by mechanical means and place in containers. Adsorb residue or small spills with adsorbent material and remove to non-leaking containers for disposal. Notify appropriate environmental agency(ies). After area has been cleaned up to the satisfaction of regulatory authorities, flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations.

7. HANDLING AND STORAGE

Handling:	Avoid excessive heat, formation of oil mist, breathing of vapours and mist of hot oil and prolonged or repeated contact with skin. Launder contaminated clothing prior to reuse. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities.
Storage:	Store in a cool, dry, well ventilated area, away from heat and ignition sources.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

The following information, while appropriate for this product, is general in nature. The selection of personal protective equipment will vary depending on the conditions of use.

OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):
The exposure limits listed here are provided for guidance only. Consult local, provincial and territorial authorities for specific values.
Mineral oil, pure, highly and severely refined, excluding metal working fluids: 5 mg/m3 (inhalable fraction)

Mechanical Ventilation:	Not normally required. Local ventilation is recommended if oil mist is present or if exposure limit is exceeded. Make up air should always be supplied to balance air exhausted (either generally or locally).

PERSONAL PROTECTIVE EQUIPMENT:

Eye Protection: No special eye protection is routinely necessary. Wear safety glasses as appropriate.

Skin Protection: Impervious gloves (viton, nitrile, PVC, neoprene) should be worn at all times when handling this product.

Respiratory Protection: Not normally required under intended conditions of use. If airborne concentration is high (e.g. when product is heated), use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges in combination with a P95 particulate filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid	**Odour:**	Hydrocarbon Odour
Appearance:	Amber colour	**Odour Threshold:**	Not available
Pour Point	-60 °C	**Boiling Point**	> 280 °C
Density:	886 kg/m3 @ 15 °C	**Flash Point**	COC > 100 °C
Specific Gravity (Water = 1):		**Lower Flammable Limit:**	Not available
pH:	Not applicable	**Upper Flammable Limit:**	Not available
Viscosity:	33.6 mm2/s @ 40 °C	**Auto-ignition Temperature:**	> 320 °C
Evaporation Rate (n-BuAc = 1):	Not available	**Partition Coefficient (log K_{OW}):**	Not available
Water Solubility:	Insoluble	**Molecular Weight:**	
Other Solvents:	Hydrocarbon Solvents	**Formula:**	

10. STABILITY AND REACTIVITY

Chemically Stable: Yes **Hazardous Polymerization:** No

Sensitive to Mechanical Impact: No **Sensitive to Static Discharge:** No

Incompatible Materials: Avoid strong oxidizing agents.

Conditions of Reactivity: Avoid excessive heat, formation of vapours or mists.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure: Exposure will most likely occur through skin contact or from inhalation of mechanically or thermally generated oil mists.

Formulation: No data is specifically available for this product and therefore this toxicological information is based on data available for the ingredients.

Irritancy: This product is not a primary skin irritant after exposure of short duration, is not a skin sensitizer and is not irritating to the eyes.

Acute Toxicity: This product is not expected to be irritating and has a low level of toxicity under normal use.

Chronic Effects: Prolonged or repeated contact may cause various forms of dermatitis including folliculitis and oil acne. Long term intensive exposure to oil mist may cause benign lung fibrosis.

Reproductive Toxicity: Animal studies indicate that ingestion of a component of this product may have adverse effects on reproduction.

12. ECOLOGICAL INFORMATION

Environmental Effects: The immediate effect of a release is the physical impairment of the environment from the coating of surfaces, resulting in the disruption of oxygen, water and light to flora

and fauna. Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities. Product is expected to be slightly toxic to aquatic organisms (LL/EL50 in the range of 10 to 100 mg/L)

Biodegradability: Not readily biodegradable.

13. DISPOSAL CONSIDERATIONS

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site.

14. TRANSPORT INFORMATION

Canadian Road and Rail Shipping Classification:

This product is not regulated under the Canadian Transportation of Dangerous Goods Regulations for transport by road and rail.

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the *Controlled Products Regulations (CPR)* and the MSDS contains all the information required by the CPR.

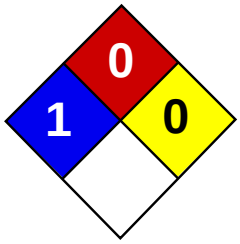
DSL/NDSL Status: This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.

Other Regulatory Status: The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

16. OTHER INFORMATION

Revisions: This MSDS has been reviewed and updated. Changes have been made to: Section 1 Section 2 Section 3 Section 8 Section 9 Section 11 Section 15







Material Safety Data Sheet
Sodium Hypochlorite, 5% MSDS

Section 1: Chemical Product and Company Identification

Product Name: Sodium Hypochlorite, 5%

Catalog Codes: SLS1654

CAS#: Mixture.

RTECS: Not applicable.

TSCA: TSCA 8(b) inventory: Sodium hypochlorite; Sodium hydroxide; Water

CI#: Not applicable.

Synonym: Chlorine Bleach, Bleach, Soda Bleach, Chlorox; Sodium Hypochlorite, Solution, 5% Available Chlorine

Chemical Name: Hypochlorous acid, sodium salt, solution

Chemical Formula: Not applicable.

Contact Information:

Sciencelab.com, Inc.
14025 Smith Rd.
Houston, Texas 77396

US Sales: **1-800-901-7247**
International Sales: **1-281-441-4400**

Order Online: ScienceLab.com

CHEMTREC (24HR Emergency Telephone), call: 1-800-424-9300

International CHEMTREC, call: 1-703-527-3887

For non-emergency assistance, call: 1-281-441-4400

Section 2: Composition and Information on Ingredients

Composition:

Name	CAS #	% by Weight
Sodium hypochlorite	7681-52-9	4-7
Sodium hydroxide	1310-73-2	<1
Water	7732-18-5	>92

Toxicological Data on Ingredients: Sodium hypochlorite: ORAL (LD50): Acute: 5800 mg/kg [Mouse]. 8910 mg/kg [Rat].

Section 3: Hazards Identification

Potential Acute Health Effects:
Very hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, . Hazardous in case of skin contact (corrosive), of eye contact (corrosive). Slightly hazardous in case of inhalation (lung sensitizer). Non-corrosive for lungs. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Prolonged exposure may result in skin burns and ulcerations. Over-exposure by inhalation may cause respiratory irritation. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Potential Chronic Health Effects:
Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Sodium hypochlorite]. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. [Sodium hypochlorite]. Mutagenic for mammalian somatic cells. [Sodium hydroxide]. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to lungs, mucous membranes, skin, eyes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Section 4: First Aid Measures

Eye Contact:
Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact:
In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Serious Skin Contact:
Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

Inhalation:
If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation:
Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

Ingestion:
Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: combustible materials, metals, organic materials

Explosion Hazards in Presence of Various Substances:
Slightly explosive in presence of open flames and sparks. Non-explosive in presence of shocks.

Fire Fighting Media and Instructions: Not applicable.

Special Remarks on Fire Hazards:
Releases chlorine when heated above 35 deg. C. The substance itself is non-combustible and does not burn. However, when heated to decomposition it emits corrosive and/or toxic fumes. May ignite combustibles. Fire risk in contact with organic materials. Contact with metals may evolve flammable hydrogen gas.

Special Remarks on Explosion Hazards:
Anydrous Sodium Hypochlorite is very explosive. Primary amines and calcium hypochlorite or sodium hypochlorite react to form normal chloroamines, which are explosive. Interaction of ethyleneimine with sodium (or other) hypochlorite gives the explosive N-chloro cmpd. Removal of formic acid from industrial waste streams with sodium hypochlorite soln becomes explosive at 55 deg C. Several explosions involving methanol and sodium hypochlorite were attributed to formation of methyl hypochlorite, especially in presence of acid or other esterification catalyst. Use of sodium hypochlorite soln to destroy acidified benzyl cyanide residues caused a violent explosion, thought to have been due to formation of nitrogen trichloride. (Sodium hypochlorite)

Section 6: Accidental Release Measures

Small Spill:
Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill:
Corrosive liquid. Oxidizing material. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Avoid contact with a combustible material (wood, paper, oil, clothing...). Keep substance damp using water spray. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Section 7: Handling and Storage

Precautions:
Keep locked up.. Keep container dry. Keep away from heat. Keep away from sources of ignition. Keep away from combustible material.. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as reducing agents, combustible materials, organic materials, metals, acids.

Storage:
Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalies, reducing agents and combustibles. See NFPA 43A, Code for the Storage of Liquid and Solid Oxidizers. Air Sensitive Sensitive to light. Store in light-resistant containers.

Section 8: Exposure Controls/Personal Protection

Engineering Controls:
Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value.

Personal Protection:
Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill:
Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Exposure Limits:
Sodium hypochlorite TWA: 1 CEIL: 1 (ppm as Cl2) STEL: 1 (ppm as Cl2) from ACGIH (TLV) [United States] Sodium hydroxide STEL: 2 (mg/m3) from ACGIH (TLV) [United States] TWA: 2 CEIL: 2 (mg/m3) from OSHA (PEL) [United States] CEIL: 2 (mg/m3) from NIOSH Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Characteristic. Chlorine-like (Slight.)

Taste: Not available.

Molecular Weight: Not applicable.

Color: Colorless to light greenish yellow

pH (1% soln/water): Neutral.

Boiling Point: Decomposition temperature: 40°C (104°F)

Melting Point: Not available.

Critical Temperature: Not available.

Specific Gravity: 1.07 - 1.093 (Water = 1)

Vapor Pressure: 2.3 kPa (@ 20°C)

Vapor Density: The highest known value is 0.62 (Air = 1) (Water).

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water.

Solubility: Easily soluble in cold water.

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials. light, air, heat

Incompatibility with various substances: Reactive with reducing agents, combustible materials, organic materials, metals, acids.

Corrosivity:
Extremely corrosive in presence of aluminum. Corrosive in presence of stainless steel(304), of stainless steel(316). Non-corrosive in presence of glass.

Special Remarks on Reactivity:
Decomposed by carbon dioxide from air. Slowly decomposes on contact with air. Unstable in air unless mixed with sodium hydroxide. Incompatible with ammonium acetate, ammonium carbonate, ammonium nitrate, ammonium oxalate, and ammonium phosphate. Decompostion of sodium hypochlorite takes place within a few seconds with these salts. Also incompatible with primary amines, phenyl acetonitrile, ethyleneimine, methanol, acidified benzyl cyanide, formic acid, urea, nitro compounds, methylscellulose, celloluse, aziridine, ether, ammonia. Mixing this product with chemicals (e.g. ammonia, acids, detergents, etc.) or organic matter (e.g. urine, feces, etc.) will release chlorine gas. Chloramine gas may be evolved when ammonia and bleach are mixed. Decomposed by hot water. Sensitive to light. Exposure to light accelerates decompositon.

Special Remarks on Corrosivity:
Sodium Hypochlorite is extremely corrosive to brass, and moderately corrosive to bronze. There is no corrosivity information for copper.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 5800 mg/kg [Mouse]. (Sodium hypochlorite).

Chronic Effects on Humans:
CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Sodium hypochlorite]. MUTAGENIC EFFECTS: Mutagenic for bacteria and/or yeast. [Sodium hypochlorite]. Mutagenic for mammalian somatic cells. [Sodium hydroxide]. Contains material which may cause damage to the following organs: lungs, mucous membranes, skin, eyes.

Other Toxic Effects on Humans:
Very hazardous in case of skin contact (irritant), of ingestion, . Hazardous in case of skin contact (corrosive), of eye contact (corrosive). Slightly hazardous in case of inhalation (lung sensitizer, lung corrosive).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: May affect genetic material (mutagenic) (Sodium hypochlorite)

Special Remarks on other Toxic Effects on Humans:
Potential Health Effects: Can cause severe irritation and possible burns to skin and eyes. Eye contact may also cause corneal and conjunctival edema, conjunctival hemorrhages. Contact with skin may also cause vesicular eruptions and eczematoid dermatitis which becomes evident upon re-exposure. Prolonged or repeated eye contact may cause conjunctivitis. Ingestion can cause burns to the digestive tract. Symptoms may include: 1. pain and inflammation of the mouth, pharynx, esophagus, and stomach, 2. erosion of the mucous membranes (chiefly of the stomach), nausea, vomiting, choking, coughing, hemorrhage, 3. circulatory collapse with cold and clammy skin (due to methemoglobinemia), cyanosis, and shallow respirations, 4. confusion, delirium, coma, 5. edema of the pharynx, glottis, larynx with stridor and obstruction, 6. perforation of the esophagus, or stomach, with mediastinitis or peritonitis. Inhalation causes slight to severe respiratory tract irritation and delayed pulmonary edema. Prolonged or repeated inhalation may cause allergic respiratory reaction (asthma).

Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation:
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

Section 13: Disposal Considerations

Waste Disposal:
Dilute with water and flush to sewer of local ordinances allow, otherwise, whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Waste must be disposed of in accordance with federal, state and local environmental control regulations.

Section 14: Transport Information

DOT Classification: Class 8: Corrosive material

Identification: : Hypochlorite solution UNNA: 1791 PG: III

Special Provisions for Transport: Not available.

Section 15: Other Regulatory Information

Federal and State Regulations:
Illinois toxic substances disclosure to employee act: Sodium hydroxide Illinois chemical safety act: Sodium hydroxide New York release reporting list: Sodium hydroxide Rhode Island RTK hazardous substances: Sodium hydroxide Pennsylvania RTK: Sodium hypochlorite; Sodium hydroxide Florida: Sodium hypochlorite Minnesota: Sodium hypochlorite; Sodium hydroxide Massachusetts RTK: Sodium hypochlorite; Sodium hydroxide New Jersey: Sodium hypochlorite; Sodium hydroxide Louisiana spill reporting: Sodium hydroxide TSCA 8(b) inventory: Sodium hypochlorite; Sodium hydroxide; Water CERCLA: Hazardous substances.: Sodium hypochlorite: 100 lbs. (45.36 kg); Sodium hydroxide: 1000 lbs. (453.6 kg);

Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).

Other Classifications:

WHMIS (Canada): CLASS E: Corrosive liquid.

DSCL (EEC):
R8- Contact with combustible material may cause fire. R31- Contact with acids liberates toxic gas. R36/38- Irritating to eyes and skin. S28- After contact with skin, wash immediately with plenty of water. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

Reactivity: 0

Personal Protection:

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Specific hazard:

Protective Equipment:
Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

Section 16: Other Information

References: Not available.

Other Special Considerations: Not available.

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Material Safety Data Sheet

MSDS ID: SK-123E

* * * Section 1 - Chemical Product and Company Identification * * *

Product Name: STOKO GEL Instant Hand Sanitizer

Product Use: Skin Cleansing

Company Information

Evonik Stockhausen, LLC **2401 Doyle Street** **Greensboro , NC 27406**	Non-Emergency # 800-242-2271 **Emergency # (800) 424-9300 CHEMTREC (North America)** **Emergency # (703) 527-3887 CHEMTREC (International, call collect)**

General Comments

Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving the product. All Non-emergency questions should be directed to the Toll Free, Non-Emergency number above.

* * * Section 2 - Hazards Identification * * *

Emergency Overview

Components ethanol and isopropanol are severe eye irritants, resulting in corneal injury if not removed immediately. Prolonged inhalation may cause headache, eye, nose, and throat irritation, with possible central nervous system effects: depressant. Ingestion may cause birth defects (teratogen).

Potential Health Effects: Eyes

This product is irritating to the eyes and respiratory system.

Potential Health Effects: Skin

None.

Potential Health Effects: Ingestion

Seek medical attention.

Potential Health Effects: Inhalation

This product is irritating to the eyes and respiratory system.

HMIS Ratings: **Health:** 2 **Fire:** 3 **Reactivity:** 0 **Pers. Prot.:** None required.
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
64-17-5	Ethyl alcohol	60-64
67-63-0	Isopropyl alcohol	1-5

Component Information/Information on Non-Hazardous Components

This hand sanitizer is regulated by the US Food and Drug Administration. However, it is not exempt from EPA TSCA IUR reporting criteria. Employers must inform workers of the hazards of this product and provide worker training on safe handling procedures.

See container label regarding proper handling and use of this product.
Ingredients are listed in descending order of concentration on the container label.
For OSHA workplace hazards, investigate and read and understand component MSDS's before manufacturing.
Workplace Hazardous Materials Information System (WHIMS-Canada): Exempt-cosmetic hand cleaner

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

In case of contact, immediately flush eyes with large amounts of water, continuing to flush for 15 minutes. If irritation persists get medical attention.

First Aid: Skin

None.

First Aid: Ingestion

If material is swallowed, get medical attention or advice.

First Aid: Inhalation

If inhaled, immediately remove the affected person to fresh air.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

Component ethyl alcohol is highly flammable and a dangerous fire hazard when exposed to heat and/or flames. This product is a moderate fire hazard and explosion hazard when exposed to heat and/or flame.

Upper Flammable Limit (UFL): 19%
Lower Flammable Limit (LFL): 3.3%
Method Used: PMCC
Flash Point: 68°F
Flammability Classification: Flammable
Auto Ignition: Not determined

Hazardous Combustion Products

On thermal decomposition: oxides of carbon.

Extinguishing Media

Dry chemical, foam, carbon dioxide, water fog.

Fire Fighting Equipment/Instructions

Fire fighters should wear full-face, self contained breathing apparatus and impervious protective clothing. Fire fighters should avoid inhaling any combustion products.

NFPA Ratings: Health: 2 **Fire:** 3 **Reactivity:** 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

* * * Section 6 - Accidental Release Measures * * *

Containment Procedures

Contain and remove all sources of ignition. Wear appropriate protective gear. Collect using suitable absorbent if needed.

Clean-Up Procedures

Absorb spill with inert material. Shovel material into appropriate container for disposal. Flush small residuals to the drain for normal biological wastewater treatment.

Evacuation Procedures

Treat as moderate fire and explosion hazard.

Special Procedures

Caution: Flammable material. Store in an appropriate hazardous materials storage facility.

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Avoid eye contact and prolonged inhalation of vapors. Avoid prolonged contact with sensitive skin. Do not ingest.

Storage Procedures

Store in tightly closed container away from heat and oxidizing agents. Prevent freezing. Keep out of reach of children.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Exposure Guidelines

A: General Product Information

FDA regulated.

For OSHA workplace hazards, investigate and read and understand component MSDS's before manufacturing.

Workplace Hazardous Materials Information System (WHIMS-Canada): Exempt-cosmetic hand cleaner

B: Component Exposure Limits

Ethyl alcohol (64-17-5)

OSHA:	1000 ppm TWA; 1900 mg/m3 TWA
ACGIH:	1000 ppm TWA

Isopropyl alcohol (67-63-0)

OSHA:	400 ppm TWA; 980 mg/m3 TWA
ACGIH:	200 ppm TWA

Engineering Controls

None required for intended use.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Avoid eye contact.

Personal Protective Equipment: Skin

Avoid prolonged contact with sensitive skin.

Personal Protective Equipment: Respiratory

Avoid prolonged inhalation of vapors.

Personal Protective Equipment: General

Obey reasonable safety precautions and practice good housekeeping.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Clear, colorless gel	**Odor:**	Perfume fragrance
Physical State:	Gel	**pH:**	6.8 – 8.1
Vapor Pressure:	Ethanol comp. 40 mm Hg	**Vapor Density:**	1.6 (Air = 1)
Boiling Point:	as ethanol: 78^{o}C	**Melting Point:**	Not Established
Solubility (H2O):	Not Established	**Specific Gravity:**	0.9 g/cc^{3}
		Flash Point:	68^{o}F (PMCC)

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

Stable under usual application conditions.

Chemical Stability: Conditions to Avoid

None.

Incompatibility

Oxidizers, including chlorine bleach and hydrogen peroxide. Acids, platinum and silver.

Hazardous Decomposition

On thermal decomposition oxides of carbon.

Hazardous Polymerization

Hazardous polymerization will not occur.

* * * Section 11 - Toxicological Information * * *

Acute and Chronic Toxicity

A: General Product Information

Ethyl alcohol is irritating to the eyes, nose and respiratory system at very high vapor concentrations. Repeated ingestion of ethyl alcohol may result in liver damage.

B: Acute Toxicity-LD50/LC50

Ethyl alcohol (64-17-5)

LD50:	Inhalation LC50 Rat: 124.7 mg/L/4H; Oral LD50 Rat: 1501 mg/kg

Isopropyl alcohol (67-63-0)

LD50:	Inhalation LC50 Rat: 72.6 mg/L/4H; Oral LD50 Rat: 4396 mg/kg; Dermal LD50 Rat: 12800 mg/kg; Dermal LD50 Rabbit: 12800 mg/kg

Carcinogenicity

A: General Product Information

Ingestion may cause birth defects (teratogen).

B: Component Carcinogenicity

Ethyl alcohol (64-17-5)

ACGIH:	A4 - Not Classifiable as a Human Carcinogen

Isopropyl alcohol (67-63-0)

ACGIH:	A4 - Not Classifiable as a Human Carcinogen
IARC:	Monograph 71, 1999; Supplement 7, 1987; Monograph 15, 1977

Other Toxicological Information

None.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

No information available.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Ethyl alcohol (64-17-5)

96 Hr LC50 Oncorhynchus mykiss: 12900 mg/L [flow-through] (30 days old); 96 Hr LC50 Pimephales promelas: 14.2 mg/L

Isopropyl alcohol (67-63-0)
96 Hr LC50 Pimephales promelas: 9640 mg/L [flow-through]; 96 Hr LC50 Pimephales promelas: 94900 mg/L [flow-through] (29 days old); 96 Hr LC50 Pimephales promelas: 61200 mg/L [flow-through] (31 days old)

Environmental Fate
No information available.

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Number & Descriptions
A: General Product Information
This material is a hazardous waste by the EPA definition of flammability.
B: Component Waste Numbers
No EPA Waste Numbers are applicable for this product's components.
Disposal Instructions
Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

* * * Section 14 - Transportation Information * * *

Shipping Name: Consumer Commodity- Other Regulated Materials (ORM-D)
Additional Info: Based on flash point and viscosity testing, this product is classified as a Packing Group III. For flammable liquids in Packing Group III, inner packaging not over 5.0 L (1.3 gallons) net capacity each, packed in strong outer packaging are required. (49CFR173.150)

International Transportation Regulations
Shipping Name: Consumer Commodity, ORM-D via ground transportation in the USA.

Product is in compliance with the Department of Transportation 49 CFR 173.121, Packing Group III Criteria.

Additional Info: This product is transport regulated as "Consumer Commodity, ORM-D" with a package size limitation maximum of 30 liters (7.9 gallons).

Via air, this product is limited as a “Consumer Commodity”, ORM-D to 0.5 liters. Otherwise the product must be classified as a hazardous material **ALCOHOLS, N.O.S. (isopropyl alcohol, ethyl alcohol), 3, UN1987, II**

IMDG Classification, **ALCOHOLS, N.O.S. (isopropyl alcohol, ethyl alcohol), 3, UN1987, III.** Based on flash point and viscosity testing.

* * * Section 15 - Regulatory Information * * *

US Federal Regulations
A: General Product Information
Not subject to TSCA regulation. Regulated as a personal use cosmetic by FDA.
B: Clean Air Act
No information is available.
C: Component Analysis
Isopropyl alcohol (67-63-0)

Section 313:	1.0 % de minimis concentration (only if manufactured by the strong acid process, no supplier notification)

State Regulations

A: General Product Information

None identified.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS #	CA	FL	MA	MN	NJ	PA
Ethyl alcohol	64-17-5	Yes	No	Yes	Yes	Yes	Yes
Isopropyl alcohol	67-63-0	Yes	No	Yes	Yes	Yes	Yes

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):
WARNING! This product contains a chemical known to the state of California to cause reproductive/developmental effects.

Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Ethyl alcohol	64-17-5	0.1 %
Isopropyl alcohol	67-63-0	1 %

Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Ethyl alcohol	64-17-5	Yes	DSL	EINECS
Isopropyl alcohol	67-63-0	Yes	DSL	EINECS

* * * Section 16 - Other Information * * *

Other Information

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.

MSDS History

This is a revised MSDS. Section's 2 & 3 have been revised to reflect proposed 2004 ANSI Standards format recommendations for 2007 implementation.
1/14/09 Reviewed with no changes.
5/28/09 Updated flash point and Ethyl Alcohol content.
8/10/2012 Updated IMDG Classification

Contact: Product Compliance Officer

Contact Phone: (800) 242-2271

This is the end of MSDS #: SK-123E

Material Safety Data Sheet

TRAXON ™ E SYNTHETIC 75W-90

1 . Product and company identification

Product name : TRAXON ™ E SYNTHETIC 75W-90

Code : TRE759, 470-504

Material uses : This product is a synthetic, heavy duty, extreme pressure, GL-5 gear lubricant. It is recommended for manual transmissions where EP-type oils are required, and differentials and transfer cases for heavy equipment, trucks, and tractors.

Supplier : Petro-Canada Lubricants Inc.
2310 Lakeshore Road West
Mississauga, Ontario
Canada L5J 1K2

In case of emergency : Suncor Energy: 403-296-3000
Canutec Transportation: 613-996-6666
Poison Control Centre: Consult local telephone directory for emergency number(s).

2 . Hazards identification

Physical state : Viscous liquid.

Odor : Mild petroleum oil like.

WHMIS (Canada) : Not controlled under WHMIS (Canada).

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency overview : No specific hazard.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Skin : Slightly irritating to the skin.

Eyes : Slightly irritating to the eyes.

Potential chronic health effects

Chronic effects : No known significant effects or critical hazards.

Carcinogenicity : Not listed as carcinogenic by OSHA, NTP or IARC.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure : Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated skin exposure can produce local skin destruction or dermatitis.

See toxicological information (Section 11)

3 . Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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4 . First aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognized skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

5 . Fire-fighting measures

Flammability of the product : May be combustible at high temperature.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Products of combustion : Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), phosphorus oxides (POx), smoke and irritating vapours as products of incomplete combustion.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Low fire hazard. This material must be heated before ignition will occur.

Special remarks on explosion hazards : Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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6 . Accidental release measures

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: organic vapor filter

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Recommended: neoprene, nitrile, polyvinyl alcohol (PVA), Viton®.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

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8 . Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Viscous liquid.
Flash point : Open cup: 204°C (399.2°F) [Cleveland.]
Auto-ignition temperature : Not available.
Flammable limits : Not available.
Color : Dark amber
Odor : Mild petroleum oil like.
Odor threshold : Not available.
pH : Not available.
Boiling/condensation point : Not available.
Melting/freezing point : Not available.
Relative density : 0.8905 kg/L @ 15°C (59°F)
Vapor pressure : Not available.
Vapor density : Not available.
Volatility : Not available.
Evaporation rate : Not available.
Viscosity : 122 cSt @ 40°C (104°F), 16.6 cSt @ 100°C (212°F), VI=147
Pour point : <-45°C (-49°F)
Solubility : Insoluble in water.

10 . Stability and reactivity

Chemical stability : The product is stable.
Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.
Materials to avoid : Reactive with oxidizing agents, acids and alkalis.
Hazardous decomposition products : May release COx, NOx, SOx, POx, smoke and irritating vapours when heated to decomposition.

11 . Toxicological information

Acute toxicity
Conclusion/Summary : Not available.
Chronic toxicity
Conclusion/Summary : Not available.
Irritation/Corrosion
Conclusion/Summary : Not available.
Sensitizer
Conclusion/Summary : Not available.
Carcinogenicity
Conclusion/Summary : Not available.
Mutagenicity
Conclusion/Summary : Not available.
Teratogenicity
Conclusion/Summary : Not available.

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11 . Toxicological information

Reproductive toxicity

Conclusion/Summary : Not available.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	Not regulated.	-	-	-		-
DOT Classification	Not regulated.	-	-	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Not regulated.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

Canada inventory : At least one component is not listed in DSL but all such components are listed in NDSL.

United States inventory (TSCA 8b) : All components are listed or exempted.

Europe inventory : All components are listed or exempted.

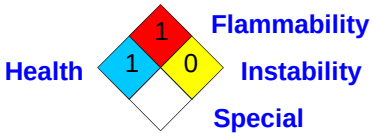
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16 . Other information

Hazardous Material Information System (U.S.A.) :

Health	1
Flammability	1
Physical hazards	0
Personal protection	B

National Fire Protection Association (U.S.A.) :



References : Available upon request.
™ Trademark of Suncor Energy Inc. Used under licence.

Date of printing : **8/23/2012.**

Date of issue : 19 July 2011

Date of previous issue : 3/12/2009.

Responsible name : **Product Safety - RS**

Indicates information that has changed from previously issued version.

For Copy of (M)SDS : Internet: lubricants.petro-canada.ca/msds

Telephone: 1-800-268-5850; Fax: 1-800-201-6285

For Product Safety Information: (905) 804-4752

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Material Safety Data Sheet

TRAXON ™ E SYNTHETIC CD-50

1 . Product and company identification

Product name : TRAXON ™ E SYNTHETIC CD-50

Code : TRE5

Material uses : A manual transmission fluid meeting API MT-1 for heavy duty applications. May be used where SAE 50 engine oil is recommended.

Supplier : Petro-Canada Lubricants Inc.
2310 Lakeshore Road West
Mississauga, Ontario
Canada L5J 1K2

In case of emergency : Suncor Energy: 403-296-3000
Canutec Transportation: 613-996-6666
Poison Control Centre: Consult local telephone directory for emergency number(s).

2 . Hazards identification

Physical state : Viscous liquid.

Odour : Mild petroleum oil like.

WHMIS (Canada) : Not controlled under WHMIS (Canada).

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this MSDS contains valuable information critical to the safe handling and proper use of the product. This MSDS should be retained and available for employees and other users of this product.

Emergency overview : No specific hazard.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Inhalation : Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Ingestion : No known significant effects or critical hazards.

Skin : Slightly irritating to the skin.

Eyes : Slightly irritating to the eyes.

Potential chronic health effects

Chronic effects : No known significant effects or critical hazards.

Carcinogenicity : Not listed as carcinogenic by OSHA, NTP or IARC.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Medical conditions aggravated by over-exposure : Repeated or prolonged contact with spray or mist may produce chronic eye irritation and severe skin irritation. Repeated skin exposure can produce local skin destruction or dermatitis.

See toxicological information (Section 11)

3 . Composition/information on ingredients

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

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4 . First-aid measures

Eye contact : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.

Skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash skin thoroughly with soap and water or use recognised skin cleanser. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

Inhalation : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Ingestion : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Notes to physician : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

5 . Fire-fighting measures

Flammability of the product : May be combustible at high temperature.

Extinguishing media

Suitable : Use an extinguishing agent suitable for the surrounding fire.

Not suitable : None known.

Special exposure hazards : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Products of combustion : Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), phosphorus oxides (POx), smoke and irritating vapours as products of incomplete combustion.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Special remarks on fire hazards : Low fire hazard. This material must be heated before ignition will occur.

Special remarks on explosion hazards : Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

6 . Accidental release measures

Personal precautions : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).

Environmental precautions : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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6 . Accidental release measures

Large spill : Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

7 . Handling and storage

Handling : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

8 . Exposure controls/personal protection

Consult local authorities for acceptable exposure limits.

Recommended monitoring procedures : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

Engineering measures : No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protection

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. Recommended: organic vapour filter

Hands : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
Recommended: neoprene, nitrile, polyvinyl alcohol (PVA), Viton®.

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

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8 . Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

9 . Physical and chemical properties

Physical state : Viscous liquid.
Flash point : Open cup: 221°C (429.8°F) [Cleveland.]
Auto-ignition temperature : Not available.
Flammable limits : Not available.
Colour : Amber.
Odour : Mild petroleum oil like.
Odour threshold : Not available.
pH : Not available.
Boiling/condensation point : Not available.
Melting/freezing point : Not available.
Relative density : 0.86 kg/L @ 15°C (59°F)
Vapour pressure : Not available.
Vapour density : Not available.
Volatility : Not available.
Evaporation rate : Not available.
Viscosity : 132.0 cSt @ 40°C (104°F), 17.5 cSt @ 100°C (212°F), VI=146
Pour point : <-45°C (-49°F)
Solubility : Insoluble in water.

10 . Stability and reactivity

Chemical stability : The product is stable.
Hazardous polymerisation : Under normal conditions of storage and use, hazardous polymerisation will not occur.
Materials to avoid : Reactive with oxidising agents, acids and alkalis.
Hazardous decomposition products : May release COx, NOx, SOx, POx, smoke and irritating vapours when heated to decomposition.

11 . Toxicological information

Acute toxicity
Conclusion/Summary : Not available.
Chronic toxicity
Conclusion/Summary : Not available.
Irritation/Corrosion
Conclusion/Summary : Not available.
Sensitiser
Conclusion/Summary : Not available.
Carcinogenicity
Conclusion/Summary : Not available.
Mutagenicity
Conclusion/Summary : Not available.
Teratogenicity
Conclusion/Summary : Not available.

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11 . Toxicological information

Reproductive toxicity

Conclusion/Summary : Not available.

12 . Ecological information

Environmental effects : No known significant effects or critical hazards.

Aquatic ecotoxicity

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Other adverse effects : No known significant effects or critical hazards.

13 . Disposal considerations

Waste disposal : The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

14 . Transport information

Regulatory information	UN number	Proper shipping name	Classes	PG*	Label	Additional information
TDG Classification	Not regulated.	-	-	-		-
DOT Classification	Not regulated.	-	-	-		-

PG* : Packing group

15 . Regulatory information

United States

HCS Classification : Not regulated.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

International regulations

Canada inventory : A component or components of this product is/are not listed on the Canadian Domestic Substances List (DSL).

United States inventory (TSCA 8b) : All components are listed or exempted.

Europe inventory : All components are listed or exempted.

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15 . Regulatory information

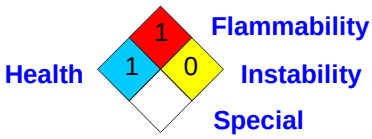
International lists : **China inventory (IECSC)**: All components are listed or exempted.

16 . Other information

Hazardous Material Information System (U.S.A.) :

Health	1
Flammability	1
Physical hazards	0
Personal protection	B

National Fire Protection Association (U.S.A.) :



References : Available upon request.
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Date of printing : **8/23/2012.**

Date of issue : 22 August 2012

Date of previous issue : 6/2/2009.

Responsible name : **Product Safety - JDW**

Indicates information that has changed from previously issued version.

For Copy of (M)SDS : The Canadian Controlled Products Regulations (CPR) (Under the Hazardous Products Act, part of the WHMIS legislation) only apply to WHMIS Controlled (i.e., hazardous) products. Therefore, the CPR and the 3-year update rule specified therein do not apply to WHMIS Non-Controlled products. Although this is true, customarily Petro-Canada reviews and updates Non-Controlled product MSDS if a customer requests such an update. These Non-Controlled product updates are given a lower priority than Controlled products but are handled as soon as practicable. If you would like to verify if the MSDS you have is the most current, or you require any further information, please contact:

Internet: lubricants.petro-canada.ca/msds

Lubricants:
Western Canada, telephone: 1-800-661-1199; fax: 1-800-378-4518
Ontario & Central Canada, telephone: 1-800-268-5850; fax: 1-800-201-6285
Quebec & Eastern Canada, telephone: 1-800-576-1686; fax: 1-800-201-6285

For Product Safety Information: (905) 804-4752

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

MATERIAL SAFETY DATA SHEET

HMIS RATINGS: HEALTH:1, FLAMMABITY:0, REACTIVITY:0

Identity: Uvex Clear Lens Cleaner - # S461, S463, S464, S467

Section I

Manufacturer: Uvex Safety, Inc.	**Emergency Telephone:** 401-232-1200
Address: 900 Douglas Pike Smithfield, RI 02917	**Information Telephone:** 800-343-3411
	Date Prepared: 05/22/09

Section II - Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL 1	ACGIH TLV 1	Other limits recommended	% (optional)
Ethylene Glycol Mono Butyl Ether #111-76-2	25 PPM TWA (SKIN)	25 PPM TWA (SKIN)	N/A	<6%

Section III - Physical/Chemical Characteristics

Boiling Point: 212° F (100° C)	**Specific Gravity (H2O=1):** 0.98 at 77° F (25° C)
Vapor Pressure (mm Hg.): 22 mm Hg at 70° F (20° C)	**Melting Point:** N/A
Vapor Density (Air = 1) : NOT DETERMINED	**Evaporation Rate (Butyl Acetate = 1):** < 1

Solubility in Water: 100%

Appearance and Odor: CLEAR TINTED LIQUID WITH A SLIGHT ODOR.

Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used): >212°F	**Flammable Limits:** NOT FLAMMABLE UNDER NORMAL CONDITIONS OF STORAGE & USE.	**LEL:** N/A	**UEL:** N/A

Extinguishing Media: 1. WATER FOG OR SPRAY, 2. CARBON DIOXIDE (CO_2), 3. DRY CHEMICAL, 4. CLASS B EXTINGUISHERS

Special Fire Fighting Procedures: KEEP FIRE EXPOSED CONTAINERS COOL. WEAR SELF-CONTAINED BREATHING APPARATUS (SCBA) AND FULL PROTECTIVE EQUIPMENT.

Unusual Fire and Explosion Hazards: N/A

Section V - Reactivity Data

Stability	**Unstable:** NO **Stable:** YES	**Conditions to Avoid:** DO NOT FREEZE, STORE IN COOL AREA. AVOID IGNITION SOURCES.

Incompatibility (Materials to Avoid): STRONG ACIDS, ALKALIES, AND OXIDIZERS.

Hazardous Decomposition or Byproducts: NONE

Hazardous Polymerization	**May Occur:** NO **Will Not Occur:** YES	**Conditions to Avoid:** NONE

Section VI - Health Hazard Data

Route(s) of Entry: **Inhalation?** YES **Skin?** NO **Ingestion?** YES

Health Hazards (Acute and Chronic): EYE CONTACT: IN SOME CASES EYE IRRITATION MAY OCCUR. IMMEDIATELY FLUSH WITH A WATER OR EYEWASH SOLUTION AND CONSULT A PHYSICIAN. IN SOME CASES SKIN CONTACT MAY CAUSE IRRITATION, IMMEDIATELY FLUSH WITH SOAP AND WATER, REMOVE CONTAMINATED CLOTHING AND CONSULT A PHYSICIAN. **INGESTION:** GASTRIC IRRITATION AND VOMITING. DO NOT INDUCE VOMITING, GIVE PLENTY OF WATER AND CONSULT A PHYSICIAN. PREVENT ASPIRATION OF VOMITED MATERIAL INDUCED BY INGESTION OF PRODUCT.

Carcinogenicity: **NTP?** NO **IARC Monographs?** NO **OSHA Regulated?** NO

Signs and Symptoms of Exposure: EYE, SKIN OR GASTRIC IRRITATION, NAUSEA, DIZZINESS, HEADACHE.

Medical Conditions Generally Aggravated by Exposure: NONE KNOWN

Emergency First Aid Procedures: SEEK MEDICAL ATTENTION IF LARGE QUANTITIES ARE SWALLOWED. WASH EXPOSED SKIN THOROUGHLY WITH SOAP & WATER. FLUSH EXPOSED EYES WITH WATER OR EYEWASH SOLUTION FOR AT LEAST 15 MINUTES. SEEK MEDICAL ATTENTION IN ALL CASES.

Section VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled: IN CASE OF LARGE SPILLS WEAR PROTECTIVE CLOTHING, NEOPRENE GLOVES AND CHEMICAL SPLASH GOGGLES.

Waste Disposal Method: ABSORB WITH SAND OR INERT MATERIAL. THEN REMOVE AND A DISPOSE OF ABSORBED MATERIAL IN AN APPROPRIATE MANNER.

Precautions to Be Taken in Handling and Storing: AVOID SKIN & EYE CONTACT. AVOID INHALATION AND INGESTION. WEAR PROTECTIVE CLOTHING, GLOVES AND SAFETY GLASSES WHEN A LARGE SPILL OR SPLASH HAZARD EXISTS. HANDLE AND STORE IN A WELL-VENTILATED AND COOL AREA.

Other Precautions: DO NOT FREEZE. STORE IN A COOL, WELL-VENTILATED AREA.

Section VIII - Control Measures

Ventilation	**Local Exhaust:** GENERAL AIR CIRCULATION SUFFICIENT FOR NORMAL PRODUCT USE.	**Special:** N/A
	Mechanical: ADEQUATE VENTILATION	**Other:** N/A

Protective Gloves: NONE REQUIRED FOR NORMAL PRODUCT USE.	**Eye Protection:** NONE REQUIRED FOR NORMAL PRODUCT USE.

Other Protective Clothing: NONE REQUIRED FOR NORMAL PRODUCT USE.

Work Hygienic Practices: ALWAYS FOLLOW SAFE WORK PRACTICES.

MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	**Worthington Petroleum Based Soldering Flux**
Version #	01
Issue date	18-June-2013
Revision date	-
Supersedes date	-
CAS #	Mixture
Product code	WC016
Product use	Soldering flux.
Manufacturer information	
Manufacturer/Supplier	Worthington Cylinder Corporation
Address	1690 Lowery Street Winston-Salem, NC 27101 United States
Contact Person:	Melissa Grimes Melissa.Grimes@worthingtonindustries.com
Telephone Number:	336-831-8601
CHEMTREC - 24 HOURS:	(800) 424-9300

2. Hazards Identification

Physical state	Semi-solid.
Appearance	Reddish brown paste.
Emergency overview	DANGER Causes skin and eye burns. Harmful if swallowed. Irritating to respiratory system.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Fume inhalation. Ingestion. Skin contact. Eye contact.
Eyes	Causes eye burns.
Skin	Causes skin burns.
Inhalation	Irritating to respiratory system. Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the respiratory tract.
Ingestion	Harmful if swallowed. Ingestion may produce burns to the lips, oral cavity, upper airway, esophagus and possibly the digestive tract.
Target organs	Eyes. Skin. Respiratory system.
Signs and symptoms	Symptoms of overexposure include: salivation, coughing, choking, chills, may cause weight loss, brittle bones, anemia and stiff joints.
Potential environmental effects	This material has not been tested for environmental effects.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Petrolatum	8009-03-8	55 - 85
Zinc chloride	7646-85-7	15 - 40
Ammonium chloride	12125-02-9	0 - 5

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

First aid procedures

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

Skin contact Remove and isolate contaminated clothing and shoes. Immediately flush with plenty of water for at least 15 minutes. Get medical attention immediately. Wash clothing separately before reuse.

Inhalation Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.

Ingestion If swallowed, rinse mouth with water (only if the person is conscious). Never give anything by mouth to a victim who is unconscious or is having convulsions. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention immediately.

Notes to physician Treat symptomatically. Exposure may aggravate pre-existing respiratory, lung or kidney disorders.

General advice Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties None known.

Extinguishing media

Suitable extinguishing media Dry chemical, foam, carbon dioxide.

Unsuitable extinguishing media None.

Protection of firefighters

Specific hazards arising from the chemical Fire may produce irritating, corrosive and/or toxic gases.

Protective equipment and precautions for firefighters Firefighters should wear full protective clothing including self contained breathing apparatus.

Fire fighting equipment/instructions Move containers from fire area if you can do it without risk.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental Release Measures

Personal precautions Use personal protection as recommended in Section 8 of the MSDS. Avoid inhalation of dust and contact with skin and eyes.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not contaminate water.

Methods for cleaning up Neutralize with soda ash or sodium bicarbonate. Dilute with plenty of water. Dispose of in accordance with EPA regulations.

7. Handling and Storage

Handling Wear appropriate personal protective equipment (See Section 8). Use only with adequate ventilation. Do not breathe fumes and dusts. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling.

Storage Store in plastic containers in cool area away from heat. Store away from incompatible materials.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Ammonium chloride (CAS 12125-02-9)	STEL	20 mg/m3	Fume.
	TWA	10 mg/m3	Fume.
Zinc chloride (CAS 7646-85-7)	STEL	2 mg/m3	Fume.
	TWA	1 mg/m3	Fume.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Zinc chloride (CAS 7646-85-7)	PEL	1 mg/m3	Fume.

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value	Form
Ammonium chloride (CAS 12125-02-9)	STEL	20 mg/m3	Fume.
	TWA	10 mg/m3	Fume.
Zinc chloride (CAS 7646-85-7)	STEL	2 mg/m3	Fume.
	TWA	1 mg/m3	Fume.

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value	Form
Ammonium chloride (CAS 12125-02-9)	STEL	20 mg/m3	Fume.
	TWA	10 mg/m3	Fume.
Zinc chloride (CAS 7646-85-7)	STEL	2 mg/m3	Fume.
	TWA	1 mg/m3	Fume.

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value	Form
Ammonium chloride (CAS 12125-02-9)	STEL	20 mg/m3	Fume.
	TWA	10 mg/m3	Fume.
Zinc chloride (CAS 7646-85-7)	STEL	2 mg/m3	Fume.
	TWA	1 mg/m3	Fume.

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value	Form
Ammonium chloride (CAS 12125-02-9)	STEL	20 mg/m3	Fume.
	TWA	10 mg/m3	Fume.
Zinc chloride (CAS 7646-85-7)	TWA	1 mg/m3	Fume.

Mexico. Occupational Exposure Limit Values

Components	Type	Value	Form
Ammonium chloride (CAS 12125-02-9)	STEL	20 mg/m3	Fume.
	TWA	10 mg/m3	Fume.
Zinc chloride (CAS 7646-85-7)	STEL	2 mg/m3	Fume.
	TWA	1 mg/m3	Fume.

Exposure guidelines Use personal protective equipment as required. Keep working clothes separately.

Engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal protective equipment

Eye / face protection Wear approved safety glasses or goggles.

Skin protection Wear protective gloves.

Respiratory protection Use a respirator when local exhaust or ventilation is not adequate to keep exposures below the OEL. In a confined space a supplied respirator may be required. Selection and use of respiratory protective equipment should be in accordance with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4.

General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance	Reddish brown paste.
Physical state	Semi-solid.
Form	Paste.
Color	Reddish-brown
Odor	Slight petroleum odor.
Odor threshold	Not available.
pH	Not available.
Vapor pressure	Not Available
Vapor density	Not Applicable.
Boiling point	Not Available
Melting point/Freezing point	100 °F (37.78 °C)
Solubility (water)	Not soluble in water.
Specific gravity	0.9
Flash point	360.0 - 430.0 °F (182.2 - 221.1 °C)
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not Available.
Evaporation rate	Not Applicable.

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	None known.
Incompatible materials	Strong oxidizing agents. Chlorine. Turpentine. Potassium. Cyanides. Sulfides. Powdered zinc.
Hazardous decomposition products	Chlorine. Hydrogen chloride. Carbon monoxide.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Components	Species	Test Results
Ammonium chloride (CAS 12125-02-9)		
Acute		
Oral		
LD50	Rat	1650 mg/kg
Zinc chloride (CAS 7646-85-7)		
Acute		
Inhalation		
LC50	Rat	<= 1.975 mg/l, 10 Minutes
Oral		
LD50	Rat	350 mg/kg

Sensitization	Not available.
Acute effects	Causes burns. Harmful if swallowed. Irritating to respiratory system. Exposure to high levels of zinc chloride fume may cause pulmonary edema.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Symptoms and target organs Causes skin and eye burns.

12. Ecological Information

Ecotoxicological data

Components		Species	Test Results
Zinc chloride (CAS 7646-85-7)			
Aquatic			
Crustacea	EC50	American or virginia oyster (Crassostrea virginica)	0.1511 - 0.2782 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0.101 - 0.197 mg/l, 96 hours

Ecotoxicity This material has not been tested for environmental effects.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulation / Accumulation Not available.

13. Disposal Considerations

Waste codes D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]

Disposal instructions Dispose waste and residues in accordance with applicable federal, state, and local regulations.

Waste from residues / unused products Dispose in accordance with all applicable regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport Information

DOT

Not regulated as a hazardous material by DOT.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

TDG

Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

Ammonium chloride (CAS 12125-02-9)	1.0 %
Zinc chloride (CAS 7646-85-7)	1.0 % N982

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Ammonium chloride (CAS 12125-02-9)	Listed.
Zinc chloride (CAS 7646-85-7)	N982 Listed.

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)

Zinc chloride: 1000
Ammonium chloride: 5000

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance (40 CFR 355, Appendix A)	No
SARA 311/312 Hazardous chemical	No
Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)	Not controlled
Canadian regulations	This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.
WHMIS status	Controlled
WHMIS classification	D1B - Immediate/Serious-TOXIC E - Corrosive

WHMIS labeling



Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

State regulations

US - California Hazardous Substances (Director's): Listed substance

Ammonium chloride (CAS 12125-02-9)	Listed.
Zinc chloride (CAS 7646-85-7)	Listed.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Not listed.

US - New Jersey RTK - Substances: Listed substance

Ammonium chloride (CAS 12125-02-9)	Listed.
Zinc chloride (CAS 7646-85-7)	Listed.

US. Massachusetts RTK - Substance List

Ammonium chloride (CAS 12125-02-9)	Listed.
Zinc chloride (CAS 7646-85-7)	Listed.

US. New Jersey Worker and Community Right-to-Know Act

Zinc chloride (CAS 7646-85-7)	500 lbs

US. Pennsylvania RTK - Hazardous Substances

Ammonium chloride (CAS 12125-02-9)	Listed.
Zinc chloride (CAS 7646-85-7)	Listed.

Mexico regulations	This safety data sheet was prepared in accordance with the Official Mexican Standard (NOM-018-STPS-2000).

16. Other Information

Further information	HMIS® is a registered trade and service mark of the NPCA.
HMIS® ratings	Health: 3* Flammability: 1 Physical hazard: 0
NFPA ratings	Health: 3 Flammability: 1 Instability: 0
Disclaimer	All information in this Material Safety Data Sheet is believed to be accurate and reliable. However, no guarantee or warranty of any kind is made with regard to the accuracy of information or the suitability of the recommendations contained herein. It is the user's responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.

WD-40 Products (Canada) Ltd.

WD-40



MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER/SUPPLIER: **WD-40 Products [Canada] Ltd.** **P.O. Box 220** **Toronto, Ontario M9C 4V3** **Information Phone #: (416) 622-9881** **Emergency Phone # 24 hr:** **Canutec: (613) 996-6666** Designated for use only in the event of chemical emergencies involving a spill, leak, fire exposure or accident involving chemicals	**US Office:** **WD-40 Company** **1061 Cudahy Place** **San Diego, CA 92110** **Information Phone #: (619) 275-1400** **Emergency Phone # 24 hr:** **Chemtrec: (800) 424-9300** Designated for use only in the event of chemical emergencies involving a spill, leak, fire exposure or accident involving chemicals.

PRODUCT NAME: WD-40 Specialist Penetrant
PRODUCT USE: Cleaner, lubricant.
MSDS DATE OF PREPARATION: February 3, 2012

SECTION 2 HAZARDS IDENTIFICATION

DANGER! Very Flammable aerosol. Contents under pressure. Harmful or fatal is swallowed. If swallowed, may be aspirated and cause lung damage. May cause eye, skin and respiratory tract irritation. May cause allergic skin reaction (sensitization). Avoid eye contact. Use only with adequate ventilation. Keep away from heat, sparks, flames and all other sources of ignition.

POTENTIAL HEALTH EFFECTS:
PRIMARY ROUTES OF ENTRY: Inhalation, skin and eye contact.
ACUTE EFFECTS:
INGESTION: This product has low oral toxicity. If swallowed, this material may cause irritation of the mouth, throat and esophagus. Swallowing may cause gastrointestinal irritation, nausea, vomiting, diarrhea, dizziness, drowsiness and other central nervous system effects. This product is an aspiration hazard. If swallowed, can enter the lungs and may cause chemical pneumonitis, severe lung damage and death.
EYES: Contact may be irritating to eyes. May cause redness, stinging, swelling and tearing.
SKIN: May cause skin irritation with short-term exposure with redness, itching and burning of the skin. Prolonged and/or repeated contact may produce defatting and possible dermatitis. Repeated contact may result in an allergic skin reaction.
INHALATION: Mist or vapor can irritate the throat and lungs. High concentrations may cause nasal and respiratory irritation and central nervous system effects such as headache, dizziness and nausea. Intentional abuse may be harmful or fatal.
CHRONIC EFFECTS: Prolonged or repeated skin contact may defat the skin resulting in irritation and dermatitis.

SECTION 3 COMPOSITION INFORMATION ON INGREDIENTS

Ingredient	CAS Number	Percent

LVP Petroleum Solvent	64742-47-8	30-35%
Petroleum Solvent	64742-47-8	20-40%
Calcium Sulfonate	Proprietary	<5%
Petroleum Base Oil	64742-53-6 64742-56-9 64742-65-0	<10%
Carbon Dioxide	124-38-9	2-3%

SECTION 4 FIRST AID MEASURES

For Medical Emergencies Call 1-888-324-7596 (24 hours/day)
INGESTION: Aspiration Hazard. DO NOT induce vomiting. Call physician, poison control center or the WD-40 Safety Hotline at 1-888-324-7596 immediately.
EYE CONTACT: Flush thoroughly with water for 15 minutes. Remove contact lenses if present after the first 5 minutes and continue flushing. Get medical attention if irritation persists.
SKIN CONTACT: Wash with soap and water. If irritation develops and persists, get medical attention.
INHALATION: If irritation is experienced, move to fresh air. Get medical attention if irritation or other symptoms develop and persist.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, dry chemical, carbon dioxide or foam. Cool fire exposed containers with water.
SPECIAL FIRE FIGHTING PROCEDURES: Firefighters should always wear positive pressure self-contained breathing apparatus and full protective clothing. Cool fire-exposed containers with water. Use shielding to protect against bursting cans.
UNUSUAL FIRE/EXPLOSION HAZARDS: Contents under pressure. Keep away from ignition sources and open flames. Exposure of containers to extreme heat and flames can cause them to rupture often with violent force. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back. A vapor and air mixture can create an explosion hazard in confined spaces.

SECTION 6 ACCIDENTAL RELEASE MEASURES

SPILL RESPONSE: Wear appropriate protective clothing (see Section 8). Eliminate all sources of ignition and ventilate area. Contain and collect liquid with an inert absorbent and place in a container for disposal. Clean spill area thoroughly. Report spills to authorities as required.

SECTION 7 HANDLING AND STORAGE

HANDLING: Avoid contact with eyes. Avoid prolonged contact with skin. Avoid breathing vapors or aerosols. Use only with adequate ventilation. Keep away from heat, sparks, pilot lights, hot surfaces and open flames. Unplug electrical tools, motors and appliances before spraying or bringing the can near any source of electricity. Electricity can burn a hole in the can and cause contents to burst into flames. To avoid serious burn injury, do not let the can touch battery terminals, electrical connections on motors or appliances or any other source of electricity. Wash thoroughly with soap and water after handling. Keep containers closed when not in use. Keep out of the reach of children. Do not puncture, crush or incinerate containers, even when empty.

STORAGE: Store in a cool, well-ventilated area, away from incompatible materials. Do not store in direct sunlight or above 120°F. U.F.C (NFPA 30B) Level 3 Aerosol.

SECTION 8 EXPOSURE CONTROLE/PERSONAL PROTECTION

OCCUPATIONAL EXPOSURE LIMITS:

Petroleum Solvent	1200 mg/m3 TWA Supplier Recommended (total hydrocarbon)

Calcium Sulfonate	None Established
Petroleum Base oil	5 mg/m3 TWA (inhalable) ACGIH TLV
Carbon Dioxide	5,000 ppm TWA ACGIH TLV 30,000 ppm STEL ACGIH TLV

The Following Controls are Recommended for Normal Consumer Use of this Product

Engineering Controls: Use in a well-ventilated area.
Personal Protection:
Eye Protection: Avoid eye contact. Always spray away from face.
Skin Protection: Avoid prolonged skin contact. Chemical resistant gloves recommended for operations where skin contact is likely.
Respiratory Protection: None needed for normal use with adequate ventilation.

For Bulk Processing or Workplace Use the Following Controls are Recommended

Engineering Controls: Use adequate general and local exhaust ventilation to maintain exposure levels below that occupational exposure limits.
Personal Protection:
Eye Protection: Safety goggles recommended where eye contact is possible.
Skin Protection: Wear chemical resistant gloves.
Respiratory Protection: None required if ventilation is adequate. If the occupational exposure limits are exceeded, wear a NIOSH approved respirator. Respirator selection and use should be based on contaminant type, form and concentration. Follow applicable regulations and good Industrial Hygiene practice.
Work/Hygiene Practices: Wash with soap and water after handling.

SECTION 9 PHYSICAL DATA

APPEARANCE AND ODOR: Clear liquid with a pleasant odor.

Boiling Point:	221°C (430°F)	Specific Gravity:	Not determined
Solubility in Water:	Insoluble	pH:	Not Applicable
Vapor Pressure:	2.03 mmHg @20°C (Petroleum Solvent)	Vapor Density:	5.3 (Petroleum Solvent)
Percent Volatile:	>80%	VOC:	24.51%
Coefficient of Water/Oil Distribution:	Not Determined	Kinematic Viscosity:	Not determined
Flash Point:	64°C (147°F) (CC ASTM D3828)	Flammable Limits:	LEL: 0.6% UEL: 5.6%
Pour Point:	Not determined		

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Stable
INCOMPATIBILITY: Strong oxidizers, acids and bases. Avoid heat, sparks, flames and other sources of ignition.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide and carbon dioxide, oxides of nitrogen and sulfur, smoke fumes, and unburned hydrocarbons.

SECTION 11 TOXICOLOGICAL INFORMATION

The oral toxicity of this product is estimated to be greater than 5,000 mg/kg based on an assessment of the ingredients. This product is not classified as toxic by established criteria. It is an aspiration hazard. This product contains a small amount <2% of a material that may cause allergic skin sensitization. The threshold for sensitization of this material in mixtures is 10% based on test data.

None of the components of this product is listed as a carcinogen or suspected carcinogen or is considered a reproductive hazard.

SECTION 12 ECOLOGICAL INFORMATION

No data is currently available.

SECTION 13 DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD : If this product becomes a waste, it would be expected to meet the criteria of a hazardous waste based on flammability. However, it is the responsibility of the generator to determine at the time of disposal the proper classification and method of disposal. Dispose in accordance with federal, state, and local regulations. Do not puncture, crush or incinerate containers, even when empty.

SECTION 14 TRANSPORT INFORMATION

U.S. DOT Hazard Classification: Consumer Commodity, ORM-D
After 1/1/2014 UN1950, Aerosols, 2.1 Ltd. Qty (Note: Shipping Papers are not required for Limited Quantities unless transported by air or vessel – each package must be marked with the Limited Quantity Mark)

Canadian TDG Classification: Consumer Commodity / Limited Quantity.

IMDG Code Hazard Classification: UN1950, Aerosols, 2.1, LTD QTY

SECTION 15 REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS :

CERCLA 103 Reportable Quantity: This product is not subject to CERCLA reporting requirements, however, oil spills are reportable to the National Response Center under the Clean Water Act and many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

SARA TITLE III :
Hazard Category For Section 311/312: Acute Health, Fire Hazard, Sudden Release of Pressure
Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements : None
Section 302 Extremely Hazardous Substances (TPQ): None

EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.

CANADIAN REGULATIONS :

Canadian Environmental Protection Act : All of the ingredients are listed on the Canadian Domestic Substances List or exempt from notification

Canadian WHMIS Classification: Class B-5 (Flammable Aerosol), Class D-2-B (Toxic material causing other toxic effects)

This MSDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the MSDS contains all of the information required by the CPR.

SECTION 16 OTHER INFORMATION

HMIS Hazard Rating: Health – 2 (moderate hazard), Fire Hazard – 4 (severe hazard), Reactivity – 0 (minimal hazard)

Revision Date : New MSDS Supersedes : N/A

Prepared By: Industrial Health & Safety Consultants, Inc. 1-203-929-3473

This MSDS complies with OSHA guidelines set by 29 CFR 1910.1200 and the Canadian WHMIS regulations. The foregoing information has been compiled from sources believed to be accurate but is not warranted to be. Recipients are advised to confirm in advance of need that data is correct. Standards change without notice. It is the responsibility of the recipient to insure that their personnel have been notified of any changes which may affect them. The data provided on this MSDS are not meant to be used as specifications, only as guideline information as to the safe use of this product. User should refer to applicable laws before use.

N/D = Not Determined N/E = Not Established N/A = Not Applicable

MATERIAL SAFETY DATA SHEET

JohnsonDiversey
Clean is just the beginning

Windex Powerized Glass Cleaner (RTU)

HMIS		NFPA	Personal protective equipment
Health	0	0	None Required
Fire Hazard	1	1	
Reactivity	0	0	

Version Number: 3 *Preparation date: 2005-05-20*

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Windex Powerized Glass Cleaner (RTU)

MSDS #: 126011004
Product code: 126011004, 3694044, 3694052, 90122, 90135, 90139, 90940
Recommended use: Cleaning product.

Manufacturer, importer, supplier:
Consumer Branded Professional Products, Div.
JohnsonDiversey, Inc.
8310 16th Street
Sturtevant, Wisconsin 53177-0902
Phone: (888) 352-2249

Emergency telephone number: 1-800-851-7145 (Prosar); 1-651-917-6133 (Int'l Prosar); 01-800-710-3400 (México)

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
The product contains no substances which at their given concentration, are considered to be hazardous to health

Principle routes of exposure: Eyes. Skin. Inhalation. Ingestion.
Skin contact: None known.
Eye contact: None known.
Inhalation: None known.
Ingestion: None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS

Ingredient	CAS #	Weight %	LD50 Oral	LD50 Dermal	LC50 Inhalation
Isopropyl alcohol	67-63-0	1 - 5%	5000 mg/kg (rat)	12800 mg/kg (rabbit)	16000 ppm/8H (rat)

4. FIRST AID MEASURES

Eye contact: Rinse with plenty of water.
Skin contact: Rinse with plenty of water.
Inhalation: No specific first aid measures are required.
Ingestion: No specific first aid measures are required.
Aggravated Medical Conditions: None known.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Dry chemical, water spray, foam, carbon dioxide.
Specific hazards: Although this product has a flash point below 200 Deg. F, it is an aqueous solution containing an alcohol and does not sustain combustion.
Unusual hazards: None known
Specific methods: No special methods required

Special protective equipment for firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear
Extinguishing media which must not be used for safety reasons: None.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use personal protective equipment
Environmental precautions and clean-up methods: Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.

7. HANDLING AND STORAGE

Handling:
Avoid contact with eyes. COMBUSTIBLE LIQUID AND VAPOR . Keep away from open flames, hot surfaces and sources of ignition. Handle in accordance with good industrial hygiene and safety practice. FOR COMMERCIAL AND INDUSTRIAL USE ONLY.
Storage:
Keep tightly closed in a dry, cool and well-ventilated place. Protect from freezing . Keep out of the reach of children.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures to reduce exposure:
No special ventilation requirements. General room ventilation is adequate.

Personal Protective Equipment

Eye protection: No special requirements under normal use conditions
Hand protection: No special requirements under normal use conditions
Skin and body protection: No special requirements under normal use conditions
Respiratory protection: No special requirements under normal use conditions
Hygiene measures: Handle in accordance with good industrial hygiene and safety practice

Ingredient	CAS #	ACGIH	OSHA	Mexico
Isopropyl alcohol	67-63-0	400 ppm (STEL) 200 ppm (TWA)	980 mg/m^3 400 ppm	1225 mg/m^3 (STEL) 980 mg/m^3 (TWA)

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Color: Blue
Odor: Ammoniacal
Specific gravity: 0.996
Dilution pH: No information available
Bulk density: No information available
Vapor density: No information available
Evaporation rate: No information available
Solubility in other solvents: No information available
Viscosity: No information available
Partition coefficient (n-octanol/water): No information available

Appearance: Liquid
Boiling point/range: Not determined
Melting point/range: Not determined
pH: 11.45
Density: 0.996
Decomposition temperature: Not determined
Autoignition temperature: No information available
Solubility: Soluble
VOC: 3.8

Flash point: 131 (°F) 55 (°C)

10. STABILITY AND REACTIVITY

Stability: The product is stable
Polymerization: Hazardous polymerisation does not occur
Hazardous decomposition products: None reasonably foreseeable
Conditions to avoid: Do not freeze.

11. TOXICOLOGICAL INFORMATION

Acute toxicity Oral, LD50 estimated to be greater than 5000 mg/kg, Dermal, LD50 estimated to be > 2000 mg/kg.
Component Information: See Section 3

Chronic toxicity: None known

Specific effects

Carcinogenic effects: None known
Mutagenic effects: None known
Reproductive toxicity: None known
Target organ effects: None known

12. ECOLOGICAL INFORMATION

Environmental Information: When used for its intended purpose this product should not cause adverse effects in the environment

13. DISPOSAL CONSIDERATIONS

Waste from residues / unused products:
Dispose of according to all federal, state and local applicable regulations

14. TRANSPORT INFORMATION

DOT/TDG: Please refer to the Bill of Lading/receiving documents for up to date shipping information

15. REGULATORY INFORMATION

International Inventories
All components of this product are listed on the following inventories: U.S.A. (TSCA), Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), Philippines (PICCS).

U.S. Regulations
California Proposition 65: This product is not subject to the reporting requirements under California's Proposition 65

STATE RIGHT TO KNOW

Ingredient	CAS #	MARTK:	NJRTK:	PARTK:	RIRTK:	ILRTK:	CTRTK:
Hexyloxyethanol	112-25-4	-	Listed	Listed	-	-	-
Ammonium hydroxide	1336-21-6	Listed	Listed	Listed	-	Listed	Listed
Isopropyl alcohol	67-63-0	Listed	Listed	Listed	Listed	Listed	Listed
Water	7732-18-5	-	-	-	-	-	-

CERCLA / SARA

Ingredient	CAS #	Weight %	CERCLA/SARA RQ (lbs)	Section 302 TPQ (lbs)	Section 313
Hexyloxyethanol	112-25-4	0.1 - 1.5%			Listed.
Ammonium hydroxide	1336-21-6	0.1 - 1.5%	1000		Listed.
Isopropyl alcohol	67-63-0	1 - 5%	100		Listed.

Canada
WHMIS hazard class: Not for sale in Canada .

Ingredient	CAS #	NPRI
Isopropyl alcohol	67-63-0	Listed

16. OTHER INFORMATION

Reason for revision: Not applicable
Prepared by: NAPRAC
Additional advice: None

Notice to Reader: This document has been prepared using data from sources considered technically reliable. It does not constitute a warranty, express or implied, as to the accuracy of the information contained within. Actual conditions of use and handling are beyond seller's control. User is responsible to evaluate all available information when using product for any particular use and to comply with all Federal, State, Provincial and Local laws and regulations.

IPEX

GHS SAFETY DATA SHEET

XIRTEC 11 GRY Low VOC PVC Plastic Pipe Cement

Date Revised: **JUN 2013**
Supersedes: **JAN 2012**

SECTION I - PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: **XIRTEC 11 GRY Low VOC PVC Plastic Pipe Cement**

PRODUCT USE: Low VOC Solvent Cement for PVC Plastic Pipe

SUPPLIER: IPEX Inc.
807 Pharmacy Avenue
Scarborough, Ontario M1L 3K2, CAN

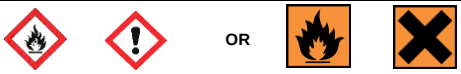
MANUFACTURER: IPS Corporation
17109 South Main Street, Gardena, CA 90248-3127
P.O. Box 379, Gardena, CA 90247-0379
Tel. 1-310-898-3300

EMERGENCY: Transportation: CHEMTEL Tel. 800.255-3924, 813-248-0585 (International) **Medical:** CHEMTEL Tel. 800.255-3924, 813-248-0585 (International)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:

Health		Environmental		Physical	
Acute Toxicity:	Category 4	Acute Toxicity:	None Known	Flammable Liquid	Category 2
Skin Irritation:	Category 3	Chronic Toxicity:	None Known		
Skin Sensitization:	NO				
Eye:	Category 2B				

GHS LABEL:  OR

Signal Word: **Danger**

WHMIS CLASSIFICATION: CLASS B, DIVISION 2

Hazard Statements	Precautionary Statements
H225: Highly flammable liquid and vapor	P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
H319: Causes serious eye irritation	P261: Avoid breathing dust/fume/gas/mist/vapors/spray
H332: Harmful if inhaled	P280: Wear protective gloves/protective clothing/eye protection/face protection
H335: May cause respiratory irritation	P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
H336: May cause drowsiness or dizziness	P403+P233: Store in a well ventilated place. Keep container tightly closed
EUH019: May form explosive peroxides	P501: Dispose of contents/container in accordance with local regulation

SECTION 3 - COMPOSITION/INFORMATION ON INGREDIENTS

	CAS#	EINECS #	REACH Pre-registration Number	CONCENTRATION % by Weight
Tetrahydrofuran (THF)	109-99-9	203-726-8	05-2116297729-22-0000	40 - 50
Methyl Ethyl Ketone (MEK)	78-93-3	201-159-0	05-2116297728-24-0000	5 - 15
Acetone	67-64-1	200-662-2	05-2116297713-35-0000	3 - 11
Cyclohexanone	108-94-1	203-631-1	05-2116297718-25-0000	9 - 18

All of the constituents of this adhesive product are listed on the TSCA inventory of chemical substances maintained by the US EPA, or are exempt from that listing.
* Indicates this chemical is subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (40CFR372).
# indicates that this chemical is found on Proposition 65's List of chemicals known to the State of California to cause cancer or reproductive toxicity.

SECTION 4 - FIRST AID MEASURES

Contact with eyes: Flush eyes immediately with plenty of water for 15 minutes and seek medical advice immediately.
Skin contact: Remove contaminated clothing and shoes. Wash skin thoroughly with soap and water. If irritation develops, seek medical advice.
Inhalation: Remove to fresh air. If breathing is stopped, give artificial respiration. If breathing is difficult, give oxygen. Seek medical advice.
Ingestion: Rinse mouth with water. Give 1 or 2 glasses of water or milk to dilute. Do not induce vomiting. Seek medical advice immediately.

SECTION 5 - FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry chemical powder, carbon dioxide gas, foam, Halon, water fog.
Unsuitable Extinguishing Media: Water spray or stream.
Exposure Hazards: Inhalation and dermal contact
Combustion Products: Oxides of carbon, hydrogen chloride and smoke

	HMIS	NFPA	
Health	2	2	0-Minimal
Flammability	3	3	1-Slight
Reactivity	0	0	2-Moderate
PPE	B		3-Serious
			4-Severe

Protection for Firefighters: Self-contained breathing apparatus or full-face positive pressure airline masks.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Personal precautions: Keep away from heat, sparks and open flame.
Provide sufficient ventilation, use explosion-proof exhaust ventilation equipment or wear suitable respiratory protective equipment.
Prevent contact with skin or eyes (see section 8).
Environmental Precautions: Prevent product or liquids contaminated with product from entering sewers, drains, soil or open water course.
Methods for Cleaning up: Clean up with sand or other inert absorbent material. Transfer to a closable steel vessel.
Materials not to be used for clean up: Aluminum or plastic containers

SECTION 7 - HANDLING AND STORAGE

Handling: Avoid breathing of vapor, avoid contact with eyes, skin and clothing.
Keep away from ignition sources, use only electrically grounded handling equipment and ensure adequate ventilation/fume exhaust hoods.
Do not eat, drink or smoke while handling.
Storage: Store in ventilated room or shade below 44°C (111°F) and away from direct sunlight.
Keep away from ignition sources and incompatible materials: caustics, ammonia, inorganic acids, chlorinated compounds, strong oxidizers and isocyanates.
Follow all precautionary information on container label, product bulletins and solvent cementing literature.

SECTION 8 - PRECAUTIONS TO CONTROL EXPOSURE / PERSONAL PROTECTION

EXPOSURE LIMITS:

Component	ACGIH TLV	ACGIH STEL	OSHA PEL	OSHA STEL:
Tetrahydrofuran (THF)	50 ppm	100 ppm	200 ppm	
Methyl Ethyl Ketone (MEK)	200 ppm	300 ppm	200 ppm	
Cyclohexanone	20 ppm	50 ppm	50 ppm	
Acetone	500 ppm	750 ppm	1000 ppm	

Engineering Controls: Use local exhaust as needed.
Monitoring: Maintain breathing zone airborne concentrations below exposure limits.
Personal Protective Equipment (PPE):
Eye Protection: Avoid contact with eyes, wear splash-proof chemical goggles, face shield, safety glasses (spectacles) with brow guards and side shields, etc. as may be appropriate for the exposure.
Skin Protection: Prevent contact with the skin as much as possible. Butyl rubber gloves should be used for frequent immersion.
Use of solvent-resistant gloves or solvent-resistant barrier cream should provide adequate protection when normal adhesive application practices and procedures are used for making structural bonds.
Respiratory Protection: Prevent inhalation of the solvents. Use in a well-ventilated room. Open doors and/or windows to ensure airflow and air changes. Use local exhaust ventilation to remove airborne contaminants from employee breathing zone and to keep contaminants below levels listed above.
With normal use, the Exposure Limit Value will not usually be reached. When limits approached, use respiratory protection equipment.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Gray, heavy syrupy liquid		
Odor:	Ketone	**Odor Threshold:**	0.88 ppm (Cyclohexanone)
pH:	Not Applicable		
Melting/Freezing Point:	-108.5°C (-163.3°F) Based on first melting component: THF	**Boiling Range:**	56°C (133°F) to 156°C (313°F)
Boiling Point:	56°C (133°F) Based on first boiling component: Acetone	**Evaporation Rate:**	> 1.0 (BUAC = 1)
Flash Point:	-20°C (-4°F) TCC based on Acetone	**Flammability:**	Category 2
Specific Gravity:	0.966 @23°C (73°F)	**Flammability Limits:**	**LEL:** 1.1% based on Cyclohexanone
Solubility:	Solvent portion soluble in water. Resin portion separates out.		**UEL:** 12.8% based on Acetone
Partition Coefficient n-octanol/water:	Not Available	**Vapor Pressure:**	190 mm Hg @ 20°C (68°F) Acetone
Auto-ignition Temperature:	321°C (610°F) based on THF	**Vapor Density:**	>2.0 (Air = 1)
Decomposition Temperature:	Not Applicable	**Other Data: Viscosity:**	Heavy bodied
VOC Content:	When applied as directed, per SCAQMD Rule 1168, Test Method 316A,VOC content is: ≤ 510 g/l.		

SECTION 10 - STABILITY AND REACTIVITY

Stability: Stable

Hazardous decomposition products: None in normal use. When forced to burn, this product gives off oxides of carbon, hydrogen chloride and smoke.

Conditions to avoid: Keep away from heat, sparks, open flame and other ignition sources.

Incompatible Materials: Oxidizers, strong acids and bases, amines, ammonia

SECTION 11 - TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, Eye and Skin Contact

Acute symptoms and effects:

Inhalation: Severe overexposure may result in nausea, dizziness, headache. Can cause drowsiness, irritation of eyes and nasal passages.

Eye Contact: Vapors slightly uncomfortable. Overexposure may result in severe eye injury with corneal or conjunctival inflammation on contact with the liquid.

Skin Contact: Liquid contact may remove natural skin oils resulting in skin irritation. Dermatitis may occur with prolonged contact.

Ingestion: May cause nausea, vomiting, diarrhea and mental sluggishness.

Chronic (long-term) effects: None known to humans

Toxicity:

	LD_{50}	LC_{50}
Tetrahydrofuran (THF)	Oral: 2842 mg/kg (rat)	Inhalation 3 hrs. 21,000 mg/m^3 (rat)
Methyl Ethyl Ketone (MEK)	Oral: 2737 mg/kg (rat), Dermal: 6480 mg/kg (rabbit)	Inhalation 8 hrs. 23,500 mg/m^3 (rat)
Cyclohexanone	Oral: 1535 mg/kg (rat), Dermal: 948 mg/kg (rabbit)	Inhalation 4 hrs. 8,000 PPM (rat)
Acetone	Oral: 5800 mg/kg (rat)	Inhalation 50,100 mg/m^3 (rat)

Reproductive Effects	Teratogenicity	Mutagenicity	Embryotoxicity	Sensitization to Product	Synergistic Products
Not Established	Not Established	Not Established	Not Established	Not Established	Not Established

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity: None Known

Mobility: In normal use, emission of volatile organic compounds (VOC's) to the air takes place, typically at a rate of ≤ 510 g/l.

Degradability: Biodegradable

Bioaccumulation: Minimal to none.

SECTION 13 - WASTE DISPOSAL CONSIDERATIONS

Follow local and national regulations. Consult disposal expert.

SECTION 14 - TRANSPORT INFORMATION

Proper Shipping Name: Adhesives
Hazard Class: 3
Secondary Risk: None
Identification Number: UN 1133
Packing Group: PG II
Label Required: Class 3 Flammable Liquid
Marine Pollutant: NO

EXCEPTION for Ground Shipping
DOT Limited Quantity: Up to 5L per inner packaging, 30 kg gross weight per package.
Consumer Commodity: Depending on packaging, these quantities may qualify under DOT as "ORM-D" .

TDG INFORMATION	
TDG CLASS:	FLAMMABLE LIQUID 3
SHIPPING NAME:	ADHESIVES
UN NUMBER/PACKING GROUP:	UN 1133, PG II

SECTION 15 - REGULATORY INFORMATION

Precautionary Label Information: Highly Flammable, Irritant

Symbols: F, Xi

Risk Phrases:
R11: Highly flammable.
R20-Harmful by inhalation.
R36/37: Irritating to eyes and respiratory system.
R66: Repeated exposure may cause skin dryness or cracking
R67: Vapors may cause drowsiness and dizziness

Safety Phrases:
S9: Keep container in a well-ventilated place.
S16: Keep away from sources of ignition - No smoking.
S25: Avoid contact with eyes.
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S33: Take precautionary measures against static discharges.
S46: If swallowed, seek medical advise immediately and show this container or label.

Ingredient Listings: USA TSCA, Europe EINECS, Canada DSL, Australia AICS, Korea ECL/TCCL, Japan MITI (ENCS)

SECTION 16 - OTHER INFORMATION

Specification Information: All ingredients are compliant with the requirements of the European Directive on RoHS (Restriction of Hazardous Substances).

Department issuing data sheet: Safety Health & Environmental Affairs

Training necessary: Yes, training in practices and procedures contained in product literature.

Reissue date / reason for reissue: 6/12/2013 / Updated GHS Standard Format

Intended Use of Product: Solvent Cement for PVC Plastic Pipe

This product is intended for use by skilled individuals at their own risk. The information contained herein is based on data considered accurate based on current state of knowledge and experience. However, no warranty is expressed or implied regarding the accuracy of this data or the results to be obtained from the use thereof.

Appendix B -
2014 Work Plan and Updated Site Layout Drawings

The information contained herein is proprietary Baffinland Iron Mines Corporation and is used solely for the purpose for which it is supplied.
It shall not be disclosed in whole or in part, to any other party, without the express permission in writing by Baffinland Iron Mines Corporation.

Note: This is an UNCONTROLLED COPY. All staff members are responsible to ensure the latest revision is used.

WORK PLAN

2014

31 October 2013

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1. INTRODUCTION

The following document presents the 2014 Work Plan as required under Section 6.1 of the Commercial Lease, No. Q13C301, agreed between Baffinland Iron Mines Corporation and the Qikiqtani Inuit Association. Additionally, this document is a requirement under the Type A Water Licence 2AM-MRY1325 for the purposes of an Annual Security Review for activities undertaken on an annual basis. In the event the Project does not advance, all work items described and constructed as per the 2014 Work Plan will be subject to reclamation, as per relevant regulatory and permit obligations.

Given that the proposed Early Revenue Phase (ERP) is currently under review, this document separates out activities that may occur if the ERP is approved, separate from activities that are planned to proceed as part of the approved Project. In order to align this document with the structure defined within the Commercial Lease, wording in italicized blue throughout this document is used to highlight wording from the Commercial Lease.

2. 2014 WORK PLAN

2.1 2014 SCOPE OF WORK

The Tenant shall provide: *"A description of the Operations and Work that the Tenant expects to perform in the next Year, and an identification of the Lands, within existing or proposed Land Use Areas that are to be specifically identified within the Property, where such Operations and Work shall occur"*

This 2014 Work Plan provides for:

1. The continued development and construction of infrastructure required at Milne Port and the Mine Site for the Mary River Project.
2. For Milne Port, it is expected that sealifts will occur during open water (approximately between July 15th and October 1st 2014). An estimated 7 vessels (dimension of barges approximately 35 m x 140 m) will be necessary to transport the equipment and material required for the execution of the 2014 Work. Material, equipment, fuel and supplies required for construction activities at the Mine Site and the operation of the Mary River facilities will be transported to the Mine Site via the Tote Road year round.
3. Ongoing environmental baseline data collection and geotechnical drilling in order to sustain the development of the Project will continue. These activities will resume at the Milne Port site, along the Tote Road, at the Mine Site, at numerous quarry sites and at other Project development areas.
4. Continual environmental monitoring in accordance with the approved environmental management monitoring and mitigation plans.
5. Continued archaeological surveys at project component areas as required.

There will be continued progressive reclamation of areas of current and past use in association with drilling, bulk sample, and historical exploration programs. In addition, progressive reclamation plans will include:

- Implementation of an action plan, developed and submitted in 2013, to address concerns from stakeholders about long term salt storage;
- Implementation of a program to dispose of existing inventory incinerator bottom ash in the existing Mary River Landfill and the development of a plan to manage and dispose of ash being generated on an ongoing basis;
- Completion of the ongoing decommissioning of the existing bladder farm at Milne Inlet. Work includes the transport of hydrocarbon impacted soils to the planned landfarm facility;
- Commence decommissioning of the existing Mary River bladder farm;
- Continue the development and implementation of a long term multi-year plan to address localized areas of permafrost melting associated with current borrow areas, and taking into consideration the longer term designs for the Tote Road upgrades and new quarry development;
- Demobilization of equipment and supplies not required for near term activities, as well as the current inventory of hazardous waste and other materials by means of sealift from Milne Port;
- Continued development of the Mine Site landfill and deposition of non-hazardous wastes in accordance with the landfill operations and maintenance manual; and,
- Discharge of treated sewage stored in existing PWSPs at the Mary River Camp and Milne Inlet after treatment as required. Two periods of discharge are planned, the first corresponding to freshet (May-June), and the second later in the summer if required.
- Ongoing removal from the site, or safe disposal on-site of infrastructure, equipment and supplies no longer required for ongoing construction and operations. The items are defined by the Mary River Project Interim Abandonment and Reclamation Plan, and include infrastructure and site materials, fuel caches, drums, barrels, buildings and contents, docks, water pumps and lines, material and equipment prior to the expiry of applicable permits. Where required, internal roads will be re-graded to restore natural drainage to reduce erosion.
- Unless otherwise identified within the approved Abandonment and Reclamation Plan under this Licence, where roads are no longer in use, Baffinland will remove culverts and open the natural drainage channel. In carrying out this activity, measures will be implemented to minimize erosion and sedimentation.
- Areas that have been contaminated by hydrocarbons from normal fuel transfer, handling and storage activities will be reclaimed to meet objectives as outlined in the Government of Nunavut's Environmental Guideline for Site Remediation, 2010. The use of reclaimed soils for the purpose of back fill or general site grading may be carried out

only upon consultation and approval by the Government of Nunavut, Department of Environment and an Inspector.

The Work Plan is presented within the context of the applicable regulatory authorizations and schedule. Baffinland holds, or will soon hold, all the permits and authorizations required to carry out the 2014 Work Plan. The main regulatory instruments that allow for the 2014 Work Plan activities include:

- Project Certificate No. 005
  - All works and activities proposed have been screened by the NIRB and have been considered in the Project Certificate issued by the NIRB on December 28, 2012.
- Type A Water Licence (2AM-MRY1325)
  - All works and activities planned for 2014 are within the scope of the licence.
- Type B Water Licence (2BB-MRY1114)
  - The renewed Type B Water Licence (application to be submitted in November 2013) will authorize Baffinland to undertake mineral exploration activities, geotechnical and exploration drilling programs, construction of ice roads, ongoing operation, maintenance and upgrades to existing pioneer camps at Steensby Inlet and Mid Rail, construction of airstrips on lakes for winter months and potential bulk sampling.
- Quarry Permits
  - Schedule 'B' Quarry Concession Agreement under IOL Commercial Lease New Lease, Q13C301.
  - It is anticipated that quarrying of rock and gravel from permitted quarry locations (as shown on Schedule "A1") of the IOL Commercial Lease will continue. In addition, Baffinland will be applying for access and quarry permits to extract rock and gravel material adjacent and near the existing Milne Inlet Tote Road by means of an Amendment to the existing Schedule 'B' to the Lease.
  - New quarries are needed at the following locations:
    1. Q7, Tote Road Station 5+560,
    2. Q11, Tote Road Station 28+400,
    3. P1, Tote Road Station 86+000,
    4. Q19, Tote Road Station 163+500
    5. Deposit No. 1 Quarry 2 (D1Q1), Haul Road Station 6+540
    6. Deposit No. 1 Quarry 1 (D1Q2), Haul Road Station 2+000
- Ongoing operation of existing borrow source areas adjacent to Tote Road at Km 2 (formerly borrow source no. 1), and Km 97 (formerly borrow source no. 3).

- The construction of access roads from the Tote road will be necessary to access quarry locations. Where it is necessary, culvert crossings will be installed along the access roads.
- AANDC Land Use Permit and Quarry Permit to access existing and possibly new borrow and rock quarries adjacent and near the Tote Road (currently covered under the Class A Crown Land Use Permit, N2007F004, and Quarry Permit, 2013QP0086).

Appendix A includes layouts H349000-1000-00-015-0001, H349000-1000-00-015-0002, H349000-1000-00-015-0003 and H349000-1000-00-015-0004.

2.2 INFRASTRUCTURE AND CONSTRUCTION WORKS

The Tenant shall provide: *"A description of the topographical features and any natural or manmade features, structures or works that may be affected by the Tenant's Operations and Work within existing or proposed Land Use Areas that are to be specifically identified within the Property;"*

Construction activities forecast for 2014 under Project Certificate No. 005 include:

Milne Inlet

During the sealift, most of the activities at Milne Port will focus on unloading the barges and positioning received equipment and material in designated laydown areas. In addition, the following construction activities will continue:

- Continue to install Project Wide Communication and IT Infrastructure;
- Construct remaining earth/rock fill for laydown areas, the concrete batch plant pad, and local site roads within the Milne site not completed in 2013;
- Construct rip-rap lined rock fill embankment for Ramp to the Beach;
- Install Emergency Services building;
- Install services maintenance buildings including the Concrete Batch Plant Building, Milne Maintenance Building, Milne Workshop office, Milne Welding Shop and workshop office;
- Install Power and Generation systems;
- Construct and commission one 12 ML diesel fuel Storage Tank and one 750,000 L Jet A fuel Storage Tank;
- Install concrete floor slab on grade at the Sewage Treatment Truck Building, Welding Shop and Maintenance Building;
- Construct Hazardous Waste Containment Area(s) for storage of hazardous wastes;
- Construct the Waste Disposal Land Farm, contaminated snow dump and containment pad;
- Install Servicing Buildings E-Houses;

- Install Power Supply and Distribution for Warehouses;
- Install Electrical Devices for Batch Plant Building.

Tote Road

All equipment, material, fuel, and supplies required for construction and operation activities at Mary River will be transported from Milne Port to the Mine Site via the Tote Road.

The upgrade of the road commenced late in 2013 and is expected to take 8 to 10 months. During 2014 the activities associated with the upgrade to the Tote Road include;

- Improvements;
- Reduce maximum slopes,
- Increase turn radius;
- Increase culvert size where required;
- Modify and/or upgrade water crossings (culverts and bridges), including of removal of sea-can bridges;
- Installation of culverts as required;
- Crush material as required, haul, place and compact new rock fill per design;
- Installation and maintenance of erosion control devices;
- Construct ditches with rip rap as required;
- Commence the development of Quarries Q7, Q11, Q19 and borrow pit P1 to provide access to aggregate for upgrades;
- Drill, blast and excavate as required to reduce steep grades and improve curves where necessary and to improve sight distance and visibility along the road;
- Construct abutment and approach areas at river crossings; and
- Install four single span bridges.

Mine Site

Construction activities at the Mine Site will consist of:

- Construct, install and grade Waste Rock Haul Road, Waste rock pad, drainage ditches and settling pond;
- Construct crusher pad, ore stockpile pad area, drainage ditches and settling pond for mining operations;
- Receive mobile equipment for materials handling, maintenance and site services;
- Install and commission emulsion plant;
- Construct Pit 1 Haul Road ;

- Commence development of the preliminary Deposit One pit benches;
- Installation of a pit office facility at a temporary location and dismantling of same later in the year;
- Install and construct permanent Pit Office Building;
- Set up crushing and screening mobile equipment;
- Install truck weigh facility;
- Erect and install concrete batch plant;
- Upgrade (extend) the Mary River airstrip;
- Install aerodrome office, field electrical center, airfield lighting and visual aids as well as power generation and fuel supply systems;
- Installation and commissioning of Services Buildings including maintenance shop, warehouse, welding shop, workshop and washcar buildings;
- Installation of temporary facilities referred to above until the permanent ones are available for use, dismantle temporary locations when no longer needed;
- Install power generation systems;
- Continued development of the quarry QMR2 at Mine Site and commence development of quarries D1Q1 and D1Q2;
- Transfer fuel from Milne Port tank farm to newly installed fuel tank farm at the Mine Site.

Construction activities associated with the Early Revenue Phase

As stated in correspondence to the NIRB on January 13, 2013, due to various business drivers, Baffinland proposes to make changes to the schedule and some activities in the initial stages of project development associated with the Mary River Project Proposal for which the NIRB issued Project Certificate No. 005 (the 'Project Certificate').

In its request to the NIRB, Baffinland indicated that although the Proponent remains committed in the long-term to developing the Project as authorized in the Project Certificate, in the short term Baffinland proposes to change some development activities and project timelines to accommodate a proposed "Early Revenue Phase" which would include development of a nominal 3.5 million tonnes per annum (Mt/a) road haulage operation from the Mary River mine site to a port facility at Milne Inlet for shipping of iron ore during the open water season. As noted by Baffinland, this development option was presented previously as a project alternative, and was included within the initial technical review of the Draft Environmental Impact Statement for the Mary River Project Proposal.

Baffinland recognizes that this Early Revenue Phase (ERP) will require an amendment to the Project Certificate which in turn requires the submission and review of an Environmental Impact Statement. In accordance to the directives issued by the NIRB, Baffinland completed its Environmental Impact

Statement for the Early Revenue Phase of the Project in June 2013. The proposal is subjected to the NIRB review process which is expected to be completed by the first quarter of 2014.

Once a favourable decision is granted from the Minister of AANDC with respect to the ERP, and subject to obtaining any amendments (if any) which might be necessary to the Water Licence, Baffinland will proceed with the construction of facilities required for the completion of the ERP.

Construction activities for the ERP, which would only commence if and once the addendum to the FEIS is granted, consist of the following activities at Milne Port:

- Construct a causeway and ore dock that will extend into offshore waters. The causeway and ore dock platform with be built up with aggregate and suitable dredged material;
- Dredging, as required, to maintain the required vessel draft depths and for placement of caissons, in the location of the dock. Dredge material to be deposited near shore in an area demarcated for this activity adjacent to the causeway location. If dredge material is not suitable for re-use to build up the causeway, then the dredge material will be deposited near shore in an area demarcated for this activity. As a preventative measure, a silt curtain will be installed around the extent of the dredging activities;
- Construct concrete and steel pile foundations onto the rock filled causeway and ore dock to support the ship loader and related ship loader facilities;
- Install 2 mooring buoys or dolphins;
- Install and commission the ship loader onto the ore dock foundations. This work is expected to continue into 2015;
- Construct and commission ore stockpile pad;
- Install and commission the ore stacker reclaim conveyor system within the ore stockpile pad;
- Construct Stockpile settling ponds.

2.3 INFRASTRUCTURE LAYOUT AT END OF 2014

The Tenant shall provide: *"A detailed description of planned construction and infrastructure changes, additions or removals within the boundaries of the Impact Areas and the Exploration Areas, either permanent or temporary;"*

Site layouts for Milne and Mary River can be found in Appendix B of this document.

2.4 MINING, QUARRYING AND EXPLORATION ACTIVITIES

The Tenant shall provide: *"A description of any and all mining and exploration activities planned for the year, including:*

i. Exploration activity and drilling plan,

During 2014 Baffinland anticipates the approval for a renewal to the Type B Water Licence (2BB-MRY1114). All activities listed under this renewal have been permitted in the past and are common to exploration properties throughout Nunavut.

The scope of the Type B Licence allows for Baffinland to continue/undertake the following activities on its mineral leases in the Qikiqtani Region of Nunavut.

- Mineral exploration drilling;
- Surface mineral exploration activities including mapping, sampling, geophysical surveys, geochemical surveys, mechanical trenching and stripping of surficial overburden;
- Geotechnical drilling programs and surveys at project development areas, as required to support Project design requirements;
- Port site(s), with land based drilling as well as possible barge based and ice based drilling on the sea ice at Milne Port. A platform for the geotechnical and geophysical testing may be barge based or a platform built up on the ice;
- Activities in support of scientific and engineering studies related to the advancement of future expansion of the Mary River Project;
- Ongoing operation, maintenance and upgrades to existing pioneer camps at Steensby Inlet and Mid-Rail location:
  - Steensby Inlet Camp: Latitude 70 ^{o} 17’ 40” Longitude 78 ^{o} 29 15”
  - Mid-Rail Camp: Latitude 70 ^{o} 58’ 20” Longitude 78 ^{o} 22’ 15”
- Potential seasonal occupation of Steensby Inlet and Mid-Rail Camps;
- Potential for establishing future satellite camps to support exploration and drilling activities (amendment of licence would be required) on Baffinland’s mineral claims;
- Future Bulk Sampling Program;
- Fixed wing aircraft and helicopter to support general site activities including environmental monitoring and potentially additional exploration drilling and regional exploration;
- Construction and use of airstrips on lakes for winter months;
- Use of float planes on lakes during the summer months;
- Construction of winter roads, stream/river crossings;
- Sealift operation and establishment and use of laydown areas;
- Progressive reclamation programs associated with exploration program;
- Waste rock disposal areas.

ii. An estimate of the amount and type of ore and waste to be mined in each month,

During 2014 Baffinland anticipates commencing the mining of ore during October 2014. Below is an estimate of the breakdown of ore vs. waste mined by month.

Table 2-1: Mine Forecast 2014

Month	Ore Mined (wmt)	Waste Mined (wmt)	Total Mined (wmt)
January	0	0	0
February	0	0	0
March	0	0	0
April	0	0	0
May	0	0	0
June	0	250,000	250,000
July	0	250,000	250,000
August	0	250,000	250,000
September	0	250,000	250,000
October	252,000	120,000	372,000
November	243,000	125,000	368,000
December	252,000	125,000	377,000
Total	**747,000**	**1,370,000**	**2,117,000**

iii. An estimate of the amount and type of ore to be shipped each month,

At this time, no ore is planned to be shipped in 2014, however should the ERP be approved, Ore will be hauled along the Tote Road and stockpiled at Milne Inlet.

iv. Expected quarterly quantities to be quarried of each Specified Substance including sand, gravel and construction stone, where possible, estimated by individual quarry site or borrow location;"

A summary of the expected quantities of quarried materials extracted during 2014 is provided per quarry below.

Table 2-2: 2014 Quarry and Borrow Pit Quantities

Quarry	Annual Volume (m^3)	Annual Surface Area (m^2)
Q1	690,000	92,000
Q7	75,000	14,600
Q11	175,000	17,500
P1 & other approved borrow sources	275,000	55,000
Q19	175,000	14,600
QMR2	250,000	70,000
D1Q1	275,000	27,500
D1Q2	700,000	22,500

2.5 SOLID WASTE DISPOSAL

The Tenant shall provide: *"Expected annual quantities of Solid Waste to be deposited in approved Waste Storage Areas;"*

The expected annual quantity of solid wastes to be deposited during 2014 can be found in the Waste Management Plan (H349000-1000-07-126-0007) for the Project and are provided in the table below.

Table 2-3: Estimated Domestic Solid Non Hazardous Waste Generation

Waste	Waste Description	Disposal Method	Est. Total Annual Production (tonnes)
2014 Work Plan			
Organic	Kitchens	Incinerator	568
Paper	Packaging/Offices	Incinerator/On-site landfill	168
Plastic	Offices/Camps	Incinerator[2]/On-site landfill	120
Cardboard	Packaging/Camps	Incinerator	128
Cloth	Camps	Incinerator	39
Multi-Material	Packaging/Camps	Incinerator/On-site landfill	28
Metal	Packaging	On-site landfill	17
Glass	Camps	On-site landfill	16
Wood	Packaging	Incinerator	11
Bottom Ash from Camp Incinerators	Historical Inventory of Ash plus on-going generation from new camp incinerators	On-site landfill	170

[1] Composition based in part on 2011 Mary River Waste Audit results (Aug 27 - Aug 29), Assume 50% of waste generated to be domestic.

[2] Poly-chlorinated plastics will be sorted out of waste stream and sent to landfill and will not be incinerated

[3] The disposal of incinerator bottom ash in the landfill will not proceed unless it is tested by an acceptable test procedure. If the composition of the ash makes it unsuitable for disposal at the Landfill facilities, the waste will be directed to an appropriate facility for disposal.

2.6 SPECIFIED SUBSTANCES

The Tenant shall provide: *"Expected uses of Specified Substances pursuant to a Quarry Concession Agreement that is existing or to be entered into by the Parties pursuant to this Lease;"*

Expected specified substances pursuant to the Quarry Concession Agreement can be seen in Table 2-2 of Section 2.4. These quarried materials will be utilized in the construction activities as detailed in Section 2.2.

2.7 WATER USE

The Tenant shall provide: *"Expected uses of water pursuant to a Water Compensation Agreement that is existing or to be entered into by the Parties pursuant to this Lease;"*

The existing Type A Water Licence 2AM-MRY1325 permits the maximum following water use for domestic and industrial purposes during construction phase of the Project.

Table 2-4: Water Use for Domestic and Industrial Purposes during Construction Phase

Site	Source	Volume	Combined Volume
Milne Port (Milne Inlet)	Phillips Creek (Summer)	68.5m³/day	25,000 m³/year
	Km 32 (Winter)		
Mine Site (Mary River)	Camp Lake	657.5 m³/day	240,000 m³/year
Steensby Port (Steensby Inlet)	ST 347 km Lake	345.8 m³/day	155,400 m³/year
	3 km Lake		

Source: Type A Water Licence, 2AM-MRY1325

2.8 MATERIALS SHIPPED OUT

The Tenant shall provide: *"Expected quantities of materials that will be shipped off the Property;"*

Expected quantities of materials planned to be shipped off site in 2014 are detailed in Table 2-5 and Table 2-6. Table 2-5 provides estimated hazardous waste and hazardous material quantities to be shipped off site during 2014 and is based on projections detailed in the Hazardous Material and Waste Management Plan for the Project with an additional allowance for decommissioned bladder farm materials. Table 2-6 details quantities of any additional material planned to be demobilized from site in 2014.

Table 2-5: Hazardous Waste Generation Estimate for 2014

Waste Category	Waste Description	Disposal Method	2014 Est. Generation (kg/person/ day)	Person Days On-Site	Est. Total Annual Production (tonnes)	Est. Total Annual Production (tonnes) with 20% Contingency
Construction Phase [1]						
Batteries	Misc.	Shipped off Site	0.125		14.93	17.92
Hydro Carbon Contaminated Material	Sludge, Absorbents, Oil Filters etc	Incinerated/Shipped off Site	0.288		34.30	41.16
Waste Oil	Maintenance	Incinerated/Shipped off Site	1.732		206.30	247.55
Waste Fuels	Maintenance	Incinerated/Shipped off Site	0.129		15.32	18.38
Waste Grease	Domestic/Maintenance	Incinerated/Shipped off Site	0.046	119082	5.42	6.51
Waste Hazardous Liquids	Other, Paint, Oily Water	Shipped off Site	0.561		66.86	80.23
Waste Aerosol Canisters	Misc.	Shipped off Site	0.004		0.43	0.51
Contaminated Containers/Solids	Various	Shipped off Site	0.447		53.25	63.89
Misc Hazardous Materials	Misc.	Shipped off Site	0.350		41.73	50.08
				TOTAL	**438.53**	**526.24**

NOTES

[1] Assume 450 people on site for 365 days during construction phase to remain conservative

[2] Assume 325 people on site for 365 days during operation phase to remain conservative

[3] Generation rate based on Mary River specific estimate. No contingency included

Table 2-6: Materials to be shipped out in 2014

Description	Equipment Type	Quantity
Winch Truck	Mobile equipment	1
Pick-up F350	Mobile equipment	9
Mechanic Truck F550	Mobile equipment	2
Bus	Mobile equipment	1
Fuel Truck	Mobile equipment	2
Roll-off / Vac Truck	Mobile equipment	2
Crane - 60 ton – with jib	Mobile equipment	1
Packer CS563	Mobile equipment	1
Skid Steer	Mobile equipment	2
Crusher and Screener unit	Crushing & Screening	1
Water Truck	Mobile equipment	1
Loader with bucket	Mobile equipment	5
Dozer D8T	Mobile equipment	2
Dozer D7R	Mobile equipment	1
Grader 16H	Mobile equipment	1
Grader 14H	Mobile equipment	1
Excavator 345C	Mobile equipment	2
Rock Truck 773E	Mobile equipment	2
Shop - Norseman 40'x60'	Structure	4
Compressor 375HD PQ - Trailer Mounted (S/B C250)	Mobile equipment	1
Light Tower 8 KW	Structure	8
Tanker Trailer 50,000L	Mobile equipment	2
Scissor Deck	Mobile equipment	1
Welder mounted on Trailer - Ideal Arc DC600	Mobile equipment	1
Office Trailer	Structure	2
49 Person Accommodation Complex	Structure	1
Sewage Treatment Plant	Structure	1
Duel Burner Incinerator	Structure	1
Sewage Holding Tank	Tank	1
Washroom / Lunchroom (Wheeled) (survival shack)	Shop / maintenance equipment	2
Seacan 20'	Container	36
Generator	Generator	3

2.9 MATERIALS SHIPPED IN

The Tenant shall provide: *"Expected quantities of materials that will be shipped to and stored on the Property;"*

At least two bulk fuel deliveries will occur during the 2014 sealift. At the onset of the shipping season, arctic diesel and Jet A fuel will be delivered to fill the newly constructed tanks at the Milne tank farm.

The anticipated fuel delivery is as follows:

Table 2-7: 2014 Anticipated Fuel Delivery

	Diesel	Jet A	Marine Diesel
Total Bulk Fuel Delivery	50 ML	2 ML	0.2ML

**Source ERP Addendum Key Project Facts Table, Volume One*

The material, equipment, supplies, buildings and machinery that were not received at Milne Inlet during the 2013 sealift will be carried over to the 2014 sealift and includes the following:

Table 2-8: Facilities and Equipment Remaining at Marshalling Yard after 2013 Sealift

Facility	Quantity
Maintenance building (2521-bld-001)	1
Welding shop (2521-bld-002), (4521-bld)	2
Truck washing building (4523-bld-001)	1
Truckweight foldaway (4382-bld-001)	1
Heavy Equipment and Rolling Stock	**Quantity**
Ore haul pup trailer	5
Ore haul lead trailer	6
Dump box for 740 dump truck	1
Cat 740b dump truck	2
Cat 740b rock truck	1
Cat 824h WH dozer	1
Cat 988h loader	1
Cat 345dl excavator	1

An extensive list of all mechanical equipment to be received during the 2014 is presented in the table below:

Table 2-9: Mechanical Equipment to be Received during 2014

Description	Equipment type	Quantity
Magnetic base drill	Shop / maintenance equipment	2
Hydraulic porta power pump	Shop / maintenance equipment	2
Bench grinder	Shop / maintenance equipment	6
Truck mount goodall boost system	Shop / maintenance equipment	2
Goodall boost system	Shop / maintenance equipment	2
A/c recovery recharge unit	Shop / maintenance equipment	2
Battery charger	Shop / maintenance equipment	4
Tube bender	Shop / maintenance equipment	2
Platform scale	Shop / maintenance equipment	2
Milling machine	Shop / maintenance equipment	1
Tire siping machine	Shop / maintenance equipment	1
Track pin press	Shop / maintenance equipment	2
Inching tool	Shop / maintenance equipment	1
Generator	Generator	4
Single pass production drill	Mobile equipment	1
Tote road ore haul truck - tractor	Mobile equipment	16
Tote road ore haul truck - lead trailer	Mobile equipment	10
Tote road ore haul truck - pup trailer	Mobile equipment	10
Mobile equipment lowboy trailer	Mobile equipment	1
Stockpile, front end loader	Mobile equipment	4
Mid size excavator	Mobile equipment	2
Laboratory Equipment	Laboratory equipment	27
Diesel fuel dispensing module arctic diesel pump	Pump	14
Jet-a1 fuel dispensing module fuelling station	Fire services	2
Jet-a1 fuel dispensing module discharge pump	Pump	2
Fuel oil pump	Pump	6
Jet-a1 tank	Tank	2
Maintenance building diesel tank	Tank	1
Warehouse building diesel tank	Tank	1
Truck wash building diesel tank	Tank	1
Arctic diesel tank	Tank	2
Stockpile generator	Generator	5
Shiploader	Shiploader	2
Reclaim conveyor	Conveying	1
Shiploader link conveyor	Conveying	1

Description	Equipment type	Quantity
Discharge chutes & diverters for reclaim conveyor & shiploader	Chute / diverter	11
Sampler bin	Hopper	1
Ore sampler	Sampler	1
Belt scale	Screen	1

To the extent practicable, all materials and supplies required to execute the 2014 Work Plan and the work scheduled for January to June 2014 has been received during the 2013 sealifts. Additional materials and supplies to support operations through the remainder of 2014 and 2015 will arrive including:

- Delivery of ammonium nitrate (AN), 520,000 kg;
- Delivery of pre-packaged explosives 83,000 kg;
- Delivery of maintenance parts;
- Delivery of consumables (lubricants, grease, detergents, boosters, EZ Dets, dry goods, food, household supplies, etc.).

2.10 CLOSURE AND RECLAMATION COSTS

The Tenant shall provide: *"A description of the applicable provisions of the Closure and Reclamation Plan for the upcoming Year, a report of the estimated costs to be incurred to implement the Closure and Reclamation Plans for the Year and the balance of the Term;"*

The provision of additional securities for the 2014 work is allocated as summarised in Table 2-10 below. Further detail can be found in document H349000-1000-07-126-0017.

Table 2-10: Mary River Project Closure and Reclamation Security Summary, 2014

Liability Allocation		Mary River Exploration Project Closure Cost Estimate **(Type B Renewal)**	2014 Work Plan Marginal Closure Estimate – **Approved Activities (Type A)**	2014 Work Plan Marginal Closure Estimate – **ERP Activities (Type A)**	TOTAL 2014 Marginal Closure Estimate for Mary River Project - **(Type A)**
TOTAL		**$1,247,000**	**$3,315,000**	**$279,000**	**$3,594,000**
IOL	Land	$147,000	$3,150,000	$279,000	$3,428,000
	Water	$18,000	$0	$0	$0
	Total IOL	**$165,000**	**$3,150,000**	**$279,000**	**$3,428,000**
Crown	Land	$1,082,000	$166,000	$0	$166,000
	Water	$0	$0	$0	$0
	Total Crown	**$1,082,000**	**$166,000**	**$0**	**$166,000**

2.11 OPTION EXERCISE NOTICES

The Tenant shall provide: *"All Option Exercise Notices;"*

- None contemplated at this time

2.12 LEASE SCHEDULE UPDATES

The Tenant shall provide: *"Updates to items contained in the Schedules of this Lease (if applicable), including without limitation the Closure and Reclamation Plan, the Contingency and Emergency Response Plan, and the Environmental Management and Monitoring Plans;"*

- No changes from those included within the lease document signed September 6, 2013

2.13 LEASE AMMENDMENT PROVISIONS

The Tenant shall provide: *"Requested amendments to the provisions of this Lease (if applicable);"*

- No changes from those included within the lease document signed September 6, 2013

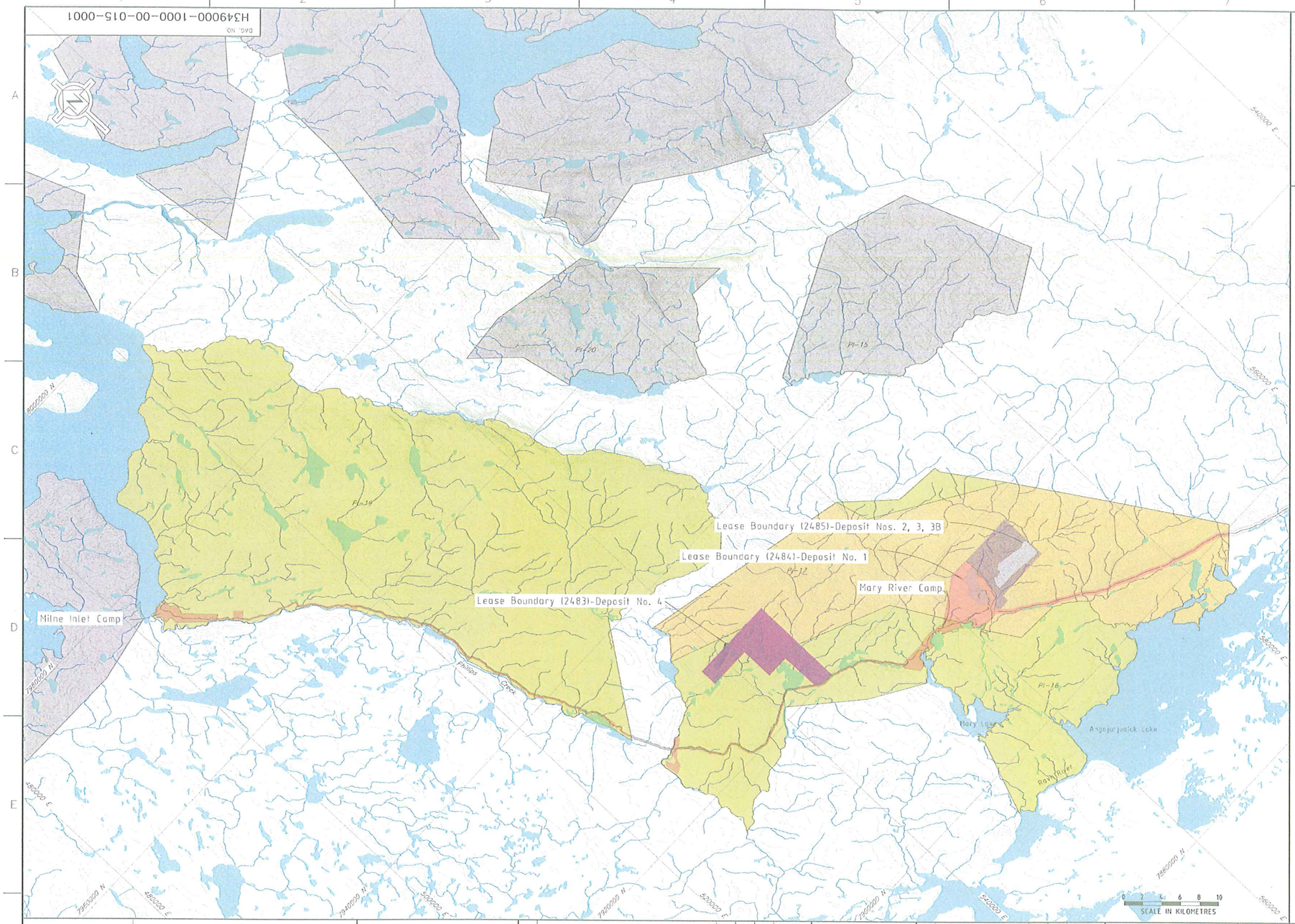
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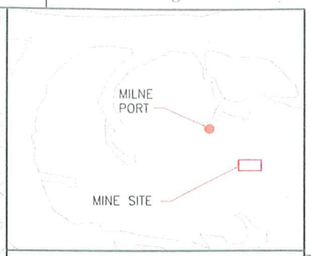
APPENDIX A

Drawings:

- **H349000-1000-00-015-0001;**
- **H349000-1000-00-015-0002;**
- **H349000-1000-00-015-0003; and**
- **H349000-1000-00-015-0004.**

DWG. NO. H349000-1000-00-015-0001





KEYPLAN

LEGEND:

- WATER
- GENERAL INUIT OWNED LAND-SURFACE ONLY EXCLUDING MINERALS
- GENERAL INUIT OWNED LAND-SURFACE AND SUBSURFACE INCLUDING MINERALS
- CROWN LAND
- INUIT OWNED LAND-SURFACE ONLY EXCLUDING MINERALS
- EXISTING TOTE ROAD

DESCRIPTION	AREA (ha)
IMPACT AREA	
MARY RIVER AREA	5184
MILNE AREA	701
TOTE ROAD QUARRIES	413
RAIL	1329
MILNE INLET TOTE ROAD CENTRE LINE PLUS 100m	1555
TOTAL IMPACT AREA	7268
EXPLORATION	
2/3 DEPOSIT	2457
4/5 DEPOSIT	4350
TOTAL EXPLORATION AREA	6807
TOTAL AREA	14075 ha

REGISTERED PROFESSIONAL ENGINEER M.J. BOYKO LICENCE 11015 NT/NU

PERMIT TO PRACTICE HATCH LTD
Signature
Date 17 JULY 13
PERMIT NUMBER: P 512
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DESIGNED BY M. ANDERSON DATE 2013-05-15	DRAWN BY C. LEISTNER DATE 2013-05-15
CHECKED BY I. THEAKER DATE 2013-07-15	DISC'P. ENGR. J. LEMAY DATE 2013-07-15
PROJ. DES. COORD. T. THEAKER DATE 2013-07-15	PROJ. ENGR. J. CLEGG DATE 2013-07-15
PROJ. MGR. S. PERRY DATE 2013-07-15	

Baffinland

MARY RIVER PROJECT

SCHEDULE A1
THE PROPERTY

SCALE	DWG. NO.	REV.
1:200000 OR AS NOTED	H349000-1000-00-015-0001	0

ORIGINAL SHEET SIZE: ISO A1 (841 x 594)

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H349000-1000-00-015-0002

DWG. NO.

MILNE INLET

N:7976476.40
E:504250.00

Q1

N:7975575.00
E:502500.000

Q2

EXISTING LAND LEASE BOUNDARY

N:7975121.788
E:502750

PHILLIPS CREEK

N:7975175.00
E:504850.00

MILNE INLET TOTE ROAD

N:7974750.00
E:502750.00

N:7974750.00
E:503450.00

POTENTIAL DEVELOPMENT AREA

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E:504550.00

N:7974000.00
E:503450.00

Q7

N:7971675.00
E:505725.00

N:7971350.00
E:507100.00

N:7971075.00
E:506575.00

0 120 240 360 480 600
SCALE IN METRES

MILNE PORT

5

MINE SITE

KEYPLAN

LEGEND:

- WATER
- RIVER/STREAM/DRAINAGE
- POTENTIAL DEVELOPMENT AREA
- EXISTING BAFFINLAND'S COMMERCIAL LEASE ON INUIT OWNED LAND
- IMPACT AREA
- ROAD
- TOTE ROAD
- QUARRY SAMPLE LOCATIONS

REGISTERED PROFESSIONAL ENGINEER
M.C. DOYXX
LICENSEE
17/7/13
NT/NU

NOTES:

1. TOPOGRAPHY PROVIDED BY TERRAPOINT CANADA INC.
2. COORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METRES.
3. CONTOURS ARE IN METRES. CONTOUR INTERVAL IS 1.5 METRES.
4. AS-CONSTRUCTED INFORMATION PROVIDED BY GENIVAR IN 2008.

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MARY RIVER PROJECT

SCHEDULE A3
MILNE INLET IMPACT AREA

SCALE	DWG. NO.	REV.
AS NOTED OR AS NOTED	H349000-1000-00-015-0002	0

ORIGINAL SHEET SIZE: ISO A1 (841 x 594)

DWG. NO. H349000-1000-00-015-0003

GENERAL INUIT OWNED LAND-SURFACE AND SUBSURFACE INCLUDING MINERALS

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E: 537500.00

N: 7930125.00
E: 546625.00

N: 7928250.00
E: 537500.00

N: 7928250.00
E: 542050.00

N: 7924675.00
E: 542050.00

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E: 544600.00

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E: 528675.00

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E: 527900.00

MILNE PORT

MINE SITE

KEYPLAN

LEGEND:

- WATER
- RIVER/STREAM/DRAINAGE
- POTENTIAL DEVELOPMENT AREA
- EXISTING BAFFINLAND'S COMMERCIAL LEASE ON INUIT OWNED LAND
- IMPACT AREA - BORROW SOURCE
- EXPLORATION AREA - DEPOSIT 4/5
- ROAD
- TOTE ROAD

NOTE:

CONTOURS AND WATER INFORMATION NOT AVAILABLE

0 300 600 900 1200 1500
SCALE IN METRES

PROFESSIONAL ENGINEER
M. J. BURNS
LICENSEE
17/7/13
NTNU

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Baffinland

MARY RIVER PROJECT

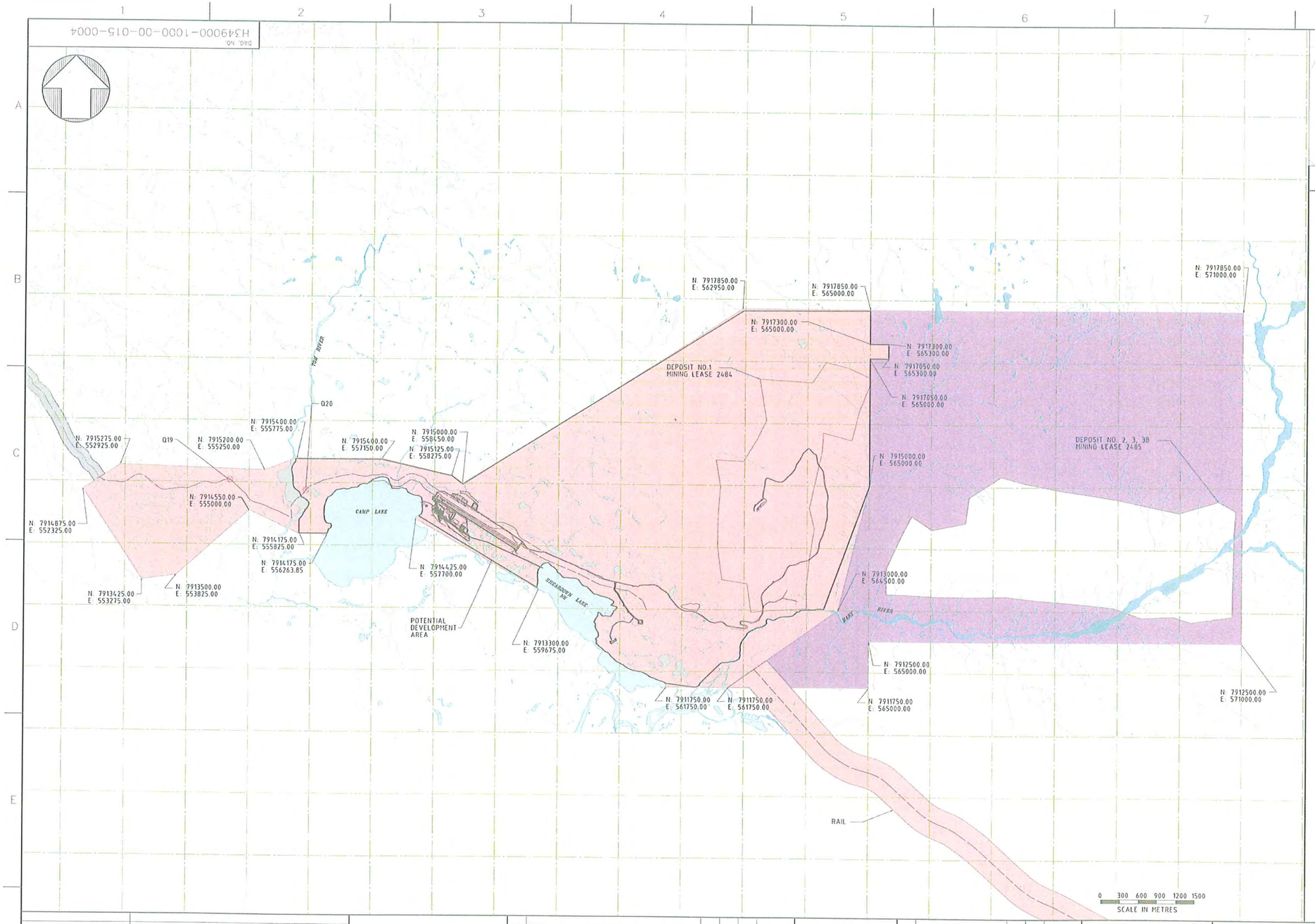
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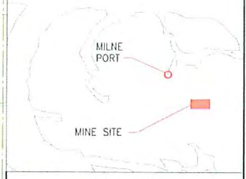
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DWG. NO. H349000-1000-00-015-0004





KEYPLAN

LEGEND:

- WATER
- RIVER/STREAM/DRAINAGE
- POTENTIAL DEVELOPMENT AREA
- EXISTING MINING LEASE ON INUIT OWNED LAND
- IMPACT AREA
- EXPLORATION AREA
- ROAD
- TOTE ROAD
- QUARRY SAMPLE LOCATIONS

NUNAVUT PROFESSIONAL ENGINEERS
M. J. LOVICK
LICENSEE
17/7/13
NT/NU

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HATCH™

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PROJ. DES. MGR. T. THERIAULT DATE 2013-07-15	PROJ. ENGR. J. C. LEMAY DATE 2013-07-15
PROJ. MGR. S. PERRY DATE 2013-07-15	

Baffinland

MARY RIVER PROJECT

SCHEDULE A2
MARY RIVER IMPACT & EXPLORATION AREA

SCALE	DWG. NO.	REV.
1:30000 OR AS NOTED	H349000-1000-00-015-0004	0

ORIGINAL SHEET SIZE: ISO A1 (841 x 594)

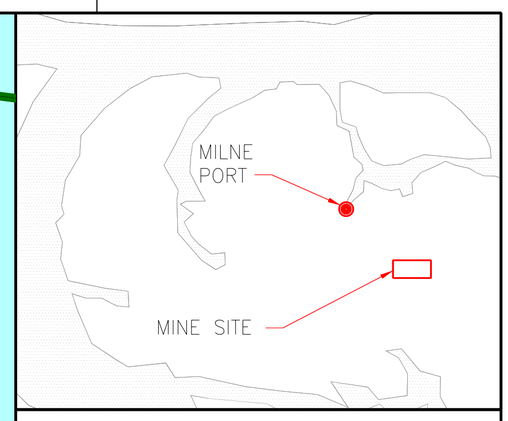
APPENDIX B

Drawings:

- **Milne Port Site Layout**
- **Mine Site Layout**

Updated Drawings for Milne Port and Mine Site Hazardous Materials and Hazardous Waste Management

H349000-2000-00-015-0014



KEYPLAN

FUTURE SEALIFT BARGE
LANDING AREA

HAZARDOUS WASTE BERM

SERVICE AREA
PAD SITE FACILITIES

ACCOMMODATION
COMPLEX

HAZARDOUS MATERIAL BERM

BLADDER FARM DECOMMISSIONING

HAZARDOUS MATERIAL BERM

WASTE MANAGEMENT
FACILITY

HAZARDOUS WASTE BERM

EXISTING
TRAILER CAMP

MAINTENANCE
SHOP

LAND FARM

PERMITTED OPEN
BURN PIT AREA

CONCRETE BATCH
PLANT, CRUSHER AND
STOCKPILE

APPROXIMATE EXTENT OF
QUARRY Q1 DEVELOPMENT

LEGEND:

- WATER
- PROPOSED QUARRY
- LAYDOWN AREA (CONSTRUCTION PHASE)
- ADVANCED EXPLORATION UNDER EXISTING TYPE 'B' WATER LICENSE
- RIVER/STREAM/DRAINAGE
- PROJECT DEVELOPMENT AREA
- EXISTING BORROW AREA (IOL COMMERCIAL LEASE)
- EXISTING ROCK QUARRY (IOL COMMERCIAL LEASE)
- PRIMARY HAZARDOUS WASTE GENERATION AREA
- BAFFINLAND'S COMMERCIAL LEASE ON INUIT OWNED LAND
- ROAD

Baffinland

MARY RIVER PROJECT

MILNE PORT HAZARDOUS MATERIALS HAZARDOUS WASTE LAYOUT

SCALE	DWG. NO.	REV.
OR AS NOTED	H349000-2000-00-015-0014	A

DWG. NO. H349000-4000-00-015-0014

TOM RIVER

CAMP LAKE

SHEARDOWN NW LAKE

MARY RIVER

ACCOMODATION COMPLEX

WASTE MANAGEMENT FACILITY

SITE SERVICES FACILITIES

QUARRY D1Q1

QUARRY D1Q2

PIT OFFICE

OPEN PIT DEVELOPMENT

QUARRY QMR2

HAZARDOUS WASTE CONTAINMENT BERM

OLD INCINERATOR

TEMPORARY INCINERATOR LOCATION

CONCRETE BATCH PLANT

BARRELED FUEL CONTAINMENT

BULK FUEL STORAGE FACILITY

EXPLORATION CAMP FACILITIES

EXISTING LANDFILL ROAD

EXISTING LANDFILL

FUTURE EMULSION PLANT

0 200 400 600 800 1000

SCALE IN METRES

MILNE PORT

MINE SITE

KEYPLAN

NOTES:

1. TOPOGRAPHY PROVIDED BY TERRAPOINT CANADA INC.
2. COORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METRES.
3. CONTOURS ARE IN METRES. CONTOUR INTERVAL IS 1.5 METRES.
4. AS-CONSTRUCTED INFORMATION PROVIDED BY GENIVAR IN 2008.

LEGEND:

- WATER
- QUARRY
- LAYDOWN AREA (CONSTRUCTION PHASE)
- EXISTING BORROW AREA (IOL COMMERCIAL LEASE)
- EXISTING ROCK QUARRY (IOL COMMERCIAL LEASE)
- ROAD
- RIVER/STREAM/DRAINAGE
- PROJECT DEVELOPMENT AREA
- BAFFINLAND'S COMMERCIAL LEASE ON INUIT OWNED LAND
- RAW WATER INTAKE PIPELINE
- PRIMARY HAZARDOUS WASTE GENERATION AREA

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

MINE SITE HAZARDOUS MATERIALS AND HAZARDOUS WASTE LAYOUT

SCALE	DWG. NO.	REV.
1:15000 OR AS NOTED	H349000-4000-00-015-0014	A

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Appendix C -
Table of Concordance with Type A Water Licence (2AM-MRY1325) Conditions

The information contained herein is proprietary Baffinland Iron Mines Corporation and is used solely for the purpose for which it is supplied.
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Table C-1 shows the Part, number and Condition of the Type A water License (Water Licence No: 2AM-MRY1325) and the location where the condition is located within the Hazardous Materials and Hazardous Waste Management Plan.

TABLE C- 1: LIST OF COMMITMENTS IDENTIFIED AND LOCATION OF THE CORRESPONDING ANSWERS

Hazardous Materials and Hazardous Waste Management Plan - Concordance table			
Part	**Number**	**Condition**	**Section**
D	20	The Licensee shall prevent any chemicals, fuel or wastes associated with the undertaking from entering any Water body.	Section 5.4
F	5	The Board has approved with the issuance of the licence, the Plan entitled "Baffinland Iron Mines Corporation Mary River Project Hazardous Materials and Hazardous Waste Management Plan", dated April 22, 2013.	N/A
F	6	The Licensee shall locate areas designated for waste disposal at a minimum distance of thirty-one (31) meters from the ordinary High Water Mark of any water body such that the quality, quantity or flow of water is not impaired, unless otherwise approved by the Board in writing.	Section 5.4.2
F	11	The Licensee shall submit to the Board and the Inspector, thirty (30) days prior to the removal and transfer of waste, a declaration of authorization from any community receiving waste from the project, which clearly states that authorization has been granted for the deposit by the Licensee at the Hamlet's appropriately licensed facilities.	Section 5.5
F	14	The Licensee shall remove any waste generated from temporary and permanent shelters along the tote road and along the railway corridor for treatment at appropriately licenced Waste Management Facilities.	Section 5.4
F	29	The Licensee shall remove from the project site, all hazardous wastes generated through the course of the Construction and Operations Phases, for disposal at an approved Waste Disposal Facility.	Section 5.5
F	30	The Licensee shall maintain records of all Waste backhauled from the Mary River Project and confirmation of proper disposal through the use of Waste manifest tracking systems and registration with the Government of Nunavut, Department of Environment. These records shall be made available upon request, to an Inspector or the Board.	Section 5.5

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