	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 1 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

Baffinland Iron Mines Corporation

MARY RIVER PROJECT EXPLORATION SPILL CONTINGENCY PLAN

BAF-PH1-830-P16-0037


Rev 0

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 2 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 3 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

TABLE OF CONTENTS

1	INTRODUCTION.....	9
1.1	Purpose and Scope	9
1.2	Approach to Spill Response.....	9
2	LEVELS OF SPILL RESPONSE EMERGENCY.....	11
3	RESPONSE PROCEDURES.....	13
3.1	Spills on Land	13
3.2	Spills on Fresh Water	13
3.3	Spills on Snow and Ice.....	14
3.4	Wildlife Protection Procedures	15
4	DISPOSAL OF SPILLED MATERIAL	18
5	POTENTIAL SPILL ANALYSIS.....	19
5.1	Fuel Spills on Land	19
5.1.1	Potential Fuel Spill Scenarios	21
5.2	Untreated Sewage	24
5.3	Lubricants and Oils	25
5.3.1	Potential Spill Scenarios Related to Lubricants and Oils.....	25
6	REPORTING REQUIREMENTS	28

List of Table


TABLE 3-1: Emergency Contacts in case of spills affecting wildlife	17
TABLE 5-1: Current fuEL Inventory*	19

List of Figure

FIGURE 2-1: Spill Response Levels	12
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The information contained herein is proprietary to 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.

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 4 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

List of Appendix

Appendix A - Concordance Table

Appendix B - Current Site Layouts for Mid-Rail Camp, Steensby Camp and Property Map showing Potential Exploration Camp Locations

Appendix C - Spill Response Supplies


Appendix D - Hazardous Materials List

Appendix E - Material Safety Data Sheets

Appendix F - NT-NU Spill Report

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 5 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

Foreword

The Exploration Spill Contingency Plan supports/complements the Mary River Project Emergency Response Plan. For the distribution list of this Plan, see Table A. Additional copies of this Plan may be obtained from:

Baffinland Iron Mines Corporation

2275 Upper Middle Road East, Suite 300

Oakville Ontario L6H 0C3


Tel: (416) 364-8820 Fax: (416) 364-0193

Table A: Distribution List for the Mary River Exploration Project Spill Contingency Plan

Department of Environment - Environmental Protection Division PO Box 1000 Station 1870 Iqaluit, NU, Canada X0A 0H0 Tel: (867) 975-4644, 1-867-222-1925 (Enforcement Officer) Fax: (867) 975-4594	Department of Fisheries and Oceans - Central and Arctic Region 301 – 5204 50 th Ave Yellowknife, NT X1A 1E2 Tel: (867) 669-4927 (Fisheries Protection Biologist) Fax: (867) 669-4940
Qikiqtani Inuit Association, Department of Major Projects P.O. Box 219 Iqaluit, NU X0A 0H0 Tel: (867) 867-975-8400, (867) 975-4644 (Director, Major Projects) 1-800-6672742 (Administrator) Fax: (867) 979-3238	AANDC - Nunavut Regional Office Land Administration Division PO Box 100 Iqaluit, NU, Canada X0A 0H0 Tel: (867) 975-4283 (Land Administration Manager) Fax: (867) 979-6445
AANDC - Nunavut Regional Office Water Resources Division PO Box 2200 Iqaluit, NU, Canada X0A 0H0 Tel: (867) 975-4295 (Field Operations Manager) Tel: (867) 975-4295 (Water Resources Officer) Fax: (867) 979-6445	AANDC - Nunavut Regional Office Water Resources Division PO Box 2200 Iqaluit, NU, Canada X0A 0H0 Tel: (867) 975-4550 (Water Resources Manager) Fax: (867) 979-6445
Nunavut Impact Review Board PO Box 1360 Cambridge Bay, NU, Canada X0B 0C0 Tel: (867) 983-4600, 1-866-233-3033 Fax: (867) 983-2594	Nunavut Water Board PO Box 119 Gjoa Haven, NU, Canada X0B 1J0 Tel: (867) 360-6338 Fax: (867) 360-6369
Hamlet of Pond Inlet PO Box 180 Pond Inlet, NU, Canada X0A 0S0 Tel: (867) 899-8934 Fax: (867) 899-8940	Mittimatalik Hunters and Trappers Organization PO Box 189 Pond Inlet, NU, Canada X0A 0S0 Tel: (867) 899-8856 Fax: (867) 899-8095

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 6 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	



SUSTAINABLE DEVELOPMENT POLICY

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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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 7 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

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

	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 8 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	



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 Paddon
President and Chief Executive Officer
March 2013

	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 9 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

1 INTRODUCTION

1.1 PURPOSE AND SCOPE

This Exploration **Spill Contingency Plan (SCP)** identifies potential spills of hazardous materials on land, ice, or fresh water that could arise during the exploration phases of the Mary River Project. Credible spill scenarios are identified and protocols for preventing, responding to, and recovering from releases to the environment involving regulated hazardous substances. This Exploration Project Spill Contingency Plan complements Baffinland's Mary River Project Spill Contingency Plan (BAF-PH1-830-P16-0012) as well as the Mary River Project Emergency Response Plan (BAF-PH1-830-P16-0007). The SCP reflects the level of activity that occurs or will occur at the Mary River sites during exploration phases of the Mary River Project as approved under the Nunavut Water Board (NWB) Type 'B' Water Licence No. 2BE-MRY1421.

1.2 APPROACH TO SPILL RESPONSE

A spill is defined as the unauthorized discharge or release of a hazardous product out of its containment and into the environment. Potential hazards to humans, vegetation, water resources, fish and wildlife vary in severity, depending on several factors including nature of the material, quantity spilled, location and season. Diesel and Jet Fuels are the main products that may be spilled during the Mary River Exploration Project (the 'Project') and therefore spill response procedures focus primarily on these hazardous materials. Other chemicals that may be spilled include sewage water, anti-freeze, and small quantities of lubricants and oils.

All Project personnel shall be trained on the procedures to be followed to report a spill and initiate spill response. The first person to notice a spill takes the following steps:


1. Immediately warn other personnel working near the spill area.
2. Evacuate the area if the health and safety of personnel is threatened.
3. In the absence of danger, and before the spill response team arrives at the scene, take any safe and reasonable measure to stop, contain and identify the nature of the spill.
4. Notify the Supervisor, who will initiate the spill response operations and will contact the Environmental Department at Mary River.

All spill response interventions carried out follow these general procedures:

Source Control – Reduce or stop the flow of product without endangering anyone. This could involve very simple actions such as turning off a pump, closing a valve, or sealing a puncture hole with almost anything handy (e.g., a rag, piece of wood, tape), raising a leaky or discharging hose to a level higher than the product level inside the tank, or transferring fuel from leaking containers.

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 10 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	


Control of Free Product – Prevent or limit the spread of the spilled material. Accumulate/concentrate spilled product in an area to facilitate recovery. Barriers positioned down-gradient of the spill will slow or stop the progression of the spill. Barriers can consist of absorbent booms, dykes, berms, or trenches (dug in the ground or in ice).

Protection – Evaluate the potential dangers of the spill to protect sensitive ecosystems and natural resources. Block or divert the spilled material away from sensitive receptors. This can also be achieved by using various types of physical barriers.

Clean up the Spill – To the Environmental Department at Mary River, recover and containerize as much free product as possible. Recover and containerize/treat contaminated soil, water, and snow. Pressure-wash contaminated bedrock surfaces, shorelines, ice and recover as much as possible oily water for containerization and/or treatment.

Report the Spill – Provide basic information such as date and time of the spill, type and amount of product discharged, photographic records, location and approximate size of the spill, actions already taken to stop and contain the spill, meteorological conditions and any perceived threat to human health or the environment. Reporting requirement forms are presented in Appendix A.

The emergency response levels to spills and the procedures specific to spills on land, water, snow and ice are presented in the following sections. Spill response operations, techniques, equipment and materials are further detailed in the spill response training course documentation.

	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 11 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

2 LEVELS OF SPILL RESPONSE EMERGENCY

The levels of emergency response for spills are detailed in the Mary River Project Emergency Response Plan (BAF-PH1-830-P16-0007) under Section 2.0. Baffinland has adopted a generic classification system that includes three levels of emergencies. Each level of emergency, based on the significance of the event, requires varying degrees of response, effort and support. With emphasis on spills and releases the three response levels are as follows:

Level 1 (Low) – Minor accidental release of a deleterious substance with:

- ♦ No threat to public safety; and/or
- ♦ Negligible environmental impact to receiving environment.

Level 2 (Medium) – Major accidental release of a deleterious substance with:

- ♦ Some threat to public safety; and/or
- ♦ Moderate environmental impact to receiving environment

Level 3 (High) – Uncontrolled hazard which:

- ♦ Jeopardizes project personnel safety; and/or
- ♦ Significant environmental impacts to receiving environment

For spills, the level of emergency response to a given spill incident is based in part on the specific substance released, quantity spilled, the receiving environment that is potentially impacted, and human health risk. The level of response is also based on whether the location of the spill release is within engineered containment. The following matrix provides a working guideline for project personnel with regard to the level of response that is warranted for a specific spill release based on the above mentioned factors.


Various aspects of the emergency spill response such as organization, roles and responsibilities, generic emergency response procedures, internal and external contacts lists, training, resources, and reporting are detailed in the Mary River Project Emergency Response Plan (ERP). The reader is referred to the ERP for guidance and instruction regarding those aspects of emergency response.

SPILL RESPONSE LEVELS				
	Level 1	Level 2	Level 3	
Explosives	<100 kg <500 kg	100-1,000 kg 500-5,000 kg	>1,000 kg >5,000 kg	in water body on land
Sewage	<1,000 L <10,000 L	1,000-10,000 L 10,000-100,000 L	>10,000 L >100,000 L	in water body on land
Hydrocarbons	<10 L	10-1,000 L	>1,000 L	in water body
Lubricants	<500 L	500 -5,000 L	>5,000 L	on land
Antifreeze	<1,000 L	1,000-100,000 L	>100,000 L	contained area
Hazardous Materials				

FIGURE 2-1: SPILL RESPONSE LEVELS

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 13 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

3 RESPONSE PROCEDURES

3.1 SPILLS ON LAND

Response to spills on land will include the general procedures detailed in the ERP.

The main spill control techniques involve the use of two types of physical barriers: dykes and trenches. Barriers should be placed down gradient (down-slope) from the source of the spill, and as close as possible to the source of the spill. Barriers slow the progression of the spill and also serve as containment to allow recovery of the spilled material.

Depending on the volume spilled, the site of the spill as well as available material, a dyke may be built with soil, booms, lumber, snow, etc. A plastic liner should be placed at the foot of and over the dykes to protect the underlying soil or other material and to facilitate recovery of the spill. Construct dykes in such a way as to accumulate a thick layer of free product in a single area (V shaped or U-shaped).

Trenches are useful in the presence of permeable soil and when the spilled fuel is migrating below the ground surface. A plastic liner should be placed on the down-gradient edge of the trench to protect the underlying soil. Liners should not be placed at the bottom of the trench to allow water to continue flowing underneath the layer of floating oil (if applicable).

The use of large quantities of absorbent materials to recover large volumes of spilled fluids should be avoided. Large volumes of free-product should be recovered and containerized, as much as possible, by using vacuums and pumps appropriate to the material that can be obtained from the Mary River site. Mixtures of water and fuel may be processed through an oil-water separator. Absorbent sheets should be used to soak up residual fuel on water, on the ground (soil and rock), and on vegetation. Peat moss may also be sprinkled on vegetation to absorb films of petroleum products.

Contaminated spill response materials and product will be handled on site as a hazardous material and will be temporarily stored in secondary containment on site until transfer off site for processing.


3.2 SPILLS ON FRESH WATER

Responses to spills on fresh water include the general procedures previously detailed. Various containment, diversion and recovery techniques are discussed in the following sections. The following elements must be considered when conducting response operations:

- Type of water body or water course (lake, stream, river).
- Water depth and surface area.
- Wind speed and direction.

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 14 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

- Type of shoreline; and
- Seasonal considerations (open-water, freeze-up, break-up, frozen).

Containment of a fuel slick requires the deployment of mobile floating booms to intercept, control, contain and concentrate (i.e., increase thickness) the floating oil. For a large lake, typically, one end of the boom is anchored to shore while the other is towed by a boat and use to circle the diesel fuel slick and return it close to shore for recovery using a skimmer. Reducing the surface area of the slick increases its thickness and thereby improves recovery. Mechanical recovery equipment (i.e., skimmers and oil/water separators) will be mobilized to site if required from the Mary River or Milne Inlet Sites.

If fuel is spilled in a smaller water body such as a small lake or pond, it may not be possible to deploy booms using a boat. In this case, measures are taken to protect sensitive and accessible shoreline (spills resulting from traffic incidents). The fuel slick is monitored to determine the direction of migration. In the absence of strong winds the oil will likely flow towards the discharge of the lake. Measures are taken to block and concentrate the oil slick at the lake discharge using booms where it will subsequently be recovered using a portable skimmer, a vacuum, or sorbent materials.


In small slowly-flowing rivers, streams, channels, inlets or ditches, inverted weirs (i.e., siphon dams) are used to stop and concentrate moving diesel fuel for collection while allowing water to continue to flow unimpeded. In the case of floating fuel, in a stream, heading for a culvert (i.e., at a road crossing) a culvert block is used to stop and concentrate moving fuel for collection while allowing water to continue to flow unimpeded. In both cases fuel will then be recovered using a portable skimmer or sorbent materials.

In the case of spills in larger rivers, with fast moving currents, diversion booming is used to direct the oil slick ashore for recovery. Single or multiple booms (i.e., cascading) may be used for diversion. Typically, the booms are anchored across the river at an angle. The angle will depend on the current velocity. Choosing a section of a river that is both wider and shallower makes boom deployment easier. Diversion booming may also be used to direct an oil slick away from a sensitive area to be protected.

3.3 SPILLS ON SNOW AND ICE

In general, snow and ice will slow the movement of hydrocarbons. The presence of snow may also hide the fuel slick and make it more difficult to follow its progression. Snow is generally a good natural sorbent, as hydrocarbons have a tendency to be soaked up by snow through capillary action.

However, the use of snow as absorbent material is to be limited as reasonably practical. Snow and frozen ground also prevent hydrocarbons from migrating down into soil or at least slow the migration process. Ice prevents seepage of fuel into the underlying water body.

	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 15 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

Response to spills on snow and ice includes the general procedures previously detailed. Most response procedures for spills on land may be used for spills on snow and ice. The use of dykes (i.e., compacted snow berms lined with plastic sheeting) or trenches (dug in ice) slow the progression of the fuel and also serve as containment to allow recovery of the fuel.

Free-product is recovered by using a vacuum, a pump, or sorbent materials. Contaminated snow and ice is scraped up manually or using heavy equipment depending on volumes. The contaminated snow and ice is placed in containers or within lined berms on land. The contaminated water and product will be treated on site utilizing available oily water treatment systems. If oily water treatment systems are not available at Project sites, they will be mobilized to site from Mary River Project sites as required. Free phase product that is recovered will be utilized as a source of fuel on site if possible or shipped offsite for processing. Any other or contaminated water and product than cannot be utilized or treated safely on site will be temporarily stored in secondary containment on site until transfer off site for processing.


3.4 WILDLIFE PROTECTION PROCEDURES

In response to a spill event, techniques used to prevent wildlife from becoming oiled or contaminated, by preventing animals from entering the contaminated area, will consist of hazing and other deterrents. This will be accomplished using a combination of both audible and visual devices that could include but not be limited to:

- Pyrotechnics, i.e. shell crackers, screamers, propane cannons for shore based spills.
- Visual scare tactics, i.e.: helicopters, emergency response vessels or other water vessels.
- Broadcast sounds, i.e. Breco Bird Scarer designed to float with an oil spill.
- Exclusion, i.e. netting applied in smaller contaminated areas such as settling or evaporation ponds.

These techniques need to be set in place immediately after a spill occurrence so as to minimize environmental impact.

The size of the spill and location in relation to sensitive wildlife areas must be assessed at the time of the event as to correctly apply the appropriate level of deterrence. Only workers trained in the safe and proper use of certain hazing equipment will be permitted to haze wildlife. Personal Protective Equipment will be worn by all personnel using equipment, as per manufactures instructions, and that the minimum will include the use of eye and ear protection. Other workers in the vicinity of such devices should also use ear protection or remain a safe distance away. Hazing through the use of pyrotechnics should not be used too close to dry vegetation or flammable spill materials due to fire hazard.

	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 16 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

Hazing should be administered in such a way as to prevent wildlife from being hazed into an area where they may be in danger. It is also important to ensure that hazing efforts do not cause already contaminated animals to scatter and techniques are applied as soon as possible to prevent wildlife from contacting spills off the surface of waters (if applicable).

All emergency response vessels shall be equipped with deterrent devices to ensure timely response in case of a spill occurrence off-shore. To prevent habituation, variation of hazing techniques will be used such as changing the location, appearance and types of hazing or using a combination of hazing techniques.

Efforts shall be made to collect alive or dead oiled wildlife. In the event of a spill occurring in or around a water body, shorelines and beaches shall be inspected for contaminated wildlife to be collected. Emergency Response vessels shall be equipped with dip-nets, large plastic collecting bags for dead wildlife, and cardboard boxes or cloth bags for live oiled wildlife. To ensure that live oiled wildlife are dealt with humanely, capture and handling of wildlife shall only be done by trained individuals. Gloves shall be worn when handling contaminated wildlife (leather gloves for raptors and mammals, latex/rubber gloves for ducks and small shorebirds). Wildlife will be kept individually within cloth bags or ventilated cardboard boxes and label the date and time animal was found, name of finder, location and name of species, if known. Wildlife treatment facilities will then be contacted for advisement on treatment. All contaminated wildlife will be held in a warm quiet place until treatment. The Canadian Wildlife Services (CWS) will be consulted to determine the most humane treatment strategy to be implemented for live oiled wildlife, whether rehabilitation or euthanization.

For wildlife mortalities each carcass shall be bagged and labelled individually. The date and time animal was found, name of finder, location and name of species, if known shall be documented. CWS shall be consulted and approval obtained prior to disposing of any dead wildlife. Contact information for experts in bird hazing and bird exclusion, oiled bird rehabilitation, and, permits needed to haze, salvage, hold and clean, or euthanize birds, are shown in TABLE 3-1.

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 17 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

TABLE 3-1: EMERGENCY CONTACTS IN CASE OF SPILLS AFFECTING WILDLIFE

Name	Location	Phone Number	Purpose
Canadian Wildlife Services (CWS)	Qimugjuk	1-867-979-7279	<p>Knowing and providing information on the migratory bird resource and species at risk (under CWS jurisdiction) in the area of a spill (this includes damage assessment and restoration planning after the event)</p> <p>Minimizing the damage to birds by deterring oiled birds from becoming oiled</p> <p>Ensuring the humane treatment of captured migratory birds and species at risk by determining the appropriate response and treatment strategies which may include euthanization or cleaning and rehabilitation.</p>
Cobequid Wildlife Rehabilitation Centre	Brookfield, NS	1-902-893-0253	Provide veterinary care and rehabilitation for wildlife
Nunavut Emergency Management	P.O. Box 1000, Station 700 Iqaluit, NU X0A 0H0	1-800-693-1666	Nunavut Emergency Management is responsible for developing the territorial emergency response plans, coordinating general emergency operations at the territorial and regional levels, and supporting community emergency response operations.
International Bird Rescue	International	1-888-447-7143	Wildlife rehabilitation specialists, can manage all aspects of wildlife response

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 18 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

4 DISPOSAL OF SPILLED MATERIAL

Plastic ore sacks, steel drums, or other appropriate containers as approved by the Environmental Supervisor at Mary River are used to contain and transport contaminated soil and materials for treatment. Depending on the nature of the spilled contaminant, the material will be handled on Project sites as a hazardous material and will be temporarily stored in secondary containment on site (i.e., lined berms). Contaminated soil and other material resulting from the spill of other hazardous chemicals will then be shipped to a licensed facility for treatment and disposal if on-site treatment is not available.

Contaminated soil (hydrocarbon based spills, sewage spills) from the Project may be transferred to Baffinland's Mary River Project landfarm at Milne Port for remediation. Used sorbent material generated at Project sites may be transferred to Mary River Project incinerators to be burned on Mary River Project sites as per incinerator standard operating procedures

	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 19 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

5 POTENTIAL SPILL ANALYSIS

To prepare for emergency spill response, potential spill analysis was conducted on various worst-case scenarios. The exercise serves to identify potential risk areas, as well as to determine the fate of spilled products and their environmental effects. This section examines spill scenarios as they relate to the types of activities associated with the Mary River Exploration Project.

Several types of materials have been identified as capable of causing environmental, health, and safety concerns should a spill occur while being transported, used, stored and/or handled. These include: fuel, untreated sewage and effluent, lubricants, oils and oily water. These materials are planned to be utilized daily during the exploration activities warranting the evaluation of potential spill scenarios. All other hazardous materials, chemicals or wastes are handled/used/stored in smaller quantities and packaged/transported in small containers that limit the magnitude of the spills that can occur.

5.1 FUEL SPILLS ON LAND


Fuel represents the greatest volume of hazardous material located on site. For locations of temporary fuel depots and approximate spill kit locations at the two primary Project sites (Mid-Rail Camp and Steensby Camp), see Appendix B. For the quantities of fuel currently stored on site and at Steensby, see TABLE 5-1.

TABLE 5-1: CURRENT FUEL INVENTORY*

Location	Fuel Currently on Site		Total Fuel Inventory
Mid-Rail	None.	Jet- A	0 L
	None.	Diesel	
Steensby Inlet	1,664 Barrels @ 205 L	Jet- A	495,280 L
	752 Barrels @ 205 L	Diesel	

*Note: Currently on-site March 2014.

Small storage tanks and fuel cache (fuel barrels) are already installed/stored and authorized at Steensby Inlet Camp and Mid Rail Camp. It is anticipated that a total of up to 20,000L of fuel (combination of Jet-A and Diesel) stored in double-walled tanks and barrels could be delivered and stored at any one time at other satellite camps as required. All fuel stored in double walled containers and barrels are required to have secondary containment.


	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 20 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

Any fuel stored onsite is required for the Project will be designed to have bermed spill containment with capacity equal to the volume of the largest container plus 10% of the volume of the remaining container or 110% volume of the largest container, whichever is greatest. In all cases Baffinland shall prevent any chemicals, petroleum products or wastes associated with the project from entering water. All sumps and fuel caches shall be located at a distance of at least thirty-one (31) metres from the ordinary high water mark of any adjacent water body and inspected on a regular basis. The above basis is consistent with the document “Design Rationale for Fuel Storage and Distribution Facilities” 3rd Edition 2006, published by the Department of Public Works of the Northwest Territories. The lining in the bermed area is an impervious high-density polyethylene (HDPE) membrane. Any fuel storage external to fuel farms are required to either use double-walled ‘ISO’ tanks or another form of secondary containment structure to ensure secondary containment of all fuel storage is maintained.

All long-term refuelling stations are equipped with a lined and bermed area to contain minor spills or leaks during refuelling. The liner (e.g., 40 mm hypolon liner or equivalent) is protected by sand bedding. Vehicles and mobile equipment drive onto this bedding for refuelling. In the event that mobile equipment refuelling is completed outside of the lined containment, drip trays will be utilized by experienced/trained operators, with spill kits located in close proximity in case of emergency.

All fuel storage areas are equipped with spill kits for emergency response (see Appendix B for locations at Mid Rail and Steensby Camps) and a current copy of the Mary River Exploration Project Spill Contingency Plan will be maintained that identifies spill kit locations and response plans. The spill kit contains the appropriate type, size and quantity of equipment for the volume/type of product present in the storage location as well as reflects the environment likely to be affected by a spill (i.e., ground, river, lake, and ocean). For a list of spill response supplies, see Appendix C.

For each method of fuel storage and transfer, Standard Operating Procedures (SOP’s) related to fuel storage and transfer have been developed. Proper containment and emergency response equipment will be provided to meet or exceed regulatory requirements. The Mary River Project Emergency Response Plan and this SCP govern Mary River Exploration Project operations.

	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 21 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

5.1.1 POTENTIAL FUEL SPILL SCENARIOS


5.1.1.1 SCENARIO 1: DROPPED FUEL DRUMS OR TANKS WHILE SLINGING

Fuel required for exploration activities may need to be transported to remote locations including Steensby Port, Mid Rail and other satellite camps using a helicopter and sling. It is possible that a spill may occur during the transfer of these drums which will most likely be the result of equipment failure or operator error. However, proper maintenance procedures will be in place to reduce the risk of equipment malfunctions and proper training procedures will be implemented to mitigate the risk of this event.

Description of Incident	Spill from dropping fuel drums or tanks while slinging
Potential Causes	Operator error. Equipment Malfunction such as sling failure.
Product Spilled	Fuel
Maximum Volume Spilled	205 Litres
Estimated Time to Spill Entire Volume	5mins - 25mins
Immediate Receiving Medium	Land. Water. Ice
Most Probable Direction of Spill Migration	Depends on location
Distance and Direction to Closest Body of Water	Depends on location
Resources to Protect	Nearby water bodies.
Emergency Response Level	Level 2 (medium) – Refer to ERP (depends on quantity and whether there is potential for impact to water body)
Estimated Emergency Spill Response Time	5mins-15mins

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 22 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	


<p>Spill Response Procedures</p>	<p>If a spill occurs during slinging, all transfer activities will be halted immediately and clean up of the spill with the available spill kit will commence.</p> <p>a) In the event the spill occurs on land the Environmental department at Mary River will be contacted and the spill will be reported. The spill will be contained through the use of temporary berms and ditches until it can be collected and stored until transportation to a oily water treatment plant or an appropriate storage facility. Any contaminated soil will be removed and stored until it can be processed at the Mary River Project landfarm at Milne Port or off-site. Other contaminated material will be stored in a dedicated containment area before it can be shipped off site. Used sorbent material generated may be transferred to Mary River Project incinerators to be burned on Mary River Project sites.</p> <p>b) In the event the spill occurs on water the Environmental department at Mary River will be contacted and the spill will be reported. Booms and other spill control devices will be deployed downstream and spilled product will be collected and removed from the water body. Recovered and contaminated material will be stored in a dedicated containment area before it can be shipped off site. Used sorbent material generated may be transferred to Mary River Project incinerators to be burned on Mary River Project sites.</p> <p>c) In the event the spill occurs on ice/snow the Environmental department at Mary River will be contacted and the spill will be reported. The use of dykes (i.e., compacted snow berms lined with plastic sheeting) or trenches (dug in ice) to slow the progression of the fuel and also serve as containment to help facilitate recovery. Free-product will be recovered by using a vacuum, a pump, or sorbent materials. Contaminated snow and ice is scraped up manually or using heavy equipment depending on volumes. The contaminated snow and ice is placed in containers or within lined berms on land. The contaminated water and product may be treated on site utilizing available oily water treatment systems of shipped off site for treatment at Mary River Project sites or other licensed facilities. Used sorbent material generated may be transferred to Mary River Project incinerators to be burned on Mary River Project sites.</p>
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5.1.1.2 SCENARIO 2: SEAL BROKEN ON ENGINE FUEL FILTER

It is possible for a spill to occur if there is a broken seal on the engine fuel filter (I.e Generator) or equivalent as a result of equipment malfunction. To ensure the likelihood of this event is low, proper maintenance procedures will be in place to reduce the risk of equipment malfunctions and training procedures for vehicle inspections by operator are implemented.

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 23 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	


Description of Incident	Seal Broken on Engine Fuel Filter
Potential Causes	Equipment malfunction. Operator error.
Product Spilled	Diesel Fuel
Maximum Volume Spilled	Up to 80 Litres
Estimated Time to Spill Entire Volume	5mins to 15mins
Immediate Receiving Medium	Depending on the location either on land or in a water body.
Most Probable Direction of Spill Migration	Depending on location
Distance and Direction to Closest Body of Water	Depending on location
Resources to Protect	Nearby water bodies
Emergency Response Level	Level 2 (medium) – Refer to ERP (depends on quantity and whether there is potential for impact to water body and to public safety)
Estimated Emergency Spill Response Time	15min – 60mins
Spill Response Procedures	In the event the spill occurs on land the emergency response team will be contacted and the spill will be reported. The spill will be contained through the use of temporary berms and ditches until it can be collected and stored until transportation to a oily water treatment plant or an appropriate storage facility. Any contaminated soil will be removed and stored until it can be processed at the Mary River Project landfarm at Milne Port or off-site. Other contaminated material will be stored in a dedicated containment area before it can be transferred off site. Used sorbent material generated may be transferred to Mary River Project incinerators to be burned on Mary River Project sites.

5.1.1.3 SCENARIO 3: OVERFILL OF FUEL TANK FOR THE DIESEL HEATER

Detailed procedures (site-wide application) and work instructions (task-specific) are in place, along with the Environmental Protection Plan (CEPP) to deal with refuelling operations. Diesel heaters will be located at Steensby Port, Mid Rail Camp and potentially at other exploration camps. The most likely source of spills is during refuelling or refilling of these diesel heaters with fuel. Only personnel trained in proper refuelling will have access to these tanks. The fuel transfer operation will be halted whenever a leak is detected; drip trays will be utilized during all fuel transfers. All diesel heaters will be placed in areas which have secondary containment, and with the use of proper refuelling techniques and drip trays, fuel spills are unlikely to occur. In the event that a spill does occur a spill kit, containing adequate supplies given the volume of the tank it accompanies, will be available in close proximity. Given the volume of these tanks, access to readily available spill cleanup materials and trained personnel, it is anticipated that staff will be able to identify, contain and mitigate any potential spills in an effective and time sensitive manner.

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 24 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

Description of Incident	Overfill of a fuel tank for Diesel Heater
Potential Causes	Operator error. Equipment failure.
Product Spilled	Diesel fuel.
Maximum Volume Spilled	10-20L
Estimated Time to Spill Entire Volume	5 mins
Immediate Receiving Medium	Soil or surrounding environment. It is important to note that diesel heaters will be placed 31 meters from surrounding water bodies.
Most Probable Direction of Spill Migration	The direction of spill migration will depend on the specific location of the diesel heater. That said diesel heaters will be placed on relatively flat laydown areas, where the potential flow of spills will be more readily managed.
Distance and Direction to Closest Body of Water	Varies
Resources to Protect	Varies
Emergency Response Level	Level 2 (medium)– Refer to ERP (depends on quantity and whether there is potential for impact to water body and to public safety)
Estimated Emergency Spill Response Time	15mins
Spill Response Procedures	In the event that there is a spill from overfilling the diesel heater tank temporary berms, ditches, trenches and sumps will be set up down gradient of the spill. The down gradient wall of trenches will be lined with plastic material to ensure that exposed soil does not come in contact with the fuel. Absorbent material will be utilized where required. Once the spill has been contained it will be collected and brought to an appropriate storage/treatment facility. Any contaminated soil will be removed and stored until it can be processed at the Mary River Project landfarm at Milne Port or off-site. Other contaminated material will be stored in a dedicated containment area before it can be transferred off site. Used sorbent material generated may be transferred to Mary River Project incinerators to be burned on Mary River Project sites


5.2 UNTREATED SEWAGE

During the Project, sewage produced at Steensby Port, Mid Rail and other satellite camps will be treated using a latrine system. These systems will be located at a distance of at last thirty-one (31) meters above the ordinary high water mark of any water body, treated with lime and covered with native material to achieve the pre-existing natural contours of the land prior to abandonment.

All grey water generated at pioneer camps or future satellite camps, not directed to a sewage treatment facility, will be channeled to a sump located at a distance of at least thirty-one (31) metres above the ordinary high water mark of any water body, at a site where direct flow into a water body is not possible and no additional impacts are created, unless otherwise approved by the Board in writing.

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 25 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

5.3 LUBRICANTS AND OILS

Lubricants and machinery oils will be used on site during Project operations. Lubricants and oils have the ability to contaminate waterways and soils if exposed to the environment. That being said, the risk of a lubricant or oil spill on site is expected to be minimal. All lubricants and oils will be handled by trained personnel following proper procedures and guidelines. The vast majority of the time lubricants will be stored and transported in small quantities and in the event of a spill appropriate spill response equipment and procedures will be readily available.

5.3.1 POTENTIAL SPILL SCENARIOS RELATED TO LUBRICANTS AND OILS


5.3.1.1 SCENARIO 1: CONTAINMENT PUNCTURE DURING TRANSPORT

The most likely spill scenario to occur with regards to lubricants and oils is a puncture of an individual storage unit during transport. Lubricants and oils will be 10-20 Litre pails within a sea can container. When Lubricants or oils are required a single unit will be removed from the contained via forklift. In the event that the container is punctured by the forklift a maximum spill volume of 1,000 litres could potentially occur. The likelihood of this occurring is minimal as all equipment operators will be trained in proper lubricant and oil transfer procedures, in addition to this in the event that a container is punctured the operator will see the puncture immediately and will be able to take steps to contain the spill and implement mitigation procedures.

Description of Incident	Lubricant or oil container is punctured by a forklift during transport
Potential Causes	Operator error. Equipment failure.
Product Spilled	Lubricant or oil.
Maximum Volume Spilled	205 L
Estimated Time to Spill Entire Volume	5 minutes
Immediate Receiving Medium	Land
Most Probable Direction of Spill Migration	Depends on area
Distance and Direction to Closest Body of Water	Depends on area
Resources to Protect	Any nearby water bodies.
Emergency Response Level	Level 1 (low) or 2 (medium) – Refer to ERP (depends on quantity and whether there is potential for impact to water body)
Estimated Emergency Spill Response Time	>5 minutes
Spill Response Procedures	If the forklift driver is not injured, he will act as a first responder and immediately initiate the spill contingency plan utilizing the spill kit kept in the vicinity. The spill will be contained through the use of temporary berms and ditches until it can be collected and transported to the oily water treatment plant or an appropriate storage facility. Any contaminated soil will be removed and stored until it can be processed at the Mary River Project landfarm at Milne Port or off-site. Other contaminated material will be stored in a dedicated containment area before it can be transferred off site. Used sorbent material generated may be transferred to Mary River Project incinerators to be burned on Mary River Project sites.

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 26 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	


5.3.1.2 SCENARIO 2: SPILL DURING EQUIPMENT ROLLOVER

It is possible that the equipment carrying a lubricant or oil container could rollover or has a collision causing a spill of the entire container. In the event that this occurs it will be managed the same way as detailed above. The event of a rollover is unlikely given the safe driving procedures, speed limits, road signage and training procedures in place. In addition to this all lubricant and oil containers will be securely fastened inside the vehicle in which they are being transferred making a spill unlikely.

Description of Incident	Spill during equipment rollover
Potential Causes	Operator error. Equipment failure. Poor visibility or adverse weather. Collision.
Product Spilled	Lubricant or oil.
Maximum Volume Spilled	<50L
Estimated Time to Spill Entire Volume	instantaneous
Immediate Receiving Medium	Land
Most Probable Direction of Spill Migration	Depends on area
Distance and Direction to Closest Body of Water	Depends on area
Resources to Protect	Any nearby water bodies.
Emergency Response Level	Level 1 (low) or 2 (medium) – Refer to ERP (depends on quantity and whether there is potential for impact to water body)
Estimated Emergency Spill Response Time	15mins-60mins
Spill Response Procedures	<p>If the driver is not injured, he will act as a first responder and immediately initiate the spill contingency plan utilizing the spill kit kept in the vicinity. The spill will be contained through the use of temporary berms and ditches until it can be collected and transported to the oily water treatment plant or an appropriate storage facility. Any contaminated soil will be removed and stored until it can be processed at the Mary River Project landfarm at Milne Port or off-site. Other contaminated material will be stored in a dedicated containment area before it can be transferred off site. Used sorbent material generated may be transferred to Mary River Project incinerators to be burned on Mary River Project sites.</p> <p>In the event a spill occurs in a water body the lubricants and oils will be contain and recovered downriver as described in section 3, with shorelines protected using sorbent booms. All free-product will be collected for temporary storage and soiled shorelines cleaned-up. If the forklift driver is not injured, he will act as a first responder and immediately initiate the spill contingency plan as defined in section 2 utilizing the spill kit kept in the vicinity. Once the spill is contained the contents of the reservoir emptied and collected product will be discharged to the oily water treatment plant if available or stored for transfer off site.</p>

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 27 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

5.3.1.3 SCENARIO 3: SPILLS DURING TRANSFER


It is possible that a minor spill may occur during the transfer of lubricants or oil to equipment. This will most likely be the result of equipment failure such as the pump or hoses or operator error.

As proper maintenance procedures will be in place to reduce the chance of equipment malfunctions, along with proper training procedures it is unlikely a spill will occur in this event. In addition to this drip tray will be utilized in all oil and lubricant transfers in the field.

Description of Incident	Spill during transfer
Potential Causes	Operator error. Pump failure. Hose failure.
Product Spilled	Lubricant or oil.
Maximum Volume Spilled	205 L
Estimated Time to Spill Entire Volume	5m - 15mins
Immediate Receiving Medium	Land
Most Probable Direction of Spill Migration	Depends on location
Distance and Direction to Closest Body of Water	Depends on location
Resources to Protect	Nearby water bodies.
Emergency Response Level	Level 1 (low) or 2 (medium) – Refer to ERP (depends on quantity and whether there is potential for impact to water body)
Estimated Emergency Spill Response Time	5mins-15mins
Spill Response Procedures	<p>If this spill occurs in a building it will be contained as all buildings are fully lined and no contaminants will be able reach the natural environment. The spill will be cleaned up by qualified personnel and disposed of as a hazardous material.</p> <p>If a spill occurs during transfer all transfer activities will be halted immediately and clean up of the spill with the available spill kit will commence. The spill will be contained using berms, ditches, sumps and booms where necessary. The downstream wall of trenches will be lined with plastic material to ensure unexposed soil does not come in contact with the lubricant. Absorbent material will be utilized where required. Once the spill has been contained it will be collected and brought to an appropriate storage/treatment facility. Any contaminated soil will be removed and stored until it can be processed at the Mary River Project landfarm at Milne Port or off-site. Other contaminated material will be stored in a dedicated containment area before it can be transferred off site. Used sorbent material generated may be transferred to Mary River Project incinerators to be burned on Mary River Project sites.</p>

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 28 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	


6 REPORTING REQUIREMENTS

During the term of the Type 'B' Water Licence, if an unauthorized discharge of waste occurs, or if a discharge is foreseeable, then the following actions will be taken:

- a. Employ the approved Spill Contingency Plan;
- b. Report the spill immediately to the 24-Hour Spill Line at (867)-902-8130 and to the Inspector at (867) 975-4295 and

For each spill occurrence, submit the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site. In addition to these reporting requirement any spill or release near or to a Water body, regardless of quantity or type of release of harmful substances shall be reported to the NWT/NU Spill Line.


All reporting requirements, procedures and protocols for all spills are provided in the Mary River Project Emergency Response Plan, Section 8.

	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 29 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

Appendix A - Concordance Table

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 30 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

Condition	Commitment	Reference Section
Part G Item 1	The Licensee shall submit, to the Board for approval, a revised, stand-alone, Spill Contingency Plan within sixty (60) days from the date of issuance of this Licence. The revised Spill Contingency Plan shall be prepared in the format set out by the Consolidation of Spill Contingency Planning and Reporting Regulations (R-068-93) and must address the reduced scope of activities under this licence	Exploration Project Spill Contingency Plan
Part G Item 2	The Licensee shall prevent any chemicals, petroleum products or wastes associated with the project from entering Water. All Sumps and fuel caches shall be located at a distance of at least thirty-one (31) metres from the ordinary high water mark of any adjacent water body and inspected on a regular basis.	Section 5.1
Part G Item 3	The Licensee shall prevent any chemicals, petroleum products or wastes associated with the project from entering Water. All Sumps and fuel caches shall be located at a distance of at least thirty-one (31) metres from the ordinary High Water Mark of any Water body and inspected on a regular basis.	Section 5.1
Part G Item 4	The Licensee shall conduct any equipment maintenance and servicing in designated areas and shall implement special procedures (such as the use of drip pans) to manage motor fluids and other waste and contain potential spills.	Section 5.1.1
Part G Item 5	If during the term of this Licence, an unauthorized discharge of waste occurs, or if such a discharge is foreseeable, the Licensee shall: <ul style="list-style-type: none"> a. Employ the approved Spill Contingency Plan; b. Report the spill immediately to the 24-Hour Spill Line at (867) 920-8130 and to the Inspector at (867) 975-4295; and c. For each spill occurrence, submit to the Inspector, no later than thirty (30) days after initially reporting the event, a detailed report that will include the amount and type of spilled product, the GPS location of the spill, and the measures taken to contain and clean up the spill site. 	Section 6
Part G Item 6	The Licensee shall, in addition to Part H, Item 5, report to the NWT/NU Spill Line if the release is near or into a Water body, regardless of the quantity or type of releases of harmful substances.	Section 6

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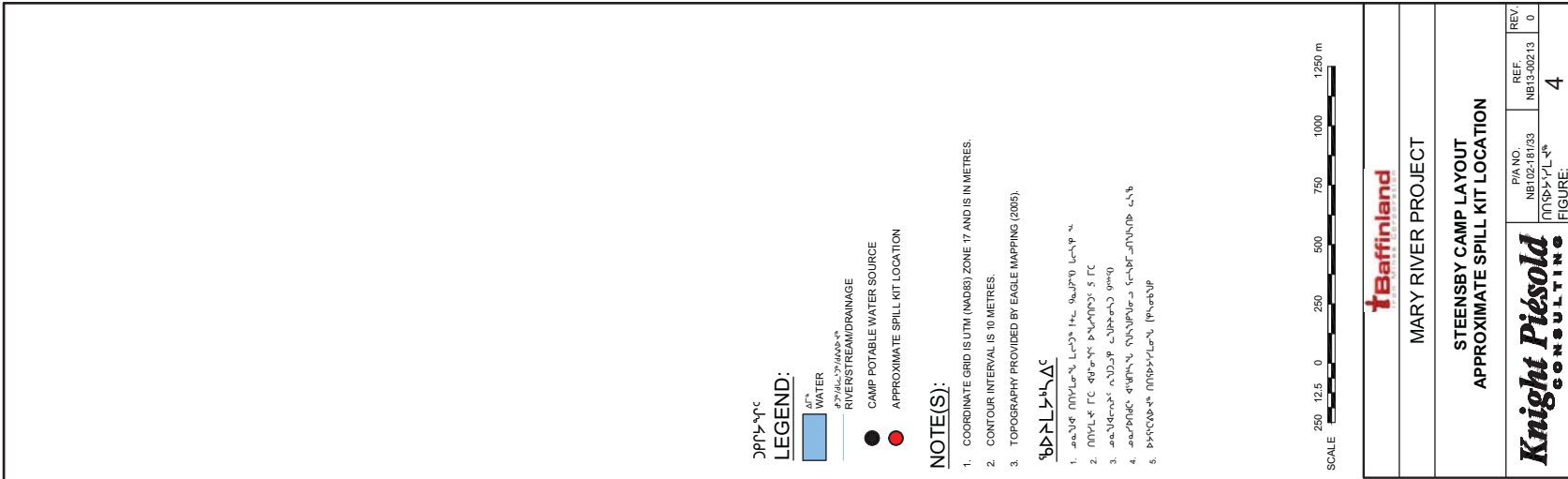
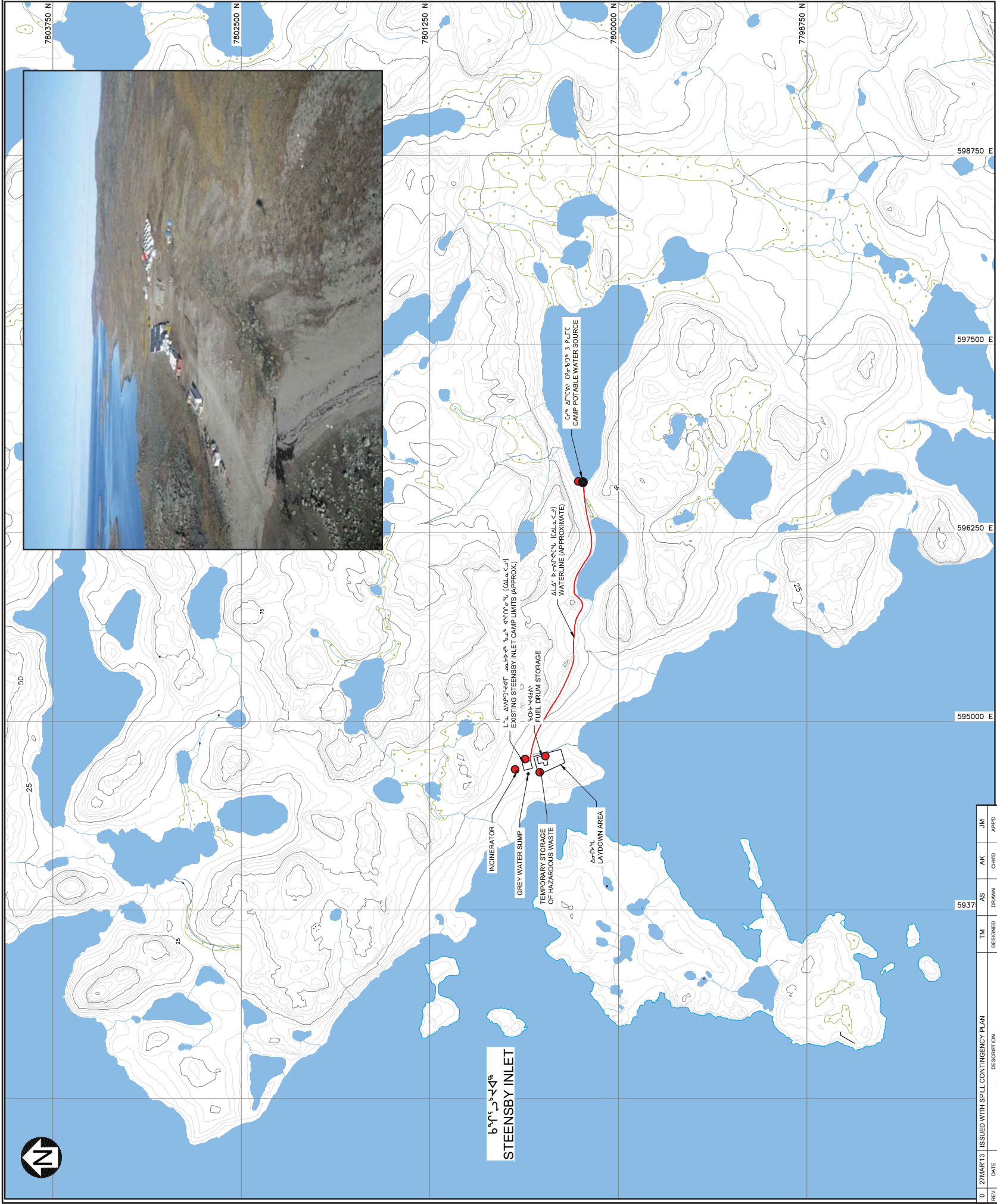
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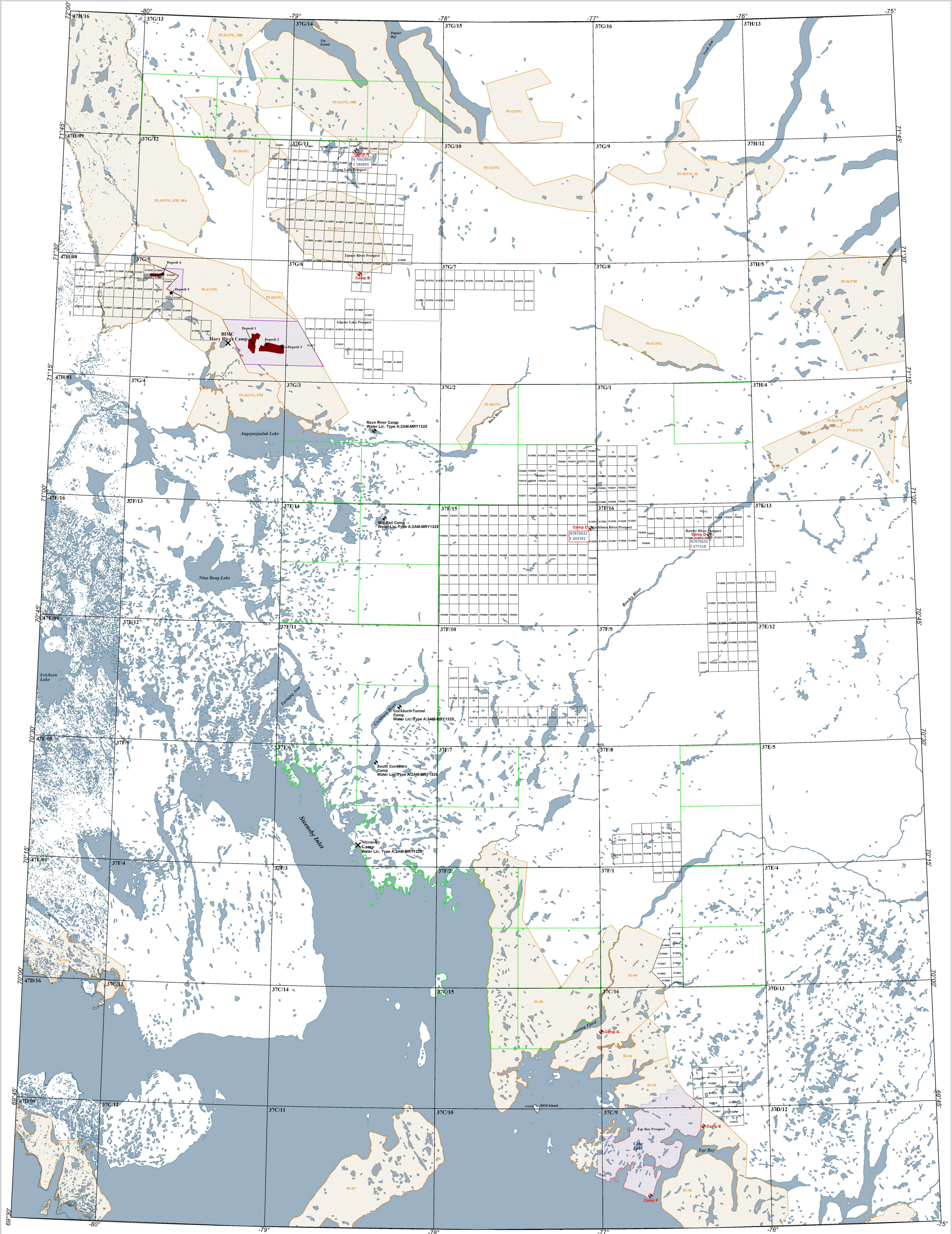
	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 31 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

Appendix B - Current Site Layouts for Mid-Rail Camp, Steensby Camp and Property Map showing Potential Exploration Camp Locations

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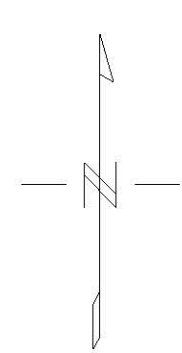
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MAP LEGEND


- BMC Claim Blocks Under Assessment
- BMC Chain Blocks
- Inuit Owned Land
- Prospecting Permit Boundary
- BMC Mining Lease
- NTE-BIM Exploration Agreement Block
- Water Body
- BMC Deposit Location
- BMC Chain Block Number
- Inuit Owned Land Parcel Number
- Potential Exploration Camp Locations (A to G) covered under 28BMRV1114
- Approved Camp Locations covered under Type A 2AM-MRV1325



Scale 1:250000
5000 0 5000 10000 15000
(meters)
NAD83 / UTM zone 18N

Baffinland

Baffinland Iron Mines
Property Map, Northern Baffin Island


	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 32 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

The following site layouts for Mid-Rail and Steensby Port emphasize the spill response elements of the site. The drawings identify spill response equipment, fuel storage areas, water bodies and infrastructure. The following figures are as follows:

1. Figure 1- Mid-Rail Camp Approximate Spill Kit Locations
2. Figure 2- Steensby Port Approximate Spill Kit Location.

The following figure is a Property Map of Northern Baffin Island showing location Potential Exploration Camps onsite.


3. Figure 2 – Property Map, Northern Baffin Island

	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 33 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

Appendix C - Spill Response Supplies

The information contained herein is proprietary to 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.


	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 34 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

C.1 TYPICAL SPILL RESPONSE KITS AT BAFFINLAND'S MARY RIVER EXPLORATION PROJECT

Kit No./Details	Contents	Quantity
SPILL CHEST Absorbs up to 170 Gallons Heavy duty plastic Yellow Container Can be moved with a forklift	Sorbent Pads (19" x 17" x 3/8") Sorbent Socks (3" x 4ft) Sorbent Booms (5" x 10ft) Sorbent Pillows (15" x 9ft) Sorbent Roll (38" x 144ft) Nitrile Gloves (pair) Disposal Bag Epoxy Putty Barricade Tape (roll)	100 8 4 16 1 2 4 1 1
HEAVY DUTY DRUM KIT Absorbs up to 75 Gallons Heavy duty plastic Yellow Container Drum sizes include 65 & 94 US gallons or an economy 45 gallon steel drum	Sorbent Pads (19" x 17" x 3/8") Sorbent Booms (5" x 10ft) Xsorb (6 quart) Nitrile Gloves (pair) Disposal Bag Disposable Coveralls Drain Cover Splash resistant goggles	100 4 1 2 4 2 1 2

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 35 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

Appendix D - Hazardous Materials List

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 36 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	


D.1 List of MSDS of Hazardous Materials Used on site

- Agricultural Lime (4p.)
- Calcium Chloride Flake (4p.)
- CP-43 Diesel (6p.)
- EZ-MUD (6p.)
- Gasoline (6p.)
- Jet A (7p.)
- Lubtrac Rod Grease (4p.)
- W-OB POLYMER (4p.)

- Acetylene (6p.)
- CAT Arctic DEO Synthetic SAE 0W-20 (7p.)
- CAT Extended Life Coolant (7p.)
- Co-op D-MO Gold 10W30 Diesel Motor Oil (5p.)
- Ecopure EP61 Glass and Surface Cleaner (6p.)
- Ecopure EP70 Washroom Cleaner (5p.)
- Gojo Original Formula Hand Cleaner (2p.)
- Hertel Plus Disinfectant (5p.)
- Howes Lubricator Diesel Treat (6p.)
- Kleen-Flo Gas Line Antifreeze (2p.)
- Kleen-Flo Lock Deicer (2p.).pdf
- Kleen-Flo Non-Chlorinated Break and Part Cleaner (2p.)
- Kleen-Flo Safe-T-Brake Air Brake Antifreeze (2p.)
- Lubri Plus Break Fluid DOT3 (7p.)
- Lubriplate Low-Temperature Multi-Purpose Grease (6p.)
- Lubriplate No. 630-2 Multi-purpose Lithium Grease (5p.)
- Oxygen (6p.)
- Pennzoil SAE 0W-20 Fuel Synthetic Motor Oil (8p.)
- Permatex Fast Orange Hand Cleaner (4p.)

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 37 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

- Propane (7p.)

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 38 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

Appendix E - Material Safety Data Sheets

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Material Safety Data Sheet



Acetylene

Section 1. Chemical product and company identification

Product name	: Acetylene
Supplier	: AIRGAS INC., on behalf of its subsidiaries 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
Product use	: Synthetic/Analytical chemistry.
Synonym	: Ethyne; Ethine; Narcylen; C ₂ H ₂ ; Acetylen; UN 1001; Vinylene
MSDS #	: 001001
Date of Preparation/ Revision	: 4/7/2014.
In case of emergency	: 1-866-734-3438

Section 2. Hazards identification

Physical state	: Gas.
Emergency overview	: WARNING! FLAMMABLE GAS. MAY CAUSE FLASH FIRE. MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA. CONTENTS UNDER PRESSURE. Keep away from heat, sparks and flame. Do not puncture or incinerate container. May cause target organ damage, based on animal data. Use only with adequate ventilation. Keep container closed. Contact with rapidly expanding gases can cause frostbite.
Target organs	: May cause damage to the following organs: lungs, upper respiratory tract, central nervous system (CNS).
Routes of entry	: Inhalation
Potential acute health effects	
Eyes	: Contact with rapidly expanding gas may cause burns or frostbite.
Skin	: Contact with rapidly expanding gas may cause burns or frostbite.
Inhalation	: Acts as a simple asphyxiant.
Ingestion	: Ingestion is not a normal route of exposure for gases
Potential chronic health effects	
Chronic effects	: May cause target organ damage, based on animal data.
Target organs	: May cause damage to the following organs: lungs, upper respiratory tract, central nervous system (CNS).
Medical conditions aggravated by over-exposure	: Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (Section 11)

Section 3. Composition, Information on Ingredients

<u>Name</u>	<u>CAS number</u>	<u>% Volume</u>	<u>Exposure limits</u>
Acetylene	74-86-2	100	NIOSH REL (United States, 1/2013). CEIL: 2662 mg/m ³ CEIL: 2500 ppm

Section 4. First aid measures

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.

- 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. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Frostbite** : Try to warm up the frozen tissues and seek medical attention.
- 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** : As this product is a gas, refer to the inhalation section.

Section 5. Fire-fighting measures

- Flammability of the product** : Flammable.
- Auto-ignition temperature** : 305°C (581°F)
- Flash point** : Closed cup: -18.15°C (-0.7°F).
- Flammable limits** : Lower: 2.5% Upper: 100%
- Products of combustion** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
- Fire hazards in the presence of various substances** : Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and oxidizing materials.
- Fire-fighting media and instructions** : In case of fire, use water spray (fog), foam or dry chemical.

In case of fire, allow gas to burn if flow cannot be shut off immediately. Apply water from a safe distance to cool container and protect surrounding area. If involved in fire, shut off flow immediately if it can be done without risk.

Contains gas under pressure. Flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.
- 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.

Section 6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (section 8). Shut off gas supply if this can be done safely. Isolate area until gas has dispersed.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

- Handling** : Use only with adequate ventilation. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. High pressure gas. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Keep container closed. Keep away from heat, sparks and flame. To avoid fire, eliminate ignition sources. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.
- Storage** : 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). Segregate from oxidizing materials. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

- Engineering controls** : 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, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

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 or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- 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.
When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.
- 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.
The applicable standards are (US) 29 CFR 1910.134 and (Canada) Z94.4-93
- 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Personal protection in case of a large spill** : Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product.

Product name

acetylene

NIOSH REL (United States, 1/2013).

CEIL: 2662 mg/m³

CEIL: 2500 ppm

Consult local authorities for acceptable exposure limits.

Section 9. Physical and chemical properties

Molecular weight	: 26.04 g/mole
Molecular formula	: C ₂ H ₂
Melting/freezing point	: -81°C (-113.8°F)
Critical temperature	: 35.25°C (95.5°F)
Vapor pressure	: 635 (psig)
Vapor density	: 0.907 (Air = 1)
Specific Volume (ft³/lb)	: 14.7058
Gas Density (lb/ft³)	: 0.0691

Section 10. Stability and reactivity

Stability and reactivity	: The product is stable.
Incompatibility with various substances	: Extremely reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Toxicity data

Chronic effects on humans	: May cause damage to the following organs: lungs, upper respiratory tract, central nervous system (CNS).
Other toxic effects on humans	: No specific information is available in our database regarding the other toxic effects of this material to humans.
Specific effects	
Carcinogenic effects	: No known significant effects or critical hazards.
Mutagenic effects	: No known significant effects or critical hazards.
Reproduction toxicity	: No known significant effects or critical hazards.

Section 12. Ecological information

Aquatic ecotoxicity

Not available.




Products of degradation	: Products of degradation: carbon oxides (CO, CO ₂) and water.
Environmental fate	: Not available.
Environmental hazards	: This product shows a low bioaccumulation potential.
Toxicity to the environment	: Not available.

Section 13. Disposal considerations

Product removed from the cylinder must be disposed of in accordance with appropriate Federal, State, local regulation. Return cylinders with residual product to Airgas, Inc. Do not dispose of locally.

Section 14. Transport information

Acetylene

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN1001	ACETYLENE, DISSOLVED	2.1	Not applicable (gas).		Limited quantity Yes. Packaging instruction Passenger aircraft Quantity limitation: Forbidden. Cargo aircraft Quantity limitation: 15 kg
TDG Classification	UN1001	ACETYLENE, DISSOLVED	2.1	Not applicable (gas).		Explosive Limit and Limited Quantity Index 0 Passenger Carrying Ship Index 75 Passenger Carrying Road or Rail Index Forbidden Special provisions 38, 42
Mexico Classification	UN1001	ACETYLENE, DISSOLVED	2.1	Not applicable (gas).		-

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

Section 15. Regulatory information**United States**

U.S. Federal regulations : TSCA 8(a) CDR Exempt/Partial exemption: Not determined
United States inventory (TSCA 8b): This material is listed or exempted.
SARA 302/304: No products were found.
SARA 311/312 Hazards identification: Fire hazard, Sudden release of pressure, Delayed (chronic) health hazard
Clean Air Act (CAA) 112 accidental release prevention - Flammable Substances:
Acetylene

Acetylene

State regulations

- Clean Air Act (CAA) 112 regulated flammable substances: acetylene
- : **Connecticut Carcinogen Reporting:** This material is not listed.
 - Connecticut Hazardous Material Survey:** This material is not listed.
 - Florida substances:** This material is not listed.
 - Illinois Chemical Safety Act:** This material is not listed.
 - Illinois Toxic Substances Disclosure to Employee Act:** This material is not listed.
 - Louisiana Reporting:** This material is not listed.
 - Louisiana Spill:** This material is not listed.
 - Massachusetts Spill:** This material is not listed.
 - Massachusetts Substances:** This material is listed.
 - Michigan Critical Material:** This material is not listed.
 - Minnesota Hazardous Substances:** This material is not listed.
 - New Jersey Hazardous Substances:** This material is listed.
 - New Jersey Spill:** This material is not listed.
 - New Jersey Toxic Catastrophe Prevention Act:** This material is not listed.
 - New York Acutely Hazardous Substances:** This material is not listed.
 - New York Toxic Chemical Release Reporting:** This material is not listed.
 - Pennsylvania RTK Hazardous Substances:** This material is listed.
 - Rhode Island Hazardous Substances:** This material is not listed.

Canada

WHMIS (Canada)

- : Class A: Compressed gas.
- Class B-1: Flammable gas.
- Class F: Dangerously reactive material.
- CEPA Toxic substances:** This material is not listed.
- Canadian ARET:** This material is not listed.
- Canadian NPRI:** This material is listed.
- Alberta Designated Substances:** This material is not listed.
- Ontario Designated Substances:** This material is not listed.
- Quebec Designated Substances:** This material is not listed.

Section 16. Other information

United States

Label requirements

- : FLAMMABLE GAS.
- MAY CAUSE FLASH FIRE.
- MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.
- CONTENTS UNDER PRESSURE.

Canada

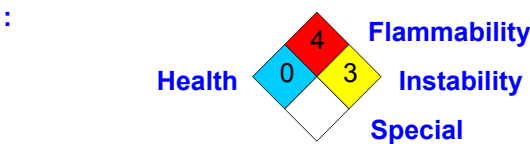
Label requirements

- : Class A: Compressed gas.
- Class B-1: Flammable gas.
- Class F: Dangerously reactive material.

Hazardous Material Information System (U.S.A.)

Health	1
Flammability	4
Physical hazards	2

National Fire Protection Association (U.S.A.)



Notice to reader

Acetylene

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.



Canada Colors and Chemicals Limited

**152 Kennedy Road South
Brampton, Ontario
Canada
L6W 3G4**

General Inquiry Number: (905) 459-1232

**Material Safety Data Sheet
Attached**



5, Boutet Street
Victoriaville, Qc
G6P 8T6

This product is distributed by
Canada Colors and Chemicals Limited
General Inquiry: (905) 459-1232
24 Hour Emergency: (416) 444-2112




CCC: Product Code: 279213

CCC: Product Name: CALCIUM CHLORIDE FLAKE 77% -SW ML

FLAKE CALCIUM CHLORIDE

Material Safety Data Sheet

A. PRODUCT INFORMATION

TRADE NAME (PRODUCT IDENTIFIER): Flake Calcium Chloride Powdered Calcium Chloride		CLASSIFICATION & SYMBOL : Class D2B 	
CHEMICAL NAME AND/OR SYNONYM: Calcium Chloride Dihydrate		FORMULA : CaCl ₂ 2 H ₂ O	CAS NO: 10043-52-4

BNQ Standard 2410-300 / 2009 Certificat # 1156

Canadian Standard CAN-CGSB-15.1-92

PRODUCT USE :

De-icer, Dust control, mud drilling lubricant, Freeze-proofing of ores and aggregates, thawing agent, concrete conditioner. Food Grade Calcium category is used as additive, refrigerants and heat exchange agent.

MANUFACTURER/IMPORTER:

Sel Warwick Inc.
5, Boutet Street
Victoriaville, Qc, G6P 8T6

SUPPLIER/DISTRIBUTOR:

TETRA Technologies Inc
369, Feed Mill Road
Eldorado, AZ 71730
USA

EMERGENCY TELEPHONE NO: 819-758-5229

B. PREPARATION INFORMATION

PREPARED BY : Sel Warwick Inc. 5, Boutet Street, Victoriaville Telephone : 819-758-5229	PREVIOUS ISSUE DATE : December 2010
	CURRENT ISSUE DATE: June 2012

C. TOXICOLOGICAL PROPERTIES

INHALATION: Dust or mist inhalation may irritate nose, throat and lungs	
INGESTION : Low in toxicity. May irritate gastrointestinal tract and cause nausea and vomiting	
SKIN : May cause skin irritation. Prolonged contact when moisture is present may result in superficial burns. Contact with abraded skin or cuts can cause severe necrosis	
EYES: May irritate or burn eyes	
ACUTE TOXICITY: Moderate toxic LD ₅₀ (oral-rat) 1000 mg/kg LD ₅₀ (oral-mouse) 1940 mg/kg	EXPOSURE LIMITS: Ontario Ministry of Labour Time-Weighted Average Exposure Value (TWAEV) for Nuisance Particulate 10 mg/m ³
CHRONIC TOXICITY : Not applicable	
OTHER :	BIOLOGICAL EXPOSURE INDICES (BEI) : Not applicable

D. PHYSICAL DATA

MATERIAL IS AT NORMAL CONDITIONS: Liquid <input type="checkbox"/> Solid <input checked="" type="checkbox"/> Gas <input type="checkbox"/>	APPEARANCE AND COLOR : Small White Flakes Very hygroscopic	ODOR THRESHOLD : Odorless
BOILING POINT : Not available FREEZING POINT : °C (MELTING POINT) : 176°C	SPECIFIC GRAVITY : g/cc (H ₂ O =1) Not available	VAPOR DENSITY: (AIR=1) Not applicable
SOLUBILITY IN WATER : 97.7 g/100 ml @ 0°C 326 g / 100 ml @ 60°C	PH Neutral to slightly Alkaline	VAPOR PRESSURE: (mm Hg @ 20°C) Not applicable (PSIG)
EVAPORATION RATE : (Ether = 1.0) Not applicable Slow <0.3 Fast > 3.0 Medium 0.3 – 3.0	% VOLATILES BY VOLUME: (At 20°C) Not applicable	MOLECULAR WEIGHT: 147.02 COEFFICIENT OF WATER/OIL DISTRIBUTION: Not available

E. REACTIVITY DATA

STABILITY: Stable	CONDITIONS TO AVOID : Not applicable
INCOMPATIBILITY (MATERIALS TO AVOID): Reacts violently with bromine trifluoride (BrF ₃), or a mixture of boron trioxide and calcium oxide (B ₂ O ₃ + CaO). Sulfuric acid : yields hydrogen chloride gas, which is corrosive, irritating and reactive. Water-reactive materials, such as sodium : causes an exothermic reaction. Methyl vinyl ether : starts runaway polymerization reaction. Zinc as in galvanized iron : yields hydrogen gas with solutions, which may explode under these conditions.	
HAZARDOUS DECOMPOSITION PRODUCTS: Fumes of Chlorides (Cl) are given off at temperature above 1600 °C	
HAZARDOUS POLYMERIZATION : Will not occur <input type="checkbox"/>	OTHER PRECAUTIONS: Will undergo violent polymerization with methyl vinyl ether. The anhydrous, monohydrate, dihydrate and tetrahydrate forms of calcium chloride, when dissolved in water, produce considerable amounts of heat.

F. FIRE OR EXPLOSION HAZARD

CONDITIONS OF FLAMMABILITY : Not applicable	FLASH POINT: Not applicable METHOD
HAZARDOUS COMBUSTION PRODUCTS: None	
% BY VOL. IN AIR UPPER FLAMMABLE LIMIT : N/A LOWER FLAMMABLE LIMIT: N/A AUTOIGNITION TEMPERATURE : °C	EXPLOSION HAZARDS : See Section E incompatibility
SENSITIVITY TO MECHANICAL IMPACT : Not applicable	
SENSITIVITY TO STATIC DISCHARGE: Not applicable	
FIRE EXTINGUISHING PROCEDURES: Use extinguisher media appropriate for surrounding fire. For fire fighting wear NIOSH-approved self- contained breathing apparatus.	

G. HAZARDOUS INGREDIENTS (MIXTURES ONLY)

MATERIAL OR COMPONENTS/C.A.S. #	CONCENTRATION	HAZARD DATA
Not applicable		

H. PREVENTIVE MEASURES

PERSONAL PROTECTIVE EQUIPMENT :

RESPIRATORY PROTECTION :

For dusty or misty conditions, wear NIOSH approved dust or mist respirator

EYES AND FACE:

For dusty or misty conditions, or when handling solutions where there is reasonable probability of eye contact, wear chemical safety goggles and hard hat. Under these conditions, do not wear contact lenses.

HANDS, ARMS AND BODY :

As a minimum, wear long-sleeve shirt, trousers, rubber boots and gloves for routine product use. Cotton gloves permitted for dry product, impervious gloves when using solutions.

STORAGE :

Cool, dry area. Prolonged storage may cause product to cake and become wet from atmospheric moisture.

NORMAL HANDLING:

Avoid contact with eyes, skin or clothing. Avoid breathing dust. Use good personal hygiene and housekeeping

ENGINEERING CONTROLS:

Ventilation: Provide general and/or local exhaust ventilation to maintain dust or fume levels below exposure limits.

Eye wash facility should be provided in storage and general work area.

ENVIRONMENTAL:

DEGRADABILITY:

Not applicable

AQUATIC TOXICITY:

Harmful to aquatic life at concentrations greater than 500 ppm.
CaCl₂ does not bioaccumulate TL_m96 > 1000 mg/l

SPILL OR LEAK (Always wear personal protective equipment):

Shovel up dry chemical and place in metal drum with cover. Cautiously spray residue with plenty of water. Keep contaminated water from entering sewers and water courses.

WASTE DISPOSAL:

Consistent with the requirements of local waste disposal authorities.

I. FIRST AID MEASURES

INHALATION:

Promptly remove to fresh air. Get medical attention.

INGESTION:

If conscious, immediately give 2 to 4 glasses of water, and induce vomiting under medical supervision.

SKIN:

Remove contaminated clothing. Wash with plenty of soap and running water. Get medical attention if irritation persists.

EYES:

Flush eyes promptly with plenty of running water, continuing for at least 15 minutes. Get medical attention.

THIS MATERIAL SAFETY DATA SHEET IS OFFERED FOR YOUR INFORMATION, CONSIDERATION AND INVESTIGATION AS REQUIRED BY FEDERAL HAZARDOUS PRODUCTS ACT AND RELATED LEGISLATION. THE INFORMATION IS BELIEVED TO BE ACCURATE BUT SEL WARWICK INC. PROVIDES NO WARRANTIES, EITHER EXPRESSED OR IMPLIED.



Date:
Supercedes:

03 March 2004
15 October 2001

MATERIAL SAFETY DATA SHEET

IN CASE OF EMERGENCY CALL CHEMTREC AT 1-800-424-9300

1. PRODUCT IDENTIFICATION AND COMPANY IDENTIFICATION:

Product Name: **GOJO® ORIGINAL FORMULA™ HAND CLEANER**

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
Mineral Spirits	8052-41-3	500 ppm	100 ppm	<40

Other ingredient(s) with notification requirements:	CAS NUMBER	List
Mineral Spirits	8052-41-3	MA 1; NJ 1; PA 1; CN 1
Sodium Hydroxide	1310-73-2	PA 1
Propylene Glycol	57-55-6	CN 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 1 Flammability 1 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 0 Fire 1 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 CO₂ 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 White opaque gel, characteristic solvent odor

pH (undiluted): 9 typical

VOC, %: <40

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:

Complies with current FDA regulations for cosmetic and/or over-the-counter drug products.

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

HP 6040-1314 Grease

MSDS No. HP 6040-1314

Date of Preparation: 4/4/01

Revision Date: 4/4/01

Section 1 - Chemical Product and Company Identification

Product/Chemical Name: HP 6040-1314 Grease

General Use: Lubricating Grease

Manufacturer: Nye Lubricants, Inc.

12 Howland Road

Fairhaven, MA 02719 U.S.A.

Telephone: (508) 996-6721 (8:00AM - 5:00PM ET weekdays)

Nights and weekends (Medical Emergencies ONLY): CHEMTREC (800) 424-9300

Section 2 - Composition / Information on Ingredients

Ingredient Name	CAS Number	% wt or % vol
Polytetrafluoroethylene, PTFE*	9002-84-0	12.0
Product formulation is Proprietary No ingredients are known to be hazardous under normal usage.		

*Not a hazardous material under normal usage, but PTFE can produce toxic fumes if pyrolyzed.

Ingredient	OSHA PEL		ACGIH TLV		NIOSH REL		NIOSH IDLH
	TWA	STEL	TWA	STEL	TWA	STEL	
Oil Mist	5 mg/m ³	NE	5 mg/m ³	NE	5 mg/m ³	10 mg/m ³	2500 mg/m ³

NE= None Established

Section 3 - Hazards Identification

☆☆☆☆☆ Emergency Overview ☆☆☆☆☆

Summary of risks: May irritate eyes. Prolonged or repeated skin contact may cause irritation. Inhalation of oil mist or vapors from material at high temperatures may irritate respiratory passages.

Polytetrafluoroethylene (PTFE), when thermally decomposed (over 290°C), may cause polymer fume fever.

Thermal decomposition of PTFE (over 290°C) will generate hydrogen fluoride.

HMIS

H 1

F 1

R 0

PPE†

†Sec. 8

Potential Health Effects

Eye Contact: May cause irritation.

Skin Contact: Repeated or prolonged skin contact may cause irritation. Thermal decomposition of PTFE (over 290°C) will generate hydrogen fluoride, which is corrosive, causing burns on contact with skin and other tissue.

Inhalation: Oil mist and vapors at high temperatures may irritate respiratory passages. Inhalation of decomposition products of PTFE (over 290°C) may cause polymer fume fever, a temporary flu-like illness accompanied by fever, chills, and sometimes cough, of approximately 24 hours duration. Repeated episodes of polymer fume fever may cause lung damage. Inhalation of fluorine compounds as decomposition products of PTFE (over 290°C) may cause lung irritation and pulmonary edema.

Ingestion: May cause gastrointestinal irritation.

Primary Route(s) of Entry: Inhalation at high temperatures, eye contact, skin contact.

Target Organs: Respiratory passages at high temperatures, eyes, skin.

Medical Conditions Aggravated by Long-Term Exposure: Individuals with pre-existing diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures from thermal decomposition products.

Carcinogenicity: IARC, NTP, and OSHA do not list HP 6040-1314 Grease or its ingredients as carcinogens.

Section 4 - First Aid Measures

Eye Contact: Flush thoroughly with water for at least 15 minutes. Get immediate medical attention.

Skin Contact: Remove contaminated clothing. Wash exposed area with soap and water. Get medical attention if symptoms persist.

Inhalation: If symptoms develop, remove affected person from source of exposure into fresh air. Get immediate medical attention. If person is not breathing, give artificial respiration. If breathing is difficult, administer oxygen if available.

Ingestion: Get immediate medical attention. Do not induce vomiting unless instructed to do so by a physician.

Section 5 - Fire-Fighting Measures

Flash Point: over 400°F (204°C)

Flash Point Method: CC, ASTM D93

Lower Flammable Limit (LFL): N/A

Upper Flammable Limit (UFL): N/A

Extinguishing Media: CO₂, Foam, Dry Chemical, Water Spray

Unusual Fire or Explosion Hazards: None

Hazardous Combustion Products: Hydrogen fluoride, carbonyl fluoride, carbon monoxide and small amount of other toxic fumes.

Fire-Fighting Instructions: Wear a NIOSH approved positive pressure self-contained breathing apparatus with full protective clothing. Do not release runoff from fire control methods to sewers or waterways.

Section 6 - Accidental Release Measures

Spill Response: Observe precautions from other sections. Contain any spill with dikes or absorbents to prevent migration and entry into drains, sewers or bodies of water. Wipe or scrape up grease and place it in a proper container for disposal. Wash walking surfaces thoroughly to reduce slipping hazard. Follow applicable OSHA (29 CFR 1910.120), state and local regulations.

Section 7 - Handling and Storage

Handling Precautions: Exercise ordinary care in handling industrial lubricants. Avoid contamination of cigarettes or other tobacco products. Wash hands thoroughly before eating or smoking. Remove contaminated clothing and clean before reuse. Users should be alert to the possibility that very small percentages of the population may display unexpected allergic reactions to otherwise innocuous industrial lubricants and raw materials.

Storage Requirements: Do not store in open or unlabeled containers. Store away from incompatibles.

Section 8 - Exposure Controls / Personal Protection

Eye Protection: Avoid eye contact. Wear safety glasses or chemical goggles in accordance with OSHA 29 CFR 1910.133.

Skin Protection: Avoid skin contact. Wear chemical protective gloves. Depending upon conditions of use, additional protection may be necessary such as a face shield, apron, etc.

Ventilation: Local ventilation is generally not necessary under normal conditions of use with adequate general ventilation. Ventilation and other forms of engineering controls are the preferred means for controlling chemical exposures.

Respiratory Protection: Avoid breathing oil mist. Respiratory protection is generally not necessary under normal conditions of use with adequate general ventilation.

Safety Stations: Make emergency eyewash stations, safety/quick-drench showers, and washing facilities available in work area.

Other Precautionary Information: Never eat, drink, or smoke in work areas. Practice good personal hygiene after using this material, especially before eating, drinking, smoking, using the toilet, or applying cosmetics.

Section 9 - Physical and Chemical Properties

Appearance and Odor: Smooth, blue grease with slight odor

Vapor Pressure: Negligible

Vapor Density: Not Determined

Formula Weight: Not Calculated

Specific Gravity (H₂O=1, at 4 °C): Not Determined

pH: Not Determined

Water Solubility: Insoluble

Boiling Point: Not volatile

Dropping Point: Non-melting

% Volatile: None

Evaporation Rate: Not Determined

Section 10 - Stability and Reactivity

Stability: HP 6040-1314 Grease is stable at room temperature in closed containers under normal storage and handling conditions.

Polymerization: This product will not undergo hazardous polymerization.

Chemical Incompatibilities: Strong oxidizing materials

Conditions to Avoid: Pyrolysis

Hazardous Decomposition Products: Thermal oxidative decomposition of HP 6040-1314 Grease can produce hydrogen fluoride, carbonyl fluoride, carbon monoxide as well as small amounts of other toxic fumes.

Section 11- Toxicological Information

Toxicity Data: None available.

Section 12 - Ecological Information

Environmental Fate and Effects: No data has been established for this product.

Section 13 - Disposal Considerations

Disposal: Contact a licensed waste-disposal contractor for detailed recommendations.

Disposal Regulatory Requirements: Many states classify waste lubricants as "hazardous", which means disposal only by a licensed firm. Follow applicable Federal, state, and local regulations.

Section 14 - Transport Information

DOT Transportation Data (49 CFR 172.101): Not Regulated

Section 15 - Regulatory Information

TSCA:

All components of this product are listed on the TSCA inventory.

EPA Regulations:

SARA 311/312 Hazard Class (40 CFR 370)

Immediate (Acute) Health Hazard	No	Sudden Release of Pressure Hazard	No	Reactive Hazard	No
Delayed (Chronic) Health Hazard	No	Fire Hazard	No		

SARA 313 Toxic Chemicals (40 CFR 372)

No ingredients listed

CAS Number %

SARA Extremely Hazardous Substances (40 CFR 355)

No ingredients listed

CAS Number %

Threshold Planning Quantity (TPQ)

CERCLA Hazardous Substances (40 CFR 302)

No ingredients listed

CAS Number %

Reportable Quantity (RQ)

Section 16 - Other Information

Prepared By: WMM

Disclaimer: While the information and recommendations set forth herein are believed to be accurate as of the date hereof, Nye Lubricants, Inc. makes no warranty with respect thereto and disclaims all liability with respect thereon.

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

<u>Component</u>	<u>CAS #</u>	<u>% by Volume</u>
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

	<u>Oral (rat) LD50</u>	<u>Dermal (rabbit) LD50</u>	<u>Inhalation (rat) LC50</u>
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 (\leq 119 gal. liquid; \leq 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



U.S.
MATERIAL SAFETY DATA SHEET
Howes Lubricator Diesel Treat
Page 6 of 6

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.

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:	82°C	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 dioxide, Foam		
Flashpoint and Method:	15°C 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				

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.		
	Incise 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 Equipment:	Handle with care. Keep away from children. Do not inhale or ingest.		
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 medical attention immediately if irritation persists.
Skin:	Remove contaminated clothing. Wash with soap and water. See doctor if irritation persists.
Inhalation:	Move patient to fresh air and restore breathing if required. Call a physician if discomfort persists.
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
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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



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.



MATERIAL SAFETY DATA SHEET

HERTEL PLUS DISINFECTANT

Effective date:10-Apr-2013

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.	



MATERIAL SAFETY DATA SHEET

HERTEL PLUS DISINFECTANT

Effective date:10-Apr-2013

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:

<i>eyes :</i>	May cause irritation.
<i>Skin :</i>	May cause irritation.
<i>Inhalation:</i>	May cause respiratory tract irritation.
<i>Ingestion :</i>	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.
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IARC – Group 1 (carcinogenic to humans)

Ethanol: 64-17-5	Monograph 100E (in preparation) (alcoholic beverages); Monograph 96 (2010) (alcoholic beverages)
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Reproductive effects: Non-hazardous by WHMIS criteria.

Teratogenicity : Non-hazardous by WHMIS criteria.

Mutagenicity: Non-hazardous by WHMIS criteria.

Synergistic Products : Not available.



MATERIAL SAFETY DATA SHEET

HERTEL PLUS DISINFECTANT

Effective date: 10-Apr-2013

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 Striped bass (morone saxatis): 19.1 mg/L
Ethanol	64-17-5	96h [static] LC50 (Oncorhynchus mykiss): 12.0 – 16.0 mL/L; 96h [static] LC50 (Pimephales promelas): >100 mg/L; 96h LC50 (Pimephales promelas): 13400 - 15100 mg/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: 10800 mg/L; 48h [static] EC50 Daphnia magna: 2 mg/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	%	WHMIS labeling:	
Sodium Metasilicate	6834-92-0	1%		
Ethanol	64-17-5	0.1%		
WHMIS classification :		Class D 2B		
WHMIS status:		Controlled		

Canadian Inventory Status: All components of this product are either on the Domestic Substances List (DSL), the Non-Domestic Substances List (NDLS) or exempt.



MATERIAL SAFETY DATA SHEET

HERTEL PLUS DISINFECTANT

Effective date: 10-Apr-2013

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/manufacturee 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
<u>In case of emergency</u>	: 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.
<u>Potential acute health effects</u>	
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.

2 . Hazards identification

Skin	: Irritating to skin.
Eyes	: Irritating to eyes.
<u>Potential chronic health effects</u>	
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

<u>Name</u>	<u>CAS number</u>	<u>%</u>
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.

5 . Fire-fighting measures

Flammability of the product	: Flammable liquid (NFPA) .
<u>Extinguishing media</u>	
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, CO ₂), nitrogen oxides (NO _x), 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).
<u>Methods for cleaning up</u>	
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.

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 CO_x, NO_x, phenols, polycyclic aromatic hydrocarbons, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

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.


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.

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.

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

Effective Date 10-26-2010

Material Safety Data Sheet

According to the Controlled Product Regulations

- 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

Effective Date 10-26-2010

Material Safety Data Sheet

According to the Controlled Product Regulations

- 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

Effective Date 10-26-2010

Material Safety Data Sheet

According to the Controlled Product Regulations

	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

Effective Date 10-26-2010

Material Safety Data Sheet

According to the Controlled Product Regulations

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

Effective Date 10-26-2010

Material Safety Data Sheet

According to the Controlled Product Regulations

- Bioaccumulation** : contains components that may persist in the environment.
: 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.

Effective Date 10-26-2010

Material Safety Data Sheet

According to the Controlled Product Regulations

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.

Product Name: CAT ARCTIC DEO SYN 0W-30
Revision Date: 22Apr2008
Page 1 of 9

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
HMS 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

Product Name: CAT ARCTIC DEO SYN 0W-30

Revision Date: 22Apr2008

Page 2 of 9

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
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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
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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

Product Name: CAT ARCTIC DEO SYN 0W-30

Revision Date: 22Apr2008

Page 3 of 9

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

Product Name: CAT ARCTIC DEO SYN 0W-30

Revision Date: 22Apr2008

Page 4 of 9

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]

Product Name: CAT ARCTIC DEO SYN 0W-30

Revision Date: 22Apr2008

Page 5 of 9

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.

Product Name: CAT ARCTIC DEO SYN 0W-30

Revision Date: 22Apr2008

Page 6 of 9

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.

Product Name: CAT ARCTIC DEO SYN 0W-30

Revision Date: 22Apr2008

Page 7 of 9

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, corrosivity 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.

Product Name: CAT ARCTIC DEO SYN 0W-30
Revision Date: 22Apr2008
Page 8 of 9

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
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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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Product Name: CAT ARCTIC DEO SYN 0W-30

Revision Date: 22Apr2008

Page 9 of 9

affiliates in which they directly or indirectly hold any interest.

Internal Use Only

MHC: 0B, 0B, 0, 0, 0, 0

PPEC: A

DGN: 7052921XUS (1009344)

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Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

CAT® ELC₂ (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

Revision Number: 11
Revision Date: JULY 18, 2012

1 of 7

CAT® ELC₂ (EXTENDED LIFE
COOLANT) PREMIX 50/50 WITH
EMBITTERMENT
MSDS : 10674

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

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 (306) 721-5353
Telephone	
Supplier	Federated Co-operatives Limited
Address	P.O. Box 1050, 401 - 22nd Street East Saskatoon SK S7K 3M9 Canada (306) 244-3447
Telephone	
24 Hour Emergency	(613) 996-6666 - Canutec
Telephone	

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

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	Code	1989
		CAS#	Not applicable.
Supplier	AVMOR LTD 950 Michelin Laval (QC) Tel : (450)-629-8074 www.avmorgreen.com	DSL	All ingredients are listed.
		CI#	Not applicable
Synonym	Not available.	In case of Emergency CANUTEC : 1-613-996-6666	
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	

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]. Not available.
Surfactant	N.J. Trade Secret Registry # 360116-01	1 - 5	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 discomfort, 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.

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 recommended 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

**Ecopure EP61
Glass & Surface Cleaner**

Page Number: 4

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 discomfort, 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

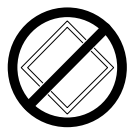
TDG Classification Not a TDG controlled material.

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

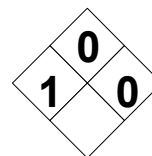
HCS (U.S.A.) Not determined.

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.) Health

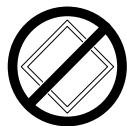


Fire Hazard

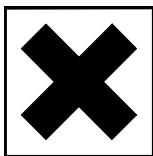
Reactivity

Specific Hazard

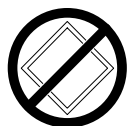
DOT (U.S.A) (Pictograms)



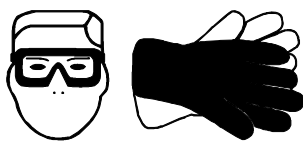
DSCL (Europe) (Pictograms)



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 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

Ecopure EP61
Glass & Surface Cleaner

Page Number: 6

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

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	Code	1993
		CAS#	Not applicable.
Supplier	AVMOR LTD 950 Michelin Laval (QC) Tel : (450)-629-8074 www.avmorgreen.com	DSL	All ingredients are listed.
		CI#	Not applicable
Synonym	Not available.	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.	
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 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 discomfort, 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	

**ECOPURE EP70
Washroom Cleaner****Page Number: 2**

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 recommended 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 discomfort, 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.
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Section XIV. Transport Information

TDG Classification	Not a TDG controlled material.
PIN	Not applicable.
Special Provisions for Transport	No additional remark.
TDG (Pictograms)	

Section XV. Other Regulatory Information and Pictograms

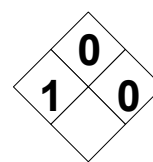
Other Regulations Not determined.

Other Classifications	HCS (U.S.A.)	Not determined.
	DSCL (EEC)	R41- Risk of serious damage to eyes.

**Hazardous Material
Information System
(U.S.A.)**

Health Hazard	1
Fire Hazard	0
Reactivity	0
Personal Protection	b

**National Fire
Protection
Association (U.S.A.)** Health

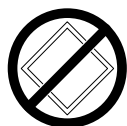


Fire Hazard

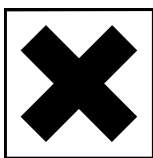
Reactivity

Specific Hazard

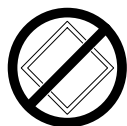
**DOT (U.S.A.)
(Pictograms)**



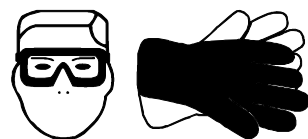
**DSCL (Europe)
(Pictograms)**



**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.

MATERIAL SAFETY DATA SHEET

Product Trade Name: **EZ-MUD GOLD**

Revision Date: 02-Jun-2007

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Trade Name: EZ-MUD GOLD
Synonyms: None
Chemical Family: Anionic Polymer
Application: Additive

Manufacturer/Supplier Baroid Fluid Services
Product Service Line of Halliburton
P.O. Box 1675
Houston, TX 77251
Telephone: (281) 871-4000
Emergency Telephone: (281) 575-5000

Prepared By Chemical Compliance
Telephone: 1-580-251-4335
e-mail: fdunexchem@halliburton.com

2. COMPOSITION/INFORMATION ON INGREDIENTS

SUBSTANCE	CAS Number	PERCENT	ACGIH TLV-TWA	OSHA PEL-TWA
Contains no hazardous substances	Mixture	60 - 100%	Not applicable	Not applicable

3. HAZARDS IDENTIFICATION

Hazard Overview May cause eye and skin irritation. Airborne dust may be explosive.

4. FIRST AID MEASURES

Inhalation If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

Skin Wash with soap and water. Get medical attention if irritation persists.

Eyes In case of contact, immediately flush eyes with plenty of water for at least 15 minutes and get medical attention if irritation persists.

Ingestion Do not induce vomiting. Slowly dilute with 1-2 glasses of water or milk and seek medical attention. Never give anything by mouth to an unconscious person.

Notes to Physician Not Applicable

5. FIRE FIGHTING MEASURES

Flash Point/Range (F):	Not Determined
Flash Point/Range (C):	Not Determined
Flash Point Method:	Not Determined
Autoignition Temperature (F):	Not Determined
Autoignition Temperature (C):	Not Determined
Flammability Limits in Air - Lower (%):	Not Determined
Flammability Limits in Air - Upper (%):	Not Determined

Fire Extinguishing Media Water fog, carbon dioxide, foam, dry chemical.

Special Exposure Hazards Decomposition in fire may produce toxic gases. Organic dust in the presence of an ignition source can be explosive in high concentrations. Good housekeeping practices are required to minimize this potential.

Special Protective Equipment for Fire-Fighters Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

NFPA Ratings: Health 1, Flammability 0, Reactivity 0
HMIS Ratings: Flammability 0, Reactivity 0, Health 1

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures Use appropriate protective equipment. Avoid creating and breathing dust. Slippery when wet.

Environmental Precautionary Measures Prevent from entering sewers, waterways, or low areas.

Procedure for Cleaning / Absorption Scoop up and remove.

7. HANDLING AND STORAGE

Handling Precautions Avoid contact with eyes, skin, or clothing. Avoid creating or inhaling dust. Slippery when wet.

Storage Information Store away from oxidizers. Store in a cool, dry location. Product has a shelf life of 36 months.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls Use in a well ventilated area.

Respiratory Protection Dust/mist respirator. (95%) Not normally needed. But if significant exposures are possible then the following respirator is recommended:

Hand Protection Normal work gloves.

Skin Protection Normal work coveralls.

Eye Protection Wear safety glasses or goggles to protect against exposure.

Other Precautions None known.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Granules
Color:	Off white
Odor:	Odorless
pH:	7.75 (1%)
Specific Gravity @ 20 C (Water=1):	0.8-1.0
Density @ 20 C (lbs./gallon):	6.66-8.33
Bulk Density @ 20 C (lbs/ft3):	52
Boiling Point/Range (F):	Not Determined
Boiling Point/Range (C):	Not Determined
Freezing Point/Range (F):	Not Determined
Freezing Point/Range (C):	Not Determined
Vapor Pressure @ 20 C (mmHg):	Not Determined
Vapor Density (Air=1):	Not Determined
Percent Volatiles:	Not Determined
Evaporation Rate (Butyl Acetate=1):	Not Determined
Solubility in Water (g/100ml):	Soluble
Solubility in Solvents (g/100ml):	Not Determined
VOCs (lbs./gallon):	Not Determined
Viscosity, Dynamic @ 20 C (centipoise):	Not Determined
Viscosity, Kinematic @ 20 C (centistrokes):	Not Determined
Partition Coefficient/n-Octanol/Water:	Not Determined
Molecular Weight (g/mole):	Not Determined

10. STABILITY AND REACTIVITY

Stability Data:	Stable
Hazardous Polymerization:	Will Not Occur
Conditions to Avoid	None anticipated
Incompatibility (Materials to Avoid)	Strong oxidizers.
Hazardous Decomposition Products	Ammonia. Oxides of nitrogen. Carbon monoxide and carbon dioxide.
Additional Guidelines	Not Applicable

11. TOXICOLOGICAL INFORMATION

Principle Route of Exposure	Eye or skin contact, inhalation.
Inhalation	None known.
Skin Contact	May cause mild skin irritation.
Eye Contact	May cause mild eye irritation.
Ingestion	None known
Aggravated Medical Conditions	None known.
Chronic Effects/Carcinogenicity	No data available to indicate product or components present at greater than 1% are chronic health hazards.
Other Information	None known.
Toxicity Tests	

Oral Toxicity:	LD50: > 5000 mg/kg (Rat)
Dermal Toxicity:	Not determined
Inhalation Toxicity:	Not determined
Primary Irritation Effect:	Not determined
Carcinogenicity	Not determined
Genotoxicity:	Not determined
Reproductive / Developmental Toxicity:	Not determined

12. ECOLOGICAL INFORMATION

Mobility (Water/Soil/Air)	Not determined
Persistence/Degradability	Not readily biodegradable.
Bio-accumulation	Will not bio-accumulate.

Ecotoxicological Information

Acute Fish Toxicity:	TLM96: >1000 mg/l (Pimephales promelas)
Acute Crustaceans Toxicity:	Not determined
Acute Algae Toxicity:	EC50: > 500 mg/l (Selenastrum capricornutum)

Chemical Fate Information	Not determined
Other Information	Not applicable

13. DISPOSAL CONSIDERATIONS

Disposal Method	Bury in a licensed landfill according to federal, state, and local regulations.
Contaminated Packaging	Follow all applicable national or local regulations.

14. TRANSPORT INFORMATION

Land Transportation

DOT
Not restricted

Canadian TDG
Not restricted

ADR Not restricted

Air Transportation

ICAO/IATA Not restricted

Sea Transportation

IMDG Not restricted

Other Shipping Information

Labels: None

15. REGULATORY INFORMATION

US Regulations

US TSCA Inventory	All components listed on inventory.
EPA SARA Title III Extremely Hazardous Substances	Not applicable
EPA SARA (311,312) Hazard Class	None
EPA SARA (313) Chemicals	This product does not contain a toxic chemical for routine annual "Toxic Chemical Release Reporting" under Section 313 (40 CFR 372).
EPA CERCLA/Superfund Reportable Spill Quantity	Not applicable.
EPA RCRA Hazardous Waste Classification	If product becomes a waste, it does NOT meet the criteria of a hazardous waste as defined by the US EPA.
California Proposition 65	The California Proposition 65 regulations apply to this product.
MA Right-to-Know Law	One or more components listed.
NJ Right-to-Know Law	One or more components listed.
PA Right-to-Know Law	One or more components listed.

Canadian Regulations

Canadian DSL Inventory	All components listed on inventory.
WHMIS Hazard Class	Un-Controlled

16. OTHER INFORMATION

The following sections have been revised since the last issue of this MSDS

Not applicable

Additional Information	For additional information on the use of this product, contact your local Halliburton representative. For questions about the Material Safety Data Sheet for this or other Halliburton products, contact Chemical Compliance at 1-580-251-4335.
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Disclaimer Statement	This information is furnished without warranty, expressed or implied, as to accuracy or completeness. The information is obtained from various sources including the manufacturer and other third party sources. The information may not be valid under all conditions nor if this material is used in combination with other materials or in any process. Final determination of suitability of any material is the sole responsibility of the user.
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*****END OF MSDS*****

KLEEN-FLO TUMBLER INDUSTRIES LIMITED			MATERIAL SAFETY DATA SHEET		PAGE 1
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:	213°C 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 Impact	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			

Material Name/Identifier: Anti-Seize Sealing Compound		Stock No. 810		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:		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 fetotoxin.		
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 open 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:	Safe -T-Brake	Stock No.	509/510/511/513
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:	Alcohol
Chemical Formula:	N/Ap (mixture)	Trade Names & Synonyms:	Safe-T-Brake
Material Use:	Air Brake Anti-Freeze	Molecular Weight:	N/Ap.

SECTION II-HAZARDOUS INGREDIENTS OF MATERIAL

Hazardous	C.A.S.	Approximate	LD50	LC50
Ingredients		Conc. %wt.	Species & Route	Species & Route
Methanol	67-56-1	60 - 100%	5628 mg/kg rat-oral	64000 ppm (4hrs) rat-inh.

SECTION III-PHYSICAL DATA FOR MATERIAL

Physical State:	Liquid	Odour/Appearance:	Colourless with alcoholic odour.
Specific Gravity:	0.792	Odour Threshold(p.p.m.):	N/Av.
Boiling Point:	64.5°C	Evaporation Rate:	4.1
Freezing Point:	-97.8°C	Solubility in Water:	miscible
% Volatile(by volume):	100	Vapour Pressure(mm)Hg:	96 mm Hg @ 20°C
Vapour Density(Air=1):	1.105 @ 15°C	Coefficient of Water/Oil Distribut:	readily soluble in water, separates from oil.
pH	7 - 8		

SECTION IV-FIRE AND EXPLOSION HAZARD OF MATERIAL



Flammability Yes/No	Yes	If yes under which conditions:	Can be ignited under almost all normal temp. conditions.
Auto Ignition Temperature:	385°C	Means of Extinguishing:	Carbondioxide, Dry chemical media for small fire.
Flashpoint and Method:	11.5°C TCC	Water spray in a fog form, Alcohol resistant foam for large fire.	
		Hazardous Combustion Products:	Fumes, smokes, oxides of carbon & formalddhyde.
Upper Flammable limit (%vol)	36.5	Lower Flammable Limit(% by volume):	6
Explosion Data:	Sensitivity of mechanical Impact: Yes	Sensitivity to Static Discharge: Yes	Use grounded quipment.

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, strong bases & strong oxidizers.
		May react with metallic aluminum or magnisium and generate hydrogen gas.	
Reactivity and under what conditions?	Yes, Heat, spark, open flame and in contact with incompatible substance		
Hazardous Decomposition Products:	Carbon monoxide, carbon dioxide, formaldehyde on burning.		
N/E: not established	N.Ap.: not applicable		N/Av.: not available



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	<u>In case of emergency</u>	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
2,2'-oxybisethanol

AIHA WEEL (United States, 1/2007).

TWA: 10 mg/m³ 8 hour(s). Form: Aerosol

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	Rat	7.7 g/kg	-
	Intraperitoneal			
	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	Rat	18800 mg/kg	-
	Subcutaneous			
	LD50 Unreported	Rat	15650 mg/kg	-
	LDLo	Rat	7826 mg/kg	-
	Intramuscular			

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 (hazarding 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 (hazarding and hazard label) required.

No placard (hazarding 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 (hazarding 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 informationWHMIS 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.

Continued on next page

Validated on Jan. 09 2012 Brake Fluid DOT 3 

Page: 7/7

**Hazardous Material
Information System
(U.S.A.)**

Health	2
Flammability	1
Reactivity	0
Personal protection	B

**National Fire
Protection
Association
(U.S.A.)**

		Flammability
	1	
Health	2	0
		Reactivity
		Specific hazard

Section 16. Other informationValidated and verified by Compliance and Technical Information Manager  Jan. 09 2012  ph.#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

MATERIAL SAFETY DATA SHEET

SECTION 1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

LUBRIPLATE® Lubricants Co.
129 Lockwood St.
Newark, NJ 07105

Emergency Telephone Number:
1-800-255-3924-CHEM-TEL (24 hour)
Telephone Number for information:
1-973-589-9150

SUBSTANCE: LUBRIPLATE Low Temp

MSDS No. - 0892150172001

TRADE NAMES/SYNONYMS:

PRODUCT USE: Petroleum lubricating grease

CREATION DATE: 06/14/2007

REVISION DATE: 12/15/2011

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT: Heavy and light hydrotreated naphthenic distillates

CAS NUMBER: 64742-52-5/64742-53-6

EC NUMBER (EINECS): 265-155-0/265-156-6

PERCENTAGE: 80-85

COMPONENT: 12 hydroxy stearic acid

CAS NUMBER: 106-14-9

EC NUMBER (EINECS): 203-366-1

PERCENTAGE: 5-10

COMPONENT: Zinc oxide

CAS NUMBER: 1314-13-2

EC NUMBER (EINECS): 215-222-5

PERCENTAGE: 5-10

COMPONENT: Chlorinated alkanes

CAS NUMBER: 63449-39-8/61788-76-9

EC NUMBER (EINECS): 264-150-0/263-004-3

PERCENTAGE: 0-2

COMPONENT: Oleic acid

CAS NUMBER: 112-80-1

EC NUMBER (EINECS): 204-007-1

PERCENTAGE: 0-2

COMPONENT: Calcium hydroxide

CAS NUMBER: 1305-62-0

EC NUMBER (EINECS): 215-137-3

PERCENTAGE: 0-2

COMPONENT: Alkylated diphenylamine

CAS NUMBER: 184378-08-3

EC NUMBER (EINECS): NA

PERCENTAGE: 0-2

NOTE: The IP 346 value of the mineral oil is less than 3%

SECTION 3 HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: Irritation

LONG TERM EXPOSURE: Lung damage

SKIN CONTACT:

SHORT TERM EXPOSURE: Irritation

LONG TERM EXPOSURE: Irritation, skin disorders

EYE CONTACT:

SHORT TERM EXPOSURE: Irritation

LONG TERM EXPOSURE: No information available

INGESTION:

SHORT TERM EXPOSURE: Diarrhea, difficulty breathing

LONG TERM EXPOSURE: no information on significant adverse effects

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM (HMIS):

Health – 1

Flammability – 1

Reactivity – 0

Not a Controlled Product under (WHMIS) – Canada

Special Protection: See Section 8

SECTION 4 FIRST AID MEASURES

INHALATION: Vapor pressure is very low and inhalation at room temperature is not a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician.

SKIN CONTACT: Remove any contaminated clothing and wash with soap and warm water. If injected by high pressure under skin, regardless of the appearance or its size, contact a physician IMMEDIATELY. Delay may cause loss of affected part of the body.

EYE CONTACT: Flush with clear water for 15 minutes or until irritation subsides. If irritation persists, consult a physician.

INGESTION: If ingested, call a physician immediately. Do not induce vomiting.

SECTION 5 FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Slight fire hazard

EXTINGUISHING MEDIA: Foam, Dry Chemical, Carbon Dioxide or Water Spray (Fog)

SPECIAL FIRE FIGHTING PROCEDURES: Cool exposed containers with water. Use air-supplied breathing equipment for enclosed or confined spaces.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Do not store or mix with strong oxidants. Empty containers retain residue. Do not cut, drill, grind, or weld, as they may explode.

SECTION 6 ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE: Scrape up grease, wash remainder with suitable petroleum solvent or add absorbent. Keep petroleum products out of sewers and water courses. Advise authorities if product has entered or may enter sewers and water courses.

SECTION 7 HANDLING AND STORAGE

STORAGE: Keep containers closed when not in use. Do not handle or store near heat, sparks, flame, or strong oxidants.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS:

OIL MIST IN AIR (Not Encountered in Normal Usage):

5 mg/m³ UK OES TWA

10mg/m³ UK OES STEL

VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant (nitrile) gloves.

RESPIRATOR: Consider the need for appropriate protective equipment, such as self-contained breathing apparatus, adequate masks and filters.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: semi-solid

APPEARANCE: smooth

COLOUR: off-white

PHYSICAL FORM: grease

ODOR: mineral oil odor

BOILING POINT: >288°C

FREEZING POINT: Not available

FLASH POINT: 166°C (COC)

LOWER FLAMMABLE LIMIT: 0.9% by volume

UPPER FLAMMABLE LIMIT: 7.0% by volume

AUTO IGNITION: not available

VAPOUR PRESSURE: <0.01

VAPOR DENSITY (air=1): >5

SPECIFIC GRAVITY (water=1): 0.91

DENSITY: not available

WATER SOLUBILITY: negligible

pH: not available

VOLATILITY: not available

ODOR THRESHOLD: not available

EVAPORATION RATE (Butyl acetate = 1): <0.01

VISCOSITY: not available

COEFFICIENT OF WATER/OIL DISTRIBUTION: not available

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressures

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

INCOMPATIBLES: Oxidising materials, chlorine

HAZARDOUS DECOMPOSITION:

Thermal decomposition products or combustion: oxides of carbon, oxides of sulphur

POLYMERISATION: Will not polymerise.

SECTION 11 TOXICOLOGICAL INFORMATION

Heavy and light hydrotreated naphthenic distillates:

TOXICITY DATA:

Greater than 5,000 mg/kg LD50 oral-rat

12 hydroxy stearic acid:**TOXICITY DATA:**

Greater than 5 g/kg LD50 oral-rat

Zinc oxide:**TOXICITY DATA:**

No data available

Chlorinated alkanes:**TOXICITY DATA:**

Greater than 4,000 mg/kg oral-rat LD50

Oleic acid:**TOXICITY DATA:**

No data available

Calcium hydroxide:**TOXICITY DATA:**

No data available

Alkylated diphenylamine:**TOXICITY DATA:**

Greater than 2,500 mg/kg oral-rat LD50

SECTION 12 ECOLOGICAL INFORMATION

Not available

SECTION 13 DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations

SECTION 14 TRANSPORT INFORMATION

LAND TRANSPORT ADR: No classification assigned.**LAND TRANSPORT RID:** No classification assigned.**AIR TRANSPORT IATA:** No classification assigned.**AIR TRANSPORT ICAO:** No classification assigned.**MARITIME TRANSPORT IMDG:** No classification assigned.

SECTION 15 REGULATORY INFORMATION

EUROPEAN REGULATIONS:

EC CLASSIFICATION (CALCULATED): N

Risk Phrases: R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SARA/TITLE III, Section 313 Status – Zinc Compounds <5%

SECTION 16 OTHER INFORMATION

The above information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of LUBRIPLATE Lubricants Company. The data on these sheets relates only to the specific material designated herein. LUBRIPLATE Lubricants Company assumes no legal responsibility for use or reliance upon this data.

MATERIAL SAFETY DATA SHEET

SECTION 1 IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

LUBRIPLATE® Lubricants Co.
129 Lockwood St.
Newark, NJ 07105

Emergency Telephone Number:
1-800-255-3924-CHEM-TEL (24 hour)
Telephone Number for information:
1-973-589-9150

SUBSTANCE: LUBRIPLATE 630-AA

MSDS No. - 0892150067001

TRADE NAMES/SYNONYMS:

PRODUCT USE: Petroleum lubricating grease

CREATION DATE: 06/18/2007

REVISION DATE: 03/23/2012

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT: Heavy hydrotreated naphthenic distillates (petroleum)

CAS NUMBER: 64742-52-5

EC NUMBER (EINECS): 265-155-0

PERCENTAGE: 85-90

COMPONENT: Inedible animal grease

CAS NUMBER: 68153-81-1

EC NUMBER (EINECS): 268-896-8

PERCENTAGE: 2-5

COMPONENT: Zinc oxide

CAS NUMBER: 1314-13-2

EC NUMBER (EINECS): 215-222-5

PERCENTAGE: 2-5

COMPONENT: Antimony diamyldithiocarbamate

CAS NUMBER: 15890-25-2

EC NUMBER (EINECS): 240-028-2

PERCENTAGE: 2-5

COMPONENT: Stearic acid

CAS NUMBER: 68440-15-3

EC NUMBER (EINECS): 270-438-7

PERCENTAGE: 0-1

COMPONENT: Lithium hydroxide monohydrate

CAS NUMBER: 1310-66-3

EC NUMBER (EINECS): NA

PERCENTAGE: 0-1

NOTE: The IP 346 value of the mineral oil is less than 3%

SECTION 3 HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE: Irritation

LONG TERM EXPOSURE: Lung damage

SKIN CONTACT:

SHORT TERM EXPOSURE: Irritation

LONG TERM EXPOSURE: Irritation, skin disorders

EYE CONTACT:

SHORT TERM EXPOSURE: Irritation

LONG TERM EXPOSURE: No information available

INGESTION:

SHORT TERM EXPOSURE: Diarrhea, difficulty breathing

LONG TERM EXPOSURE: no information on significant adverse effects

HAZARDOUS MATERIAL IDENTIFICATION SYSTEM (HMIS):

Health – 1

Flammability – 1

Reactivity – 0

Not a Controlled Product under (WHMIS) – Canada

Special Protection: See Section 8

SECTION 4 FIRST AID MEASURES

INHALATION: Vapor pressure is very low and inhalation at room temperature is not a problem. If overcome by vapor from hot product, immediately remove from exposure and call a physician.

SKIN CONTACT: Remove any contaminated clothing and wash with soap and warm water. If injected by high pressure under skin, regardless of the appearance or its size, contact a physician IMMEDIATELY. Delay may cause loss of affected part of the body.

EYE CONTACT: Flush with clear water for 15 minutes or until irritation subsides. If irritation persists, consult a physician.

INGESTION: If ingested, call a physician immediately. Do not induce vomiting.

SECTION 5 FIRE FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Slight fire hazard

EXTINGUISHING MEDIA: Foam, Dry Chemical, Carbon Dioxide or Water Spray (Fog)

SPECIAL FIRE FIGHTING PROCEDURES: Cool exposed containers with water. Use air-supplied breathing equipment for enclosed or confined spaces.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Do not store or mix with strong oxidants. Empty containers retain residue. Do not cut, drill, grind, or weld, as they may explode.

SECTION 6 ACCIDENTAL RELEASE MEASURES

OCCUPATIONAL RELEASE: Scrape up grease, wash remainder with suitable petroleum solvent or add absorbent. Keep petroleum products out of sewers and water courses. Advise authorities if product has entered or may enter sewers and water courses.

SECTION 7 HANDLING AND STORAGE

STORAGE: Keep containers closed when not in use. Do not handle or store near heat, sparks, flame, or strong oxidants.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

EXPOSURE LIMITS:

OIL MIST IN AIR (Not Encountered in Normal Usage):

5 mg/m³ UK OES TWA

10mg/m³ UK OES STEL

VENTILATION: Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

EYE PROTECTION: Wear splash resistant safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

CLOTHING: Wear appropriate chemical resistant clothing.

GLOVES: Wear appropriate chemical resistant (nitrile) gloves.

RESPIRATOR: Consider the need for appropriate protective equipment, such as self-contained breathing apparatus, adequate masks and filters.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: semi-solid

APPEARANCE: smooth

COLOUR: off-white

PHYSICAL FORM: grease

ODOR: mineral oil odor

BOILING POINT: >288 C
FREEZING POINT: Not available
FLASH POINT: 204 C (COC)
LOWER FLAMMABLE LIMIT: 0.9% by volume
UPPER FLAMMABLE LIMIT: 7.0% by volume
AUTO IGNITION: not available
VAPOUR PRESSURE: <0.01 mm Hg
VAPOR DENSITY (air=1): >5
SPECIFIC GRAVITY (water=1): 0.95
DENSITY: not available
WATER SOLUBILITY: negligible
pH: not available
VOLATILITY: not available
ODOR THRESHOLD: not available
EVAPORATION RATE (Butyl acetate = 1): <0.01
VISCOSITY: not available
COEFFICIENT OF WATER/OIL DISTRIBUTION: not available

SECTION 10 STABILITY AND REACTIVITY

REACTIVITY: Stable at normal temperatures and pressures

CONDITIONS TO AVOID: Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

INCOMPATIBLES: Oxidising materials, chlorine

HAZARDOUS DECOMPOSITION:

Thermal decomposition products or combustion: oxides of carbon, oxides of sulphur

POLYMERISATION: Will not polymerise.

SECTION 11 TOXICOLOGICAL INFORMATION

Heavy hydrotreated naphthenic distillates (petroleum):

TOXICITY DATA:

Low order of dermal and oral toxicity

Inedible animal grease:

TOXICITY DATA:

No data available

Zinc oxide:

TOXICITY DATA:

No data available

Antimony diamyldithiocarbamate:

TOXICITY DATA:

Greater than 5,000 mg/kg LD50 oral-rat

Stearic acid:

TOXICITY DATA:

Greater than 10,000 mg/kg LD50 oral-rat

Lithium hydroxide monohydrate:

TOXICITY DATA:

210 mg/kg LD50 oral-rat

SECTION 12 ECOLOGICAL INFORMATION

Not available

SECTION 13 DISPOSAL CONSIDERATIONS

Dispose in accordance with all applicable regulations

SECTION 14 TRANSPORT INFORMATION

LAND TRANSPORT ADR: No classification assigned.

LAND TRANSPORT RID: No classification assigned.

AIR TRANSPORT IATA: No classification assigned.

AIR TRANSPORT ICAO: No classification assigned.

MARITIME TRANSPORT IMDG: No classification assigned.

SECTION 15 REGULATORY INFORMATION

EUROPEAN REGULATIONS:

EC CLASSIFICATION (CALCULATED): Not classified as dangerous.

SARA/TITLE III, Section 313 Status – Zinc compounds <6%, Antimony compounds <3%

SECTION 16 OTHER INFORMATION

The above information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of LUBRIPLATE Lubricants Company. The data on these sheets relates only to the specific material designated herein. LUBRIPLATE Lubricants Company assumes no legal responsibility for use or reliance upon this data.

Section 1. Chemical product and company identification

Product name	: Oxygen
Supplier	: AIRGAS INC., on behalf of its subsidiaries 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
Product use	: Synthetic/Analytical chemistry.
Synonym	: Molecular oxygen; Oxygen molecule; Pure oxygen; O ₂ ; UN 1072; Dioxygen; Oxygen USP, Aviator's Breathing Oxygen (ABO)
MSDS #	: 001043
Date of Preparation/ Revision	: 9/24/2013.
In case of emergency	: 1-866-734-3438

Section 2. Hazards identification

Physical state	: Gas. [Compressed gas.]
Emergency overview	: DANGER! GAS: OXIDIZER. CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE. CONTENTS UNDER PRESURE. Do not puncture or incinerate container. May cause severe frostbite. LIQUID: OXIDIZER. CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE. Extremely cold liquid and gas under pressure. May cause severe frostbite. Do not puncture or incinerate container. Store in tightly-closed container. Avoid contact with combustible materials. Contact with rapidly expanding gases or liquids can cause frostbite.
Routes of entry	: Inhalation
Potential acute health effects	
Eyes	: May cause eye irritation. Contact with rapidly expanding gas may cause burns or frostbite. Contact with cryogenic liquid can cause frostbite and cryogenic burns.
Skin	: May cause skin irritation. Contact with rapidly expanding gas may cause burns or frostbite. Contact with cryogenic liquid can cause frostbite and cryogenic burns.
Inhalation	: Respiratory system irritation after overexposure to high oxygen concentrations.
Ingestion	: Ingestion is not a normal route of exposure for gases. Contact with cryogenic liquid can cause frostbite and cryogenic burns.
Medical conditions aggravated by over-exposure	: Acute or chronic respiratory conditions may be aggravated by overexposure to this gas.
See toxicological information (Section 11)	

Section 3. Composition, Information on Ingredients

<u>Name</u>	<u>CAS number</u>	<u>% Volume</u>	<u>Exposure limits</u>
Oxygen	7782-44-7	100	

Section 4. First aid measures

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.

- 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** : None expected.
- Frostbite** : Try to warm up the frozen tissues and seek medical attention.
- 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** : As this product is a gas, refer to the inhalation section.

Section 5. Fire-fighting measures

- Flammability of the product** : Non-flammable.
- Products of combustion** : No specific data.
- Fire hazards in the presence of various substances** : Extremely flammable in the presence of the following materials or conditions: reducing materials, combustible materials and organic materials.
- Fire-fighting media and instructions** : Use an extinguishing agent suitable for the surrounding fire.

Apply water from a safe distance to cool container and protect surrounding area. If involved in fire, shut off flow immediately if it can be done without risk.

Contains gas under pressure. Contact with combustible material may cause fire. This material increases the risk of fire and may aid combustion. In a fire or if heated, a pressure increase will occur and the container may burst or explode.
- 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.

Section 6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (section 8). Eliminate all ignition sources if safe to do so. Do not touch or walk through spilled material. Shut off gas supply if this can be done safely. Isolate area until gas has dispersed.
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

- Handling** : High pressure gas. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Store in tightly-closed container. Avoid contact with combustible materials. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Never allow any unprotected part of the body to touch uninsulated pipes or vessels that contain cryogenic liquids. Prevent entrapment of liquid in closed systems or piping without pressure relief devices. Some materials may become brittle at low temperatures

Oxygen

and will easily fracture.

- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalis, reducing agents and combustibles. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure controls/personal protection

- Engineering controls** : 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.

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 or dusts.

When working with cryogenic liquids, wear a full face shield.

- 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.

- 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.

The applicable standards are (US) 29 CFR 1910.134 and (Canada) Z94.4-93

- 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.

Insulated gloves suitable for low temperatures

- Personal protection in case of a large spill** : Self-contained breathing apparatus (SCBA) should be used to avoid inhalation of the product.

Product name

Oxygen

Consult local authorities for acceptable exposure limits.

Section 9. Physical and chemical properties

- Molecular weight** : 32 g/mole
Molecular formula : O₂
Boiling/condensation point : -183°C (-297.4°F)
Melting/freezing point : -218.4°C (-361.1°F)
Critical temperature : -118.15°C (-180.7°F)
Vapor density : 1.1 (Air = 1)
Specific Volume (ft³/lb) : 12.0482
Gas Density (lb/ft³) : 0.083

Section 10. Stability and reactivity

- Stability and reactivity** : The product is stable.
- Incompatibility with various substances** : Extremely reactive or incompatible with the following materials: oxidizing materials, reducing materials and combustible materials.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Toxicity data

Other toxic effects on humans : No specific information is available in our database regarding the other toxic effects of this material to humans.

Specific effects

Carcinogenic effects : No known significant effects or critical hazards.

Mutagenic effects : No known significant effects or critical hazards.

Reproduction toxicity : No known significant effects or critical hazards.

Section 12. Ecological information

Aquatic ecotoxicity

Not available.

Environmental fate : Not available.



Environmental hazards : This product shows a low bioaccumulation potential.

Toxicity to the environment : Not available.





Section 13. Disposal considerations

Product removed from the cylinder must be disposed of in accordance with appropriate Federal, State, local regulation. Return cylinders with residual product to Airgas, Inc. Do not dispose of locally.

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN1072	OXYGEN, COMPRESSED	2.2	Not applicable (gas).		Limited quantity Yes.
	UN1073	Oxygen, refrigerated liquid				Packaging instruction Passenger aircraft Quantity limitation: 75 kg Cargo aircraft Quantity limitation: 150 kg Special provisions A52

Oxygen

TDG Classification	UN1072	OXYGEN, COMPRESSED	2.2	Not applicable (gas).		<u>Explosive Limit and Limited Quantity Index</u> 0.125
	UN1073	Oxygen, refrigerated liquid				<u>ERAP Index</u> 3000 <u>Passenger Carrying Ship Index</u> 50 <u>Passenger Carrying Road or Rail Index</u> 75 <u>Special provisions</u> 42
Mexico Classification	UN1072	OXYGEN, COMPRESSED	2.2	Not applicable (gas).		-
	UN1073	Oxygen, refrigerated liquid				

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

Section 15. Regulatory information

United States

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption:** This material is listed or exempted.
United States inventory (TSCA 8b): This material is listed or exempted.
SARA 302/304: No products were found.
SARA 311/312 Hazards identification: Fire hazard, Sudden release of pressure

State regulations

: **Connecticut Carcinogen Reporting:** This material is not listed.
Connecticut Hazardous Material Survey: This material is not listed.
Florida substances: This material is not listed.
Illinois Chemical Safety Act: This material is not listed.
Illinois Toxic Substances Disclosure to Employee Act: This material is not listed.
Louisiana Reporting: This material is not listed.
Louisiana Spill: This material is not listed.
Massachusetts Spill: This material is not listed.
Massachusetts Substances: This material is listed.
Michigan Critical Material: This material is not listed.
Minnesota Hazardous Substances: This material is not listed.
New Jersey Hazardous Substances: This material is listed.
New Jersey Spill: This material is not listed.
New Jersey Toxic Catastrophe Prevention Act: This material is not listed.
New York Acutely Hazardous Substances: This material is not listed.
New York Toxic Chemical Release Reporting: This material is not listed.
Pennsylvania RTK Hazardous Substances: This material is listed.

Oxygen

Rhode Island Hazardous Substances: This material is not listed.

Canada

WHMIS (Canada)

- : Class A: Compressed gas.
Class C: Oxidizing material.

CEPA Toxic substances: This material is not listed.

Canadian ARET: This material is not listed.

Canadian NPRI: This material is not listed.

Alberta Designated Substances: This material is not listed.

Ontario Designated Substances: This material is not listed.

Quebec Designated Substances: This material is not listed.

Section 16. Other information

United States

Label requirements

- : GAS:
OXIDIZER.
CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE.
CONTENTS UNDER PRESURE.
Do not puncture or incinerate container.
May cause severe frostbite.
LIQUID:
OXIDIZER.
CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE.
Extremely cold liquid and gas under pressure.
May cause severe frostbite.

Canada

Label requirements

- : Class A: Compressed gas.
Class C: Oxidizing material.

Hazardous Material Information System (U.S.A.)

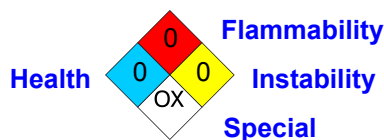
Health	0
Flammability	0
Physical hazards	0

liquid:

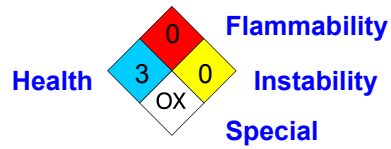
Health	3
Fire hazard	0
Reactivity	0
Personal protection	

National Fire Protection Association (U.S.A.)

:



liquid:



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 / Fiche signalétique

WESTCOAST DRILLING SUPPLIES LTD.

8069 River Way, Delta, British Columbia,
Canada V4G 1L3
Ph. (604) 940-6050 Fax (604) 940-6080

EMERGENCY 1-800-665-6645

SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME: **W-OB POLYMER**
PRODUCT USE: Drilling Mud Additive
CHEMICAL FAMILY: Polysaccharide Polymer
WHMIS CLASSIFICATION: Class B-3 & D-2(B)
WORK PLACE HAZARD: Combustible and Skin and Eye Irritant

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not Dangerous Goods
PACKAGE GROUP: Not applicable
PRODUCT IDENTIFICATION NUMBER (PIN): Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50	LC50
Light mineral distillate	10 - 20%	64742-47-8	Not determined	

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:
[XXX] Skin, [XXX] Eye Contact, [XXX] Inhalation, [XXX] Ingestion

THRESHOLD LIMIT VALUE: 5 mg/cu.M/8 hrs.
EFFECTS OF OVEREXPOSURE: No significant signs or symptoms indicative of any adverse health effects are expected to occur upon short-term exposures.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: Remove by wiping; then wash thoroughly with plenty of soap and water.
EYE CONTACT: Flush eyes with clean, low pressure water for at least fifteen (15) minutes, occasionally lifting the eyelids. If pain or redness persists after flushing, obtain medical attention.
INHALATION: Immediately remove personnel from contaminated area to fresh air. Obtain medical attention if there are signs of breathing difficulties.
INGESTION: Do not induce vomiting, since aspiration into the lungs could cause lipoid pneumonia. This material is not toxic and no significant signs or symptoms indicative of any adverse health effects are expected.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR: Opaque, blue liquid; Odorless.
DENSITY (SPECIFIC GRAVITY): 1.03
BOILING POINT: 200° C
MELTING POINT: Not applicable
WATER SOLUBILITY: Soluble
% VOLATILE BY VOLUME: Negligible
EVAPORATION RATE: Nil
VAPOR PRESSURE: (mm Hg) < 1.0
VAPOR DENSITY: (Air = 1) > 10.0
pH: 6 - 8

**WESTCOAST DRILLING SUPPLIES LTD.**

8069 River Way, Delta, British Columbia, Canada V4G 1L3

Phone: (604) 940-6050 · Fax: (604) 940-6080

Toll Free: 1-800-665-6645

W-OB POLYMER

Page 2 of 2

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 62° C
FLAMMABLE LIMIT: Auto-ignition Temp. 227° C
EXTINGUISHING MEDIA: Dry chemical, CO₂, foam and water are effective but may cause frothing.
SPECIAL FIRE FIGHTING PROCEDURES: Cool tanks and containers exposed to fire with water.
UNUSUAL FIRE AND EXPLOSION HAZARDS: To protect against hazardous effects of combustion products respiratory protective equipment when in confined spaces or down wind of fire.

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE []
INCOMPATIBILITY (CONDITIONS TO AVOID): Extreme heat and open flame.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide; carbon monoxide.
HAZARDOUS POLYMERIZATION: Will not occur [XXX] May occur []

SECTION VIII: PREVENTATIVE MEASURES

SPECIAL PROTECTION INFORMATION:
RESPIRATORY PROTECTION: None required under normal conditions.
VENTILATION: Adequate ventilation to minimize oil mists below acceptable standards.
PROTECTIVE GLOVES: None required.
EYE PROTECTION: Normal safety glasses suggested.
OTHER PROTECTIVE EQUIPMENT: None required.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Avoid ingestion. Practice reasonable caution and personal cleanliness. Avoid skin and eye contact.

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

(Use appropriate safety equipment). Small spills, soak up with absorbent material. Large spills, dike to contain spill to prevent water pollution. Water will cause extreme slipperiness. Recover diked material; return recovered material to plant.

WASTE DISPOSAL METHOD:

Absorb spilled material with absorbent compound, incinerate/dispose to conform with local disposal regulations.

SECTION IX: PREPARATION

The information contained herein is given in good faith, but no warranty, expressed or implied is made.

DATE ISSUED: October 29, 1993

BY: Product Safety Committee

DATE REVISED: April 1, 2000

Review date: March 31/03Authorized by: Alan Lalonde



Material Safety Data Sheet

Material Name: Ag Lime

ID: CAMAS AG
LIME

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

Chemical Name: Mixture

Product Use: PCC Co-Product

Synonyms: Aglime

Manufacturer Information

Specialty Minerals Inc - Camas
220 NW 6th Avenue
Camas WA 98607

Phone: 360 518 6626

Emergency # +1-760-476-3962 (USA) Access Code: 333336

General Comments

*** Section 2 - Composition / Information on Ingredients ***

CAS #	Component	Percent (wt/wt)
1317-65-3	Calcium carbonate	60-100
1305-62-0	Calcium hydroxide	5-10
14808-60-7	Quartz	1-5
1305-78-8	Calcium oxide	1-5

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Silica, crystalline (general form).

Component Information

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

*** Section 3 - Hazards Identification ***

Emergency Overview

This product is irritating to the respiratory system and skin.

Potential Health Effects: Eyes

This product is severely irritating to the eyes and may cause eye burns.

Potential Health Effects: Skin

This product may cause irritation to the skin.

Potential Health Effects: Ingestion

May cause temporary irritation of the throat, stomach, and gastrointestinal tract.

Potential Health Effects: Inhalation

WARNING: This product contains crystalline silica. Long-term overexposure to crystalline silica causes silicosis, a form of pulmonary fibrosis. Continued overexposure to silica can lead to cardiopulmonary impairment.

Crystalline silica has been reviewed by IARC. IARC found sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica in the form of quartz or cristobalite from occupational sources.

Medical Conditions Aggravated by Exposure

No information available for the product.

Potential Environmental Effects

This material is alkaline.

Material Safety Data Sheet

Material Name: Ag Lime

ID: CAMAS AG
LIME

HMIS Ratings: Health: 1* Fire: 0 Reactivity: 0 Pers. Prot.: F

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe * = Chronic hazard

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

First Aid: Eyes

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

First Aid: Skin

For skin contact, wash immediately with soap and water.

First Aid: Ingestion

If the material is swallowed, get immediate medical attention or advice -- Do not induce vomiting.

First Aid: Inhalation

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

First Aid: Notes to Physician

Provide general supportive measures and treat symptomatically.

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

General Fire Hazards

This material will not burn.

Hazardous Combustion Products

None identified.

Extinguishing Media

Use methods for the surrounding fire.

Fire Fighting Equipment/Instructions

None necessary.

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

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

Containment Procedures

Contain the discharged material.

Clean-Up Procedures

Wear appropriate protective equipment and clothing during clean-up.

Evacuation Procedures

None necessary.

Special Procedures

No additional information available.

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

Handling Procedures

Avoid contact with skin and eyes.

Storage Procedures

Room temperature - normal conditions.

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

Exposure Guidelines

A: General Product Information

Protect from eye and skin contact.

Material Safety Data Sheet

Material Name: Ag Lime

ID: CAMAS AG
LIME

B: Component Exposure Limits

Calcium carbonate (1317-65-3)

OSHA: 15 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable fraction)
NIOSH: 10 mg/m³ TWA (total dust); 5 mg/m³ TWA (respirable dust)

Calcium hydroxide (1305-62-0)

ACGIH: 5 mg/m³ TWA
OSHA: 5 mg/m³ TWA (not in effect as a result of reconsideration)
NIOSH: 5 mg/m³ TWA

Calcium oxide (1305-78-8)

ACGIH: 2 mg/m³ TWA
OSHA: 5 mg/m³ TWA (not in effect as a result of reconsideration)
NIOSH: 2 mg/m³ TWA

Quartz (14808-60-7)

ACGIH: 0.025 mg/m³ TWA (respirable fraction)
OSHA: 0.1 mg/m³ TWA (respirable dust)
NIOSH: 0.05 mg/m³ TWA (respirable dust)

Engineering Controls

Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear dust goggles.

Personal Protective Equipment: Skin

Use of protective coveralls and long sleeves is recommended. Use impervious gloves.

Personal Protective Equipment: Respiratory

Wear a NIOSH approved filtering facepiece (dust mask).

Personal Protective Equipment: General

Eye wash fountain and emergency showers are recommended.

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

Appearance:	Gray powder	Odor:	None
Physical State:	Solid	pH:	12.4-12.7 (USEPA Method 9045C)
Vapor Pressure:	Minimal	Vapor Density:	N/A
Boiling Point:	Unknown	Melting Point:	N/A
Solubility (H₂O):	Slightly Soluble	Specific Gravity:	2.7 (dry product)

*** Section 10 - Stability & Reactivity ***

Chemical Stability

Stable under normal conditions.

Chemical Stability: Conditions to Avoid

None.

Incompatibility

None identified.

Hazardous Decomposition

None identified.

Material Safety Data Sheet

Material Name: Ag Lime

ID: CAMAS AG
LIME

Hazardous Polymerization

Will not occur.

*** Section 11 - Toxicological Information ***

Acute and Chronic Toxicity

A: General Product Information

No information available for the product.

B: Component Analysis - LD50/LC50

Calcium hydroxide (1305-62-0)

Oral LD50 Rat 7340 mg/kg

Calcium oxide (1305-78-8)

Oral LD50 Rat 500 mg/kg

Quartz (14808-60-7)

Oral LD50 Rat 500 mg/kg

Carcinogenicity

A: General Product Information

No carcinogenicity data available for this product.

B: Component Carcinogenicity

Quartz (14808-60-7)

ACGIH: A2 - Suspected Human Carcinogen

NIOSH: potential occupational carcinogen

NTP: Known Human Carcinogen (Select Carcinogen)

IARC: Monograph 100C [in preparation] (listed under Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources); Monograph 68 [1997] (Group 1 (carcinogenic to humans))

*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

A 96-hour Washington State Hazardous Waste Regulation bioassay using concentrations of 10 and 100 mg/L of this material was conducted. The organisms tested were rainbow trout (*Oncorhynchus mykiss*). Results were as follows:

10 ppm - 0 dead/30 tested (does not qualify as a Washington State Extremely Hazardous Waste)

100 ppm - 2 dead/30 tested (does not qualify as a Washington State Dangerous Waste)

LC50 >100 mg/L

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Calcium hydroxide (1305-62-0)

96 Hr LC50 *Gambusia affinis*: 160 mg/L [static]

Calcium oxide (1305-78-8)

96 Hr LC50 *Cyprinus carpio*: 1070 mg/L [static]

Environmental Fate

This material shows no bioaccumulation or food chain concentration toxicity potential.

Material Safety Data Sheet

Material Name: Ag Lime

ID: CAMAS AG
LIME

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

No components are identified as hazardous wastes.

B: Component Waste Numbers

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

Disposal Instructions

State of Washington Waste Number and Description:

This material is a special waste in the State of Washington only.

Washington State Waste Code: WSC2

*** Section 14 - Transport Information ***

US DOT Information

Shipping Name: None necessary.

Additional Info.: None.

International Transportation Regulations

This product is not regulated as a hazardous material by the United States (DOT) or Canadian (TDG) transportation regulations.

*** Section 15 - Regulatory Information ***

US Federal Regulations

A: General Product Information

Components of this product have been checked against the non-confidential TSCA inventory by CAS Registry Number. Components not identified on this non-confidential inventory are either exempt from listing (i.e. polymers, hydrates) or are listed on the confidential inventory as declared by the supplier.

B: Component Analysis

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

Acute Health: Yes **Chronic Health:** Yes **Fire:** No **Pressure:** No **Reactive:** No

State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements.

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	MI
Calcium carbonate	1317-65-3	No	No	Yes	Yes	Yes	Yes	No
Calcium hydroxide	1305-62-0	Yes	No	Yes	Yes	Yes	Yes	No
Calcium oxide	1305-78-8	Yes	No	Yes	Yes	Yes	Yes	No
Quartz	14808-60-7	No	No	Yes	Yes	Yes	Yes	No

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 cancer.

Material Safety Data Sheet

Material Name: Ag Lime

ID: CAMAS AG
LIME

Other Regulations

A: General Product Information

Canadian WHMIS Classification: Class D, Division 2, Subdivision A. Class E, Corrosive Material

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	NDSL	EINECS	AUST	PHIL.	MITI	KOREA	ELINCS	CHINA
Calcium carbonate	1317-65-3	Yes	No	Yes	Yes	Yes	Yes	No	Yes	No	Yes
Calcium hydroxide	1305-62-0	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Calcium oxide	1305-78-8	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Quartz	14808-60-7	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes

C: Component Analysis - WHMIS IDL

Component	CAS	Present
Calcium hydroxide	1305-62-0	Yes
Calcium oxide	1305-78-8	Yes
Quartz	14808-60-7	Yes

* * * Section 16 - Other Information * * *

Other Information

Disclaimer: Neither Minerals Technologies Inc., nor any of its affiliates ("MTI") shall be responsible for the use of information, product, method, or apparatus herein presented ("Information"), and you must make your own determination as to its suitability and completeness for your own use, for the protection of the environment, and for health and safety purposes. You assume the entire risk of relying on this information. In no event shall MTI be responsible for damages of any nature whatsoever resulting from the use of or reliance upon this information. By providing this information, MTI neither can nor intends to control the method or manner by which you use, handle, store, or transport MTI products. Nothing herein shall be construed as a recommendation or license to use any Information that conflicts with any patent, trademark or copyright. Material Safety Data Sheets providing safety precautions that should be observed in handling and storing MTI products are available upon request. You should obtain and review the available material safety information before handling any of these products.

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Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; DOT = Department of Transportation; RCRA = Resource Conservation and Recovery Act

This is the end of MSDS # LONGVIEW AG LIME

**MATERIAL SAFETY DATA SHEET****Aluminium Sulphate****Section 01 - Chemical And Product And Company Information**

Product Identifier Aluminium Sulphate, granular

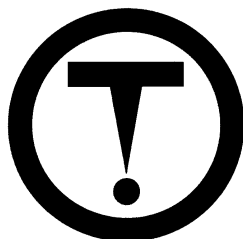
Product Use Coagulating agent in water treatment and pulp and paper, production of aluminum chemicals, general purpose food additive, fire extinguisher compounds, soaps, greases, drugs and cosmetics.

Supplier Name ClearTech Industries Inc.
2302 Hanselman Avenue
Saskatoon, SK. Canada
S7L 5Z3

Prepared By ClearTech Industries Inc. Technical Department
Phone: (306)664-2522

Preparation Date September 28, 2010

24-Hour Emergency Phone 306-664-2522

**Section 02 - Composition / Information on Ingredients**

Hazardous Ingredients Aluminium Sulphate Anhydrous 57-60% (anhydrous)

CAS Number Aluminium Sulphate Anhydrous 10043-01-3

Synonym (s) Dry alum, papermaker's alum, dialuminum trisulphate, aluminum sulphate anhydrous, aluminum sulphate octadecahydrate

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
<u>In case of emergency</u>	: 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.
<u>Potential acute health effects</u>	
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.

2 . Hazards identification

Skin	: Irritating to skin.
Eyes	: Irritating to eyes.
<u>Potential chronic health effects</u>	
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

<u>Name</u>	<u>CAS number</u>	<u>%</u>
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.

5 . Fire-fighting measures

Flammability of the product	: Flammable liquid (NFPA) .
<u>Extinguishing media</u>	
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, CO ₂), nitrogen oxides (NO _x), 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).
<u>Methods for cleaning up</u>	
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
-----------------	--

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.

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 CO_x, NO_x, phenols, polycyclic aromatic hydrocarbons, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

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.


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.

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.
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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

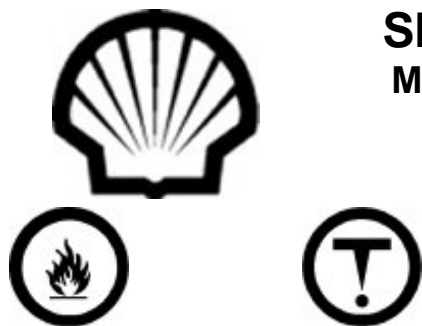
Canada-wide: telephone: 1-800-668-0220; fax: 1-800-837-1228

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.

**Shell Canada Limited**
Material Safety Data Sheet

Effective Date: 2005-08-15

Supersedes: 2002-08-14

Class B3 Combustible Class D2B Skin
Liquid Irritation**1. PRODUCT AND COMPANY IDENTIFICATION**

PRODUCT: **SHELL* JET A-1**
SYNONYMS: Aviation Turbine Fuel (Kerosene Type)
May contain anti-icing additive (Diethylene Glycol Monomethyl Ether)
PRODUCT USE: Fuel Solvent
MSDS Number: 142-011

MANUFACTURER

Shell Canada Limited
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

TELEPHONE NUMBERS**Shell Emergency Number****CANUTEC 24 HOUR EMERGENCY NUMBER**

1-800-661-7378

613-996-6666

For general information:

1-800-661-1600

For MSDS information:

403-691-3982

(From 7:30 to 4:30 Mountain Time)

403-691-2220

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(s) of Shell Canada Limited, used under license by Shell Canada Products.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	% Range	WHMIS Controlled
Kerosene (Petroleum), Hydrodesulfurized	64742-81-0	60 - 100	Yes

See Section 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

Physical Description: Liquid Bright Clear Hydrocarbon Odour

Routes of Exposure: Exposure will most likely occur through skin contact or inhalation.

Hazards:
Combustible Liquid.
Irritating to skin.

Handling:

Vapours are moderately irritating to the eyes.
Ingestion may result in vomiting. Avoid aspiration of vomitus into lungs as small quantities may result in aspiration pneumonitis.
Vapours are moderately irritating to the respiratory passages.
Eliminate all ignition sources.
Avoid prolonged exposure to vapours.
Wear suitable gloves and eye protection.
Bond and ground transfer containers and equipment to avoid static accumulation.
Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

For further information on health effects, see Section 11.

4. FIRST AID

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wash contaminated skin with mild soap and water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

Ingestion: DO NOT INDUCE VOMITING! OBTAIN MEDICAL ATTENTION IMMEDIATELY. Guard against aspiration into lungs by having the individual turn on to their left side. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

Inhalation: Remove victim from further exposure and restore breathing, if required. Obtain medical attention.

Notes to Physician: The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. If more than 2.0 mL/kg has been ingested, vomiting should be induced with supervision. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Carbon Dioxide
Foam
Dry Chemical
Water Fog

Firefighting Instructions: Caution - Combustible. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Vapours may travel along ground and flashback along vapour trail may occur. Product will float and can be reignited on surface of water. Do not use a direct stream of water as it may spread fire. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure buildup, which could result in container rupture. Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.

Hazardous Combustion Products: A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes pyrolysis or combustion. Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

6. ACCIDENTAL RELEASE MEASURES

Issue warning "Combustible". Eliminate all ignition sources. Isolate hazard area and restrict access. Handling equipment must be grounded. Work upwind of spill if it is safe to do so. Avoid direct contact with material. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Dike and contain land spills; contain spills to water by booming. Use water fog to knock down vapours; contain runoff. Absorb residue or small spills with absorbent material and remove to non-leaking containers for disposal. Recommended materials: Clay or Sand Flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations. Notify appropriate environmental agency(ies).

7. HANDLING AND STORAGE

- Handling:** Avoid excessive heat, sparks, open flames and all other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Vapours are heavier than air and will settle and collect in low areas and pits, displacing breathing air. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapours are gone. Vapours may accumulate and travel to distant ignition sources and flashback. Do not cut, drill, grind, weld or perform similar operations on or near containers. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Do not pressurize drum containers to empty them. 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. Combustible.
- Storage:** Store in a cool, dry, well ventilated area, away from heat and ignition sources. Keep container tightly closed.

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):

Kerosene/Jet fuels, as total hydrocarbon vapour (skin) : 200 mg/m³ (Application restricted to conditions in which there are negligible aerosol exposures.)

Skin Notation: Absorption through skin, eyes and mucous membranes may contribute significantly to the total exposure.

- Mechanical Ventilation:** Use explosion-proof ventilation as required to control vapour concentrations. Concentrations in air should be maintained below the occupational exposure limit if unprotected personnel are involved. Local ventilation recommended where mechanical ventilation is ineffective in controlling airborne concentrations below the recommended occupational exposure limit. Make up air should always be supplied to balance air exhausted (either generally or locally). For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere.

PERSONAL PROTECTIVE EQUIPMENT:

- Eye Protection:** Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes. Provide an eyewash station in the area.
- Skin Protection:** Avoid contact with skin. Use protective clothing and gloves manufactured from nitrile. Safety showers should be available for emergency use.
- Respiratory Protection:** Avoid breathing vapour or mists. If exposure has the potential to exceed occupational exposure limits, use an appropriate NIOSH-approved respirator. Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator.

9. PHYSICAL DATA

Physical State:	Liquid
Appearance:	Bright Clear
Odour:	Hydrocarbon Odour
Odour Threshold:	Not available
Freezing/Pour Point:	Freeze Point < -47 °C
Boiling Point:	145 - 300 °C
Density:	775 - 840 kg/m ³ @ 15 °C
Vapour Density (Air = 1):	Not available
Vapour Pressure (absolute):	1 - 1.4 kPa @ 37.8 °C
pH:	Not available
Flash Point:	Tag Closed Cup > 43 °C
Lower Explosion Limit:	0.7 % (vol.)
Upper Explosion Limit:	5 % (vol.)
Autoignition Temperature:	210 °C
Viscosity:	< 8 cSt @ -20 °C
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (log K_{ow}):	3.3 - 6
Water Solubility:	Insoluble
Other Solvents:	Hydrocarbon Solvents

10. STABILITY AND REACTIVITY

Chemically Stable:	Yes
Hazardous Polymerization:	No
Sensitive to Mechanical Impact:	No
Sensitive to Static Discharge:	Yes
Hazardous Decomposition Products:	Thermal decomposition products are highly dependent on combustion conditions.
Incompatible Materials:	Avoid strong oxidizing agents.
Conditions of Reactivity:	Avoid excessive heat, open flames and all ignition sources.

11. TOXICOLOGICAL INFORMATION

Ingredient (or Product if not specified)	Toxicological Data
Kerosene (Petroleum), Hydrodesulfurized	LD50 Dermal Rabbit > 2000 mg/kg LD50 Oral Rat > 5000 mg/kg

Routes of Exposure: Exposure will most likely occur through skin contact or inhalation.

Irritancy:	This product is expected to be irritating to skin but is not predicted to be a skin sensitizer.
Chronic Effects:	Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged exposure to high vapour concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression.
Pre-existing Conditions:	Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.
Carcinogenicity and Mutagenicity:	The International Agency for Research on Cancer (IARC) considers that this product is not classifiable as to its carcinogenicity to humans. Middle distillates have caused skin cancers in laboratory animals when applied repeatedly and left in place between applications. This effect is believed to be caused by the continuous irritation of the skin. Good personal hygiene should be maintained to avoid this risk.

12. ECOLOGICAL INFORMATION

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. May cause physical fouling of aquatic organisms.

Biodegradability:	Not readily biodegradable. Rapid volatilization.
Bioaccumulation:	Potential for bioaccumulation.
Partition Coefficient (log K_{ow}):	3.3 - 6

Aquatic Toxicity

Product is expected to be toxic to aquatic organisms.

Ingredient:	Toxicological Data
Kerosene (Petroleum), Hydrodesulfurized	EL50 - growth rate (WAF method) Algae (72hr) 1 - 10 mg/L. EL50 (WAF method) Daphnia Magna (48hr) 1 - 10 mg/L. LL50 (WAF method) Rainbow Trout (96hr) 1 - 10 mg/L.

Definition(s):	LL and EL are the lethal loading concentration and effective loading concentration respectively. The concentration represents the amount of substance added to the system to obtain a toxic concentration. They replace the traditional LC and EC for low solubility substances. WAF is the water accommodated fraction. A slightly soluble hydrocarbon is stirred into water and the insoluble portions are removed. The remaining solution is the water accommodated fraction.
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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. Incinerate at a licenced waste disposal site with approval of environmental authority.

14. TRANSPORTATION INFORMATION**Canadian Road and Rail Shipping Classification:**

UN Number	UN1863
Proper Shipping Name	FUEL, AVIATION, TURBINE ENGINE
Hazard Class	Class 3 Flammable Liquids
Packing Group	PG III
Additional Information	Not Regulated in Containers Less Than or Equal to 450 Litres.
Shipping Description	FUEL, AVIATION, TURBINE ENGINE Class 3 UN1863 PG III Not Regulated in Containers Less Than or Equal to 450 Litres.

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.

WHMIS Class:	Class B3 Combustible Liquid Class D2B Skin Irritation
DSL/NDL Status:	This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act.
Other Regulatory Status:	No Canadian federal standards.

16. ADDITIONAL INFORMATION**LABEL STATEMENTS**

Hazard Statement :	Combustible Liquid. Irritating to skin.
Handling Statement:	Eliminate all ignition sources. Avoid prolonged exposure to vapours. Wear suitable gloves and eye protection. Bond and ground transfer containers and equipment to avoid static accumulation. Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.
First Aid Statement :	Wash contaminated skin with soap and water. Flush eyes with water. If overcome by vapours remove to fresh air. Do not induce vomiting. Obtain medical attention.

Revisions:

This MSDS has been reviewed and updated.

Changes have been made to:

Section 3

Section 4

Section 5

Section 7

Section 8

Section 9

Section 12

Section 14

**Shell Canada Limitée****Fiche signalétique**FS en vigueur le : 2005-08-15
Remplace celle du : 2002-08-14Catégorie B3 Liquide
combustibleCatégorie D2B Irritation
de la peau**1. IDENTIFICATION DU PRODUIT ET DE LA SOCIÉTÉ**

NOM COMMERCIAL : CARBUREACTEUR SHELL* A-1
SYNONYMES : Carburant aviation pour moteurs à turbines (type kérosène)
Peut contenir un additif antigivre (éther monométhylque du diéthylèneglycol)

UTILISATION DU PRODUIT : Carburant. Solvant.
NUMÉRO DE LA FS : 142-011

NOM DU FABRICANT
Shell Canada Limitée
P.O. Box 100, Station M
400-4th Ave. S.W.
Calgary, AB Canada
T2P 2H5

NUMÉROS DE TÉLÉPHONE

Numéro d'urgence de Shell 1 800 661-7378
Numéro d'urgence de CANUTEC (24 heures) (613) 996-6666

Pour information générale 1 800 661-1600
Pour information sur la FS (403) 691-3982
(De 7 h 30 à 16 h 30, heure des Rocheuses) (403) 691-2220

Cette FS a été préparée par le groupe de toxicologie et bonne gestion des produits de Shell Canada Limitée.

* L'astérisque dans la désignation du produit signifie <<Marque déposée de Shell Canada Limitée, utilisée en vertu d'une licence par Produits Shell Canada>>.

2. COMPOSITION/INFORMATION SUR LES INGRÉDIENTS

Ingrédients	N° CAS	%	Contrôlé par SIMDUT
Kérosène (pétrole), hydrodésulfuré	64742-81-0	60 - 100	Oui

Voir la section 8 pour les directives sur l'exposition.

3. IDENTIFICATION DES RISQUES

Description physique : Liquide. Brillant Clair Odeur d'hydrocarbure.

Voies d'entrée : L'exposition à ce produit est le plus susceptible de se produire par contact avec la peau ou inhalation.

Effets potentiels sur la santé :

Liquide combustible.
Irritant pour la peau.
Les vapeurs sont modérément irritantes pour les yeux.
Il peut y avoir vomissement après ingestion du produit. Éviter d'aspirer le produit vomi dans les poumons étant donné que de petites quantités peuvent causer une pneumonie par aspiration.
Les vapeurs sont modérément irritantes pour les voies respiratoires.
Éliminer toutes les sources d'inflammation.
Éviter l'exposition prolongée aux vapeurs.
Porter des protecteurs oculaires et des gants appropriés.
Mettre à la masse et à la terre le matériel et les contenants de transfert pour éviter l'accumulation d'électricité statique.
Les contenants vides sont dangereux, car ils peuvent contenir des poussières, des vapeurs ou des résidus liquides inflammables/explosifs. Tenir loin des étincelles et de la flamme nue.

Information sur la manipulation :

Pour plus d'information sur les effets sur la santé, voir la section 11.

4. PREMIERS SOINS

Contact avec les yeux : Rincer les yeux à grande eau pendant au moins 15 minutes en gardant les paupières ouvertes. En cas d'irritation et si celle-ci persiste, obtenir des soins médicaux.

Contact avec la peau : Laver la peau contaminée à l'eau et au savon doux pendant au moins 15 minutes. En cas d'irritation et si celle-ci persiste, obtenir des soins médicaux.

Ingestion : NE PAS FAIRE VOMIR! OBTENIR IMMÉDIATEMENT DES SOINS MÉDICAUX. Empêcher le produit d'être aspiré dans les poumons en plaçant la personne incommodée sur son côté gauche. Si la personne incommodée vomit spontanément, lui faire placer la tête entre les jambes de façon à empêcher que le liquide ne soit aspiré dans les poumons.

Inhalation : Éloigner la personne incommodée de l'endroit contaminé et rétablir la respiration s'il y a lieu. Obtenir des soins médicaux.

Remarques à l'intention du médecin : Le principal danger qui puisse résulter de l'ingestion accidentelle de ce produit est son aspiration dans les poumons, ce qui causerait alors une pneumonie chimique. Si plus de 2,0 mL par kg de poids ont été avalés, faire vomir sous surveillance. Si des symptômes tels que la perte du réflexe pharyngé, des convulsions ou la perte de connaissance surviennent avant que la personne ait vomi, envisager la possibilité de procéder à un lavage gastrique avec une sonde endotrachéale à ballonnet.

5. LUTTE EN CAS D'INCENDIE

Moyens d'extinction : Gaz carbonique
Mousse
Poudre
Brouillard d'eau

Mesures spéciales de lutte en cas d'incendie :	Attention - Produit combustible. Les vapeurs forment un mélange inflammable/détonant dans l'air entre les limites inférieure et supérieure d'inflammabilité. Les vapeurs peuvent se déplacer au niveau du sol et il peut y avoir retour des flammes le long du chemin qu'elles ont emprunté. Le produit va flotter et peut se réenflammer à la surface de l'eau. Ne pas utiliser un jet d'eau direct, ce qui pourrait propager l'incendie. Les contenants exposés à la chaleur intense en cas d'incendie doivent être refroidis à l'eau afin de prévenir une hausse de la pression due aux vapeurs, ce qui pourrait les faire se rupturer. Les parties des contenants exposées au contact direct des flammes doivent être refroidies à grande eau afin de prévenir une faiblesse de la paroi des contenants. Ne pas pénétrer sur les lieux d'un incendie dans un espace clos sans vêtements protecteurs appropriés et sans appareil respiratoire autonome à surpression homologué.
Produits de combustion dangereux :	Un mélange complexe de particules solides et liquides en suspension dans l'air et des gaz seront libérés lors de la pyrolyse ou de la combustion. Gaz carbonique, monoxyde de carbone et composés organiques non identifiés peuvent se former lors de la combustion.

6. MESURES EN CAS DE REJET ACCIDENTEL

Avertir que ce produit est combustible. Éliminer toutes les sources d'inflammation. Circonscrire l'endroit dangereux et en interdire l'accès. Mettre à la terre l'équipement qui sert à manipuler ce produit. Travailler dans le sens du vent par rapport au produit répandu s'il est prudent de le faire. Éviter tout contact direct avec ce produit. Utiliser un appareil respiratoire approprié (s'il y a lieu) et porter des vêtements protecteurs. N'arrêter les fuites que s'il est prudent de le faire. Endiguer et contenir les déversements terrestres; contenir les rejets accidentels dans les eaux au moyen de barrages flottants. Se servir d'eau pulvérisée pour supprimer les vapeurs; empêcher cette eau de se répandre. Absorber les résidus ou les petites quantités répandues avec une matière absorbante et mettre dans des contenants hermétiques avant de s'en débarrasser. Produits recommandés : Argile ou Sable Rincer les lieux à grande eau pour enlever toutes les traces de résidus. Se débarrasser du produit récupéré conformément aux directives d'élimination. Avertir les agences de protection de l'environnement appropriées.

7. ENTREPOSAGE ET MANUTENTION

Manutention :	Éviter la chaleur excessive, les étincelles, les flammes nues et toutes les autres sources d'inflammation. Mettre à la terre l'équipement fixe ainsi que les contenants qui servent au transvasement et le matériel de façon à prévenir l'accumulation d'électricité statique. Les vapeurs sont plus lourdes que l'air et vont s'accumuler dans les régions basses et les fosses en déplaçant l'air respirable. Éteindre les lampes pilotes, les cigarettes et fermer toutes les autres sources d'inflammation avant d'utiliser ce produit et jusqu'à ce que toutes les vapeurs se soient dissipées. Les vapeurs peuvent s'accumuler et se propager vers une source d'inflammation éloignée provoquant ainsi un retour des flammes. Ne pas effectuer d'opérations de découpage, de forage, de meulage, de soudage ou autres sur ou près des contenants. Les contenants vides sont dangereux car ils peuvent contenir des poussières, des vapeurs ou des résidus inflammables/explosifs. Ne pas utiliser de pression pour vider les fûts. Se laver à l'eau et au savon avant de manger, boire, fumer, se maquiller ou aller aux toilettes. Laver les vêtements contaminés avant de les porter de nouveau. Observer une bonne hygiène personnelle. Combustible.
Entreposage :	Entreposer dans un endroit frais, sec et bien ventilé, loin de la chaleur et des sources d'inflammation. Garder le contenant fermé hermétiquement.

8. CONTRÔLES DE L'EXPOSITION, PROTECTION PERSONNELLE

LES RENSEIGNEMENTS SUIVANTS, QUOIQUE APPROPRIÉS POUR CE PRODUIT, ONT UNE PORTÉE GÉNÉRALE. LE CHOIX DE L'ÉQUIPEMENT DE PROTECTION PERSONNELLE SERA FONCTION DES CONDITIONS D'UTILISATION.

Limites d'exposition en milieu de travail (VLE/MPT actuelle selon l'ACGIH, sauf avis contraire)

Kérosène/carburéacteurs, sous forme de vapeur d'hydrocarbures totaux (peau): 200 mg/m³ (Application limitée aux conditions où l'exposition aux aérosols est négligeable.)

Mention Peau: L'absorption par la peau, les yeux ou les muqueuses peut contribuer de façon significative à l'exposition totale.

Ventilation mécanique : Système de ventilation requis de façon à prévenir l'accumulation des vapeurs. En présence de personnel non protégé, la concentration du produit dans l'air doit être maintenue sous la limite d'exposition en milieu de travail. Ventilation locale recommandée lorsque le système de ventilation mécanique est insuffisant pour maintenir la concentration du produit dans l'air du lieu de travail sous la limite d'exposition conseillée. De l'air d'appoint doit toujours être fourni pour remplacer l'air rejeté (de façon générale ou locale). Lorsqu'il faut pénétrer dans un espace clos (par exemple, un réservoir de stockage), observer la marche à suivre appropriée, y compris en ce qui a trait à la ventilation et à la vérification de l'air du réservoir.

ÉQUIPEMENT DE PROTECTION PERSONNELLE :

Yeux et visage : Lunettes de sécurité et/ou masque couvrant tout le visage si le produit est manipulé d'une façon où il pourrait y avoir éclaboussement dans les yeux. Prévoir un poste de lavage des yeux à proximité.

Peau (mains, bras et corps) : Éviter le contact avec la peau. Porter des vêtements et des gants protecteurs faits de nitrile. Des douches doivent être disponibles en cas d'urgence.

Voies respiratoires : Éviter de respirer les vapeurs ou le brouillard. Si l'exposition a le potentiel de dépasser les limites pour le lieu de travail, utiliser le respirateur approprié homologué par le NIOSH. Utiliser un respirateur à cartouche filtrante protégeant contre les vapeurs organiques homologué par le NIOSH ou un respirateur à adduction d'air homologué par le NIOSH.

9. PROPRIÉTÉS PHYSIQUES ET CHIMIQUES

Description physique :	Liquide.
Aspect/couleur :	Brillant Clair
Odeur :	Odeur d'hydrocarbure.
Seuil moyen de perception de l'odeur :	Non disponible
Point de congélation/point d'écoulement :	Point de congélation < -47 °C
Point d'ébullition :	145 - 300 °C
Masse volumique :	775 - 840 kg/m ³ @ 15 °C
Densité de vapeur (air = 1) :	Non disponible
Tension de vapeur (absolu) :	1 - 1,4 kPa @ 37,8 °C
pH :	Non disponible
Point d'éclair :	Vase clos Tag > 43 °C
Limite d'inflammabilité inférieure :	0,7 % (vol.)
Limite d'inflammabilité supérieure :	5 % (vol.)
Température d'autoinflammation :	210 °C
Viscosité :	< 8 cSt @ -20 °C

Vitesse d'évaporation (n-BuAc = 1) : Non disponible
Coefficient de distribution eau/huile (log K_{oc}) 3,3 - 6
Solubilité dans l'eau : Insoluble
Autre solvant : Solvants à base d'hydrocarbures

10. STABILITÉ ET RÉACTIVITÉ

Chimiquement stable : Oui
Polymérisation dangereuse : Non
Sensibilité au choc mécanique : Non
Sensibilité à l'électricité statique : Oui
Produits de décomposition dangereux : Les produits de la décomposition thermique dépendent en grande partie des conditions de la combustion.
Matériaux incompatibles : Éviter les oxydants puissants.
Conditions de réactivité : Éviter la chaleur excessive, les flammes nues et toutes les autres sources d'inflammation.

11. INFORMATION TOXICOLOGIQUE

Ingrédient (ou produit si non précisé)	Données toxicologiques
Kerosène (pétrole), hydrodésulfuré	DL50 Cutanée Lapin > 2 000 mg/kg DL50 Orale Rat > 5 000 mg/kg

Voies d'entrée : L'exposition à ce produit est le plus susceptible de se produire par contact avec la peau ou inhalation.

Irritation : Ce produit devrait causer une irritation de la peau mais il n'est pas supposé être un agent de sensibilisation de la peau.

Toxicité chronique : Le contact prolongé et répété de ce produit avec la peau peut causer un dégraissement et un dessèchement de la peau se traduisant par une irritation et une dermatite. L'exposition prolongée à des vapeurs très concentrées peut causer des maux de tête, des étourdissements, des nausées, une vision brouillée et une dépression du système nerveux central.

Conditions préexistantes : Des troubles préexistants des yeux, de la peau et des voies respiratoires peuvent être aggravés par une exposition à ce produit.

Carcinogénicité et mutagénicité : Selon le Centre international de recherche sur le cancer (CIRC), ce produit ne peut être classé en fonction de sa cancérogénicité pour les humains. Des distillats moyens ont causé des cancers de la peau chez des animaux de laboratoire lorsqu'ils ont été appliqués de façon répétée et laissés en place entre les applications. Cela serait causé par une irritation continue de la peau. Une bonne hygiène personnelle doit être observée pour prévenir ce risque.

12. RENSEIGNEMENTS ÉCOLOGIQUES

Ne pas laisser ce produit ou l'eau qui sert à combattre un incendie où ce produit est en cause pénétrer dans les égouts, les lacs, les cours d'eau ou les canalisations d'eau potable. Boucher les égouts et bloquer les fossés. Les règlements provinciaux exigent et les règlements fédéraux peuvent exiger que les agences de protection de l'environnement ou d'autres organismes soient avertis en cas de déversement. La région polluée doit être nettoyée et remise à son état original ou à la satisfaction des autorités. Peut causer une pollution des organismes aquatiques.

Biodégradabilité: N'est pas facilement biodégradable.
Volatilisation rapide.

Bioaccumulation: Possibilité d'accumulation dans les organismes vivants.

Partition Coefficient (log K_{ow}): 3,3 - 6

Toxicité en Milieu Aquatique

Le produit devrait être toxique pour les organismes aquatiques.

Ingrédient:	Données toxicologiques
Définition(s):	CL et CE sont respectivement la concentration de la charge létale et la concentration de la charge effective. La concentration représente la quantité de la substance qui est placée dans l'eau de façon à obtenir la concentration toxique. Ces concentrations remplacent les concentrations létales et effectives traditionnelles pour les substances à faible solubilité. WAF (water accomodated fraction) est la fraction adaptée à l'eau. Un hydrocarbure légèrement soluble est remué dans de l'eau, puis la partie insoluble est enlevée. La solution restante correspond à la fraction adaptée à l'eau.
Kerosène (pétrole), hydrodésulfuré	CE50 - vitesse de croissance (méthode WAF) Algues (72hr) 1 - 10 mg/L CE50 (Méthode WAF) Daphnia Magna (72hr) 1 - 10 mg/L CL50 (méthode WAF) Truite arc-en-ciel (96hr) 1 - 10 mg/L

13. ÉLIMINATION DU PRODUIT

Priorités de gestion des déchets (selon leur volume et leur concentration) : 1. Recycler (retraiter), 2. Récupérer l'énergie 3. Incinérer, 4. Remettre à une installation d'élimination des déchets autorisée. Ne pas essayer de brûler les déchets sur les lieux. Incinérer avec l'approbation des organismes de protection de l'environnement dans un endroit approuvé détenant un permis.

14. RENSEIGNEMENTS SUR LE TRANSPORT

Description d'expédition du TMD (route et rail)

Numéro de l'ONU	UN1863
Nom d'expédition approprié	CARBURÉACTEUR
Classe de danger	Class 3 Liquides inflammables
Groupe d'emballage	PG III
Renseignements additionnels	Non réglementé en contenants de 450 litres ou moins.
Description d'expédition	CARBURÉACTEUR Class 3 UN1863 PG III Non réglementé en contenants de 450 litres ou moins.

15. RENSEIGNEMENTS SUR LA RÉGLEMENTATION

Ce produit a été classifié conformément aux critères de danger du Règlement sur les produits contrôlés (RPC) du Canada et la FS contient toute l'information requise en vertu du RPC.

Catégorie SIMDUT et description : Catégorie B3 Liquide combustible
Catégorie D2B Irritation de la peau
Statut LPCE/NLPCE : Ce produit, ou tous ses composants, figurent sur la liste intérieure des substances, en vertu de la Loi canadienne sur la protection de l'environnement.
Autres règlements : Normes fédérales canadiennes inexistantes.

16. AUTRES RENSEIGNEMENTS**ÉTIQUETTE**

Mention de danger : Liquide combustible.
Irritant pour la peau.

Précautions lors de la manipulation : Éliminer toutes les sources d'inflammation.
Éviter l'exposition prolongée aux vapeurs.
Porter des protecteurs oculaires et des gants appropriés.
Mettre à la masse et à la terre le matériel et les contenants de transfert pour éviter l'accumulation d'électricité statique.
Les contenants vides sont dangereux, car ils peuvent contenir des poussières, des vapeurs ou des résidus liquides inflammables/explosifs. Tenir loin des étincelles et de la flamme nue.

Premiers soins : Laver la peau contaminée à l'eau et au savon.
Rincer les yeux à grande eau.
Si une personne est incommodée par les vapeurs, l'amener à l'air frais.
Ne pas faire vomir.
Obtenir des soins médicaux.

Révisions : Cette fiche signalétique a été révisée et mise à jour.
Des modifications ont été apportées à :
Rubrique 3
Rubrique 4
Rubrique 5
Rubrique 7
Rubrique 8
Rubrique 9
Rubrique 12
Rubrique 14

**Shell Canada Limited**
Material Safety Data Sheet

Effective Date: 2005-11-07

Supersedes: 2002-11-06

Class B3 Combustible Class D2B Skin
Liquid Irritation**1. PRODUCT AND COMPANY IDENTIFICATION**

PRODUCT: **ULTRA LOW SULPHUR DIESEL CP-43**
SYNONYMS: Diesel
Automotive Gas Oil
PRODUCT USE: Fuel
MSDS Number: 320-043

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 613-996-6666
For general information: 1-800-661-1600
For MSDS information: 403-691-3982
(From 7:30 to 4:30 Mountain Time)

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(s) of Shell Canada Limited, used under license by Shell Canada Products.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	% Range	WHMIS Controlled
Fuels, Diesel, No. 2	68476-34-6	100	Yes

See Section 8 for Occupational Exposure Guidelines.

3. HAZARDS IDENTIFICATION

Physical Description: Liquid Clear To Yellow Hydrocarbon Odour

Routes of Exposure: Exposure will most likely occur through skin contact or inhalation.

Hazards:

Vapour concentrations above the recommended exposure level are irritating to the eyes and respiratory tract, may cause headaches and dizziness, are anesthetic and may have other central nervous system effects.

Combustible Liquid.

Irritating to skin.

Vapours are moderately irritating to the eyes.

Ingestion may result in vomiting. Avoid aspiration of vomitus into lungs as small quantities may result in aspiration pneumonitis.

Vapours are moderately irritating to the respiratory passages.

Handling: Eliminate all ignition sources.

Avoid prolonged exposure to vapours.

Wear suitable gloves and eye protection.

Bond and ground transfer containers and equipment to avoid static accumulation.

Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

For further information on health effects, see Section 11.

4. FIRST AID

Eyes: Flush eyes with water for at least 15 minutes while holding eyelids open. If irritation occurs and persists, obtain medical attention.

Skin: Wash contaminated skin with mild soap and water for at least 15 minutes. If irritation occurs and persists, obtain medical attention.

Ingestion: DO NOT INDUCE VOMITING! OBTAIN MEDICAL ATTENTION IMMEDIATELY. Guard against aspiration into lungs by having the individual turn on to their left side. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs. Do not give anything by mouth to an unconscious person.

Inhalation: Remove victim from further exposure and restore breathing, if required. Obtain medical attention.

Notes to Physician: The main hazard following accidental ingestion is aspiration of the liquid into the lungs producing chemical pneumonitis. If more than 2.0 mL/kg has been ingested, vomiting should be induced with supervision. If symptoms such as loss of gag reflex, convulsions or unconsciousness occur before vomiting, gastric lavage with a cuffed endotracheal tube should be considered.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry Chemical
Carbon Dioxide
Foam
Water Fog

Firefighting Instructions: Caution - Combustible. Do not use a direct stream of water as it may spread fire. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Vapours may travel along ground and flashback along vapour trail may occur. Avoid inhalation of smoke. Product will float and can be reignited on surface of water. Delayed lung damage can be experienced after exposure to combustion products, sometimes hours after the exposure.

Hazardous Combustion Products: A complex mixture of airborne solid, liquid, particulates and gases will evolve when this material undergoes pyrolysis or combustion. Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

6. ACCIDENTAL RELEASE MEASURES

Issue warning "Combustible". Eliminate all ignition sources. Isolate hazard area and restrict access. Handling equipment must be grounded. Work upwind of spill if it is safe to do so. Avoid direct contact with material. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Dike and contain land spills; contain spills to water by booming. Use water fog to knock down vapours; contain runoff. Absorb residue or small spills with absorbent material and remove to non-leaking containers for disposal. Recommended materials: Clay or Sand Flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations. Notify appropriate environmental agency(ies).

7. HANDLING AND STORAGE

Handling: Combustible. Avoid excessive heat, sparks, open flames and all other sources of ignition. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Vapours are heavier than air and will settle and collect in low areas and pits, displacing breathing air. Extinguish pilot lights, cigarettes and turn off other sources of ignition prior to use and until all vapours are gone. Vapours may accumulate and travel to distant ignition sources and flashback. Do not cut, drill, grind, weld or perform similar operations on or near containers. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Do not pressurize drum containers to empty them. 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. Keep container tightly closed.

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):

Diesel fuel, as total hydrocarbons (skin): 100 mg/m³

Skin Notation: Absorption through skin, eyes and mucous membranes may contribute significantly to the total exposure.

Mechanical Ventilation: Concentrations in air should be maintained below the occupational exposure limit if unprotected personnel are involved. Use explosion-proof ventilation as required to control vapour concentrations. Make up air should always be supplied to balance air exhausted (either generally or locally). For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere. Local ventilation recommended where mechanical ventilation is ineffective in controlling airborne concentrations below the recommended occupational exposure limit.

PERSONAL PROTECTIVE EQUIPMENT:

- Eye Protection:** Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes. Provide an eyewash station in the area.
- Skin Protection:** Impervious gloves (viton, nitrile) should be worn at all times when handling this material. In confined spaces or where the risk of skin exposure is much higher, impervious clothing should be worn. Safety showers should be available for emergency use.
- Respiratory Protection:** If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator. Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator. For high airborne concentrations, use a NIOSH-approved supplied-air respirator, either self-contained or airline breathing apparatus, operated in positive pressure mode.

9. PHYSICAL DATA

Physical State:	Liquid
Appearance:	Clear To Yellow
Odour:	Hydrocarbon Odour
Odour Threshold:	Not available
Freezing/Pour Point:	Cloud Point-43 °C
Boiling Point:	150 - 330 °C
Density:	< 850 kg/m ³ @ 15 °C
Vapour Density (Air = 1):	Not available
Vapour Pressure (absolute):	Not available
pH:	Not available
Flash Point:	Pensky-Martens CC > 40 °C
Lower Flammable Limit:	1 % (vol.)
Upper Flammable Limit:	6 % (vol.)
Autoignition Temperature:	250 °C
Viscosity:	1.3 - 3.6 cSt @ 40 °C
Evaporation Rate (n-BuAc = 1):	Not available
Partition Coefficient (log K_{ow}):	Not available
Water Solubility:	Insoluble
Other Solvents:	Hydrocarbon Solvents

10. STABILITY AND REACTIVITY

Chemically Stable:	Yes
Hazardous Polymerization:	No
Sensitive to Mechanical Impact:	No
Sensitive to Static Discharge:	Yes
Hazardous Decomposition Products:	Thermal decomposition products are highly dependent on combustion conditions.
Incompatible Materials:	Avoid strong oxidizing agents.
Conditions of Reactivity:	Avoid excessive heat, open flames and all ignition sources.

11. TOXICOLOGICAL INFORMATION

Ingredient (or Product if not specified)	Toxicological Data
Fuels, Diesel, No. 2	LD50 Dermal Rabbit > 5000 mg/kg LD50 Oral Rat = 9000 mg/kg

Routes of Exposure:	Exposure will most likely occur through skin contact or inhalation.
Irritancy:	This product is expected to be irritating to skin but is not predicted to be a skin sensitizer.
Acute Toxicity:	Vapour concentrations above the recommended exposure level are irritating to the eyes and respiratory tract, may cause headaches and dizziness, are anesthetic and may have other central nervous system effects.
Chronic Effects:	Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged exposure to high vapour concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression.
Pre-existing Conditions:	Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.
Carcinogenicity and Mutagenicity:	The International Agency for Research on Cancer (IARC) considers that this product is not classifiable as to its carcinogenicity to humans. Middle distillates have caused skin cancers in laboratory animals when applied repeatedly and left in place between applications. This effect is believed to be caused by the continuous irritation of the skin. Good personal hygiene should be maintained to avoid this risk. The American Conference of Governmental Industrial Hygienists (ACGIH) has classified this product as A3 - confirmed animal carcinogen with unknown relevance to humans.

12. ECOLOGICAL INFORMATION

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. May cause physical fouling of aquatic organisms.

Biodegradability:	Not readily biodegradable.
Bioaccumulation:	Potential for bioaccumulation.
Partition Coefficient (log K_{ow}):	Not available

Aquatic Toxicity

May be harmful to aquatic life.

Ingredient:	Toxicological Data
Fuels, Diesel, No. 2	EL50 - growth rate Algae (72hr) 10 - 100 mg/L. EL50 Daphnia Magna (48hr) 10 - 100 mg/L. LL50 (WAF method) Rainbow Trout (96hr) 10 - 100 mg/L.

Definition(s):	LL and EL are the lethal loading concentration and effective loading concentration respectively. The concentration represents the amount of substance added to the system to obtain a toxic concentration. They replace the traditional LC and EC for low solubility substances. WAF is the water accommodated fraction. A slightly soluble hydrocarbon is stirred into water and the insoluble portions are removed. The remaining solution is the water accommodated fraction.
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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. Incinerate at a licenced waste disposal site with approval of environmental authority.

14. TRANSPORTATION INFORMATION**Canadian Road and Rail Shipping Classification:**

UN Number	UN1202
Proper Shipping Name	DIESEL FUEL
Hazard Class	Class 3 Flammable Liquids
Packing Group	PG III
Additional Information	Not Regulated in Containers Less Than or Equal to 450 Litres.
Shipping Description	DIESEL FUEL Class 3 UN1202 PG III
	Not Regulated in Containers Less Than or Equal to 450 Litres.

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.

WHMIS Class:	Class B3 Combustible Liquid Class D2B Skin Irritation
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:	No Canadian federal standards.

16. ADDITIONAL INFORMATION**LABEL STATEMENTS**

Hazard Statement :	Combustible Liquid. Irritating to skin.
Handling Statement:	Eliminate all ignition sources. Avoid prolonged exposure to vapours. Wear suitable gloves and eye protection. Bond and ground transfer containers and equipment to avoid static accumulation. Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.

First Aid Statement : Wash contaminated skin with soap and water.
Flush eyes with water.
If overcome by vapours remove to fresh air.
Do not induce vomiting.
Obtain medical attention.

Revisions: This MSDS has been reviewed and updated.
Changes have been made to:
Section 1
Section 3
Section 5
Section 8
Section 9
Section 12



Shell Canada Limitée

Fiche signalétique

FS en vigueur le : 2005-11-07
Remplace celle du : 2002-11-06



Catégorie B3 Liquide
combustible



Catégorie D2B Irritation
de la peau

1. IDENTIFICATION DU PRODUIT ET DE LA SOCIÉTÉ

NOM COMMERCIAL : **CARB. DIESEL A TENEUR ULTRA-FAIBLE EN SOUFRE PT-43**
 SYNONYMES : Diesel
 Gazole automobile
 UTILISATION DU PRODUIT : Carburant.
 NUMÉRO DE LA FS : 320-043

NOM DU FOURNISSEUR
Shell Canada Limitée (SCL)
 P.O. Box 100, Station M
 400-4th Ave. S.W.
 Calgary, AB Canada
 T2P 2H5

NUMÉROS DE TÉLÉPHONE
Numéro d'urgence de Shell 1 800 661-7378
Numéro d'urgence de CANUTEC (24 heures) (613) 996-6666
 Pour information générale 1 800 661-1600
 Pour information sur la FS (403) 691-3982
 (De 7 h 30 à 16 h 30, heure des Rocheuses)

Cette FS a été préparée par le groupe de toxicologie et bonne gestion des produits de Shell Canada Limitée.

* L'astérisque dans la désignation du produit signifie <<Marque déposée de Shell Canada Limitée, utilisée en vertu d'une licence par Produits Shell Canada>>.

2. COMPOSITION/INFORMATION SUR LES INGRÉDIENTS

Ingrédients	N° CAS	%	Contrôlé par SIMDUT
Carburant, Diesel, No. 2	68476-34-6	100	Oui

Voir la section 8 pour les directives sur l'exposition.

3. IDENTIFICATION DES RISQUES

Description physique : Liquide. De clair à jaune Odeur d'hydrocarbure.

Voies d'entrée : L'exposition à ce produit est le plus susceptible de se produire par contact avec la peau ou inhalation.

Effets potentiels sur la santé :

Information sur la manipulation :

Les concentrations de vapeurs supérieures au niveau d'exposition recommandé irritent les yeux et les voies respiratoires, peuvent causer des maux de tête et des étourdissements, sont anesthésiques et peuvent avoir d'autres effets sur le système nerveux central.

Liquide combustible.

Irritant pour la peau.

Il peut y avoir vomissement après ingestion du produit. Éviter d'aspirer le produit vomi dans les poumons étant donné que de petites quantités peuvent causer une pneumonie par aspiration.

Les vapeurs sont modérément irritantes pour les yeux.

Les vapeurs sont modérément irritantes pour les voies respiratoires.

Éliminer toutes les sources d'inflammation.

Éviter l'exposition prolongée aux vapeurs.

Porter des protecteurs oculaires et des gants appropriés.

Mettre à la masse et à la terre le matériel et les contenants de transfert pour éviter l'accumulation d'électricité statique.

Les contenants vides sont dangereux, car ils peuvent contenir des poussières, des vapeurs ou des résidus liquides inflammables/explosifs. Tenir loin des étincelles et de la flamme nue.

Pour plus d'information sur les effets sur la santé, voir la section 11.

4. PREMIERS SOINS

- Contact avec les yeux :** Rincer les yeux à grande eau pendant au moins 15 minutes en gardant les paupières ouvertes. En cas d'irritation et si celle-ci persiste, obtenir des soins médicaux.
- Contact avec la peau :** Laver la peau contaminée à l'eau et au savon doux pendant au moins 15 minutes. En cas d'irritation et si celle-ci persiste, obtenir des soins médicaux.
- Ingestion :** NE PAS FAIRE VOMIR! OBTENIR IMMÉDIATEMENT DES SOINS MÉDICAUX. Empêcher le produit d'être aspiré dans les poumons en plaçant la personne incommodée sur son côté gauche. Si la personne incommodée vomit spontanément, lui faire placer la tête entre les jambes de façon à empêcher que le liquide ne soit aspiré dans les poumons. Ne rien faire prendre par la bouche à une personne qui a perdu connaissance.
- Inhalation :** Éloigner la personne incommodée de l'endroit contaminé et rétablir la respiration s'il y a lieu. Obtenir des soins médicaux.
- Remarques à l'intention du médecin :** Le principal danger qui puisse résulter de l'ingestion accidentelle de ce produit est son aspiration dans les poumons, ce qui causerait alors une pneumonie chimique. Si plus de 2,0 mL par kg de poids ont été avalés, faire vomir sous surveillance. Si des symptômes tels que la perte du réflexe pharyngé, des convulsions ou la perte de connaissance surviennent avant que la personne ait vomi, envisager la possibilité de procéder à un lavage gastrique avec une sonde endotrachéale à ballonnet.

5. LUTTE EN CAS D'INCENDIE

- Moyens d'extinction :**
- Poudre
 - Gaz carbonique
 - Mousse
 - Brouillard d'eau

Mesures spéciales de lutte en cas d'incendie :	Attention - Produit combustible. Ne pas utiliser un jet d'eau direct, ce qui pourrait propager l'incendie. Ne pas pénétrer sur les lieux d'un incendie dans un espace clos sans vêtements protecteurs appropriés et sans appareil respiratoire autonome à surpression homologué. Les vapeurs forment un mélange inflammable/détonant dans l'air entre les limites inférieure et supérieure d'inflammabilité. Les vapeurs peuvent se déplacer au niveau du sol et il peut y avoir retour des flammes le long du chemin qu'elles ont emprunté. Ne pas respirer la fumée. Le produit va flotter et peut se réenflammer à la surface de l'eau. Des dommages retardés aux poumons peuvent survenir après exposition aux produits de combustion, parfois des heures après l'exposition.
Produits de combustion dangereux :	Un mélange complexe de particules solides et liquides en suspension dans l'air et des gaz seront libérés lors de la pyrolyse ou de la combustion. Gaz carbonique, monoxyde de carbone et composés organiques non identifiés peuvent se former lors de la combustion.

6. MESURES EN CAS DE REJET ACCIDENTEL

Avertir que ce produit est combustible. Éliminer toutes les sources d'inflammation. Circonscrire l'endroit dangereux et en interdire l'accès. Mettre à la terre l'équipement qui sert à manipuler ce produit. Travailler dans le sens du vent par rapport au produit répandu s'il est prudent de le faire. Éviter tout contact direct avec ce produit. Utiliser un appareil respiratoire approprié (s'il y a lieu) et porter des vêtements protecteurs. N'arrêter les fuites que s'il est prudent de le faire. Endiguer et contenir les déversements terrestres; contenir les rejets accidentels dans les eaux au moyen de barrages flottants. Se servir d'eau pulvérisée pour supprimer les vapeurs; empêcher cette eau de se répandre. Absorber les résidus ou les petites quantités répandues avec une matière absorbante et mettre dans des contenants hermétiques avant de s'en débarrasser. Produits recommandés : Argile ou Sable Rincer les lieux à grande eau pour enlever toutes les traces de résidus. Se débarrasser du produit récupéré conformément aux directives d'élimination. Avertir les agences de protection de l'environnement appropriées.

7. ENTREPOSAGE ET MANUTENTION

Manutention :	Combustible. Éviter la chaleur excessive, les étincelles, les flammes nues et toutes les autres sources d'inflammation. Mettre à la terre l'équipement fixe ainsi que les contenants qui servent au transvasement et le matériel de façon à prévenir l'accumulation d'électricité statique. Les vapeurs sont plus lourdes que l'air et vont s'accumuler dans les régions basses et les fosses en déplaçant l'air respirable. Éteindre les lampes pilotes, les cigarettes et fermer toutes les autres sources d'inflammation avant d'utiliser ce produit et jusqu'à ce que toutes les vapeurs se soient dissipées. Les vapeurs peuvent s'accumuler et se propager vers une source d'inflammation éloignée provoquant ainsi un retour des flammes. Ne pas effectuer d'opérations de découpage, de forage, de meulage, de soudage ou autres sur ou près des contenants. Les contenants vides sont dangereux car ils peuvent contenir des poussières, des vapeurs ou des résidus inflammables/explosifs. Ne pas utiliser de pression pour vider les fûts. Se laver à l'eau et au savon avant de manger, boire, fumer, se maquiller ou aller aux toilettes. Laver les vêtements contaminés avant de les porter de nouveau. Observer une bonne hygiène personnelle.
Entreposage :	Entreposer dans un endroit frais, sec et bien ventilé, loin de la chaleur et des sources d'inflammation. Garder le contenant fermé hermétiquement.

8. CONTRÔLES DE L'EXPOSITION, PROTECTION PERSONNELLE

LES RENSEIGNEMENTS SUIVANTS, QUOIQUE APPROPRIÉS POUR CE PRODUIT, ONT UNE PORTÉE GÉNÉRALE. LE CHOIX DE L'ÉQUIPEMENT DE PROTECTION PERSONNELLE SERA FONCTION DES CONDITIONS D'UTILISATION.

Limites d'exposition en milieu de travail (VLE/MPT actuelle selon l'ACGIH, sauf avis contraire)

Carburant diesel, sous forme d'hydrocarbures totaux, vapeurs et aérosol (peau) : 100 mg/m³

Mention Peau: L'absorption par la peau, les yeux ou les muqueuses peut contribuer de façon significative à l'exposition totale.

Ventilation mécanique : En présence de personnel non protégé, la concentration du produit dans l'air doit être maintenue sous la limite d'exposition en milieu de travail. Système de ventilation requis de façon à prévenir l'accumulation des vapeurs. De l'air d'appoint doit toujours être fourni pour remplacer l'air rejeté (de façon générale ou locale). Lorsqu'il faut pénétrer dans un espace clos (par exemple, un réservoir de stockage), observer la marche à suivre appropriée, y compris en ce qui a trait à la ventilation et à la vérification de l'air du réservoir. Ventilation locale recommandée lorsque le système de ventilation mécanique est insuffisant pour maintenir la concentration du produit dans l'air du lieu de travail sous la limite d'exposition conseillée.

ÉQUIPEMENT DE PROTECTION PERSONNELLE :

Yeux et visage : Lunettes de sécurité et/ou masque couvrant tout le visage si le produit est manipulé d'une façon où il pourrait y avoir éclaboussement dans les yeux. Prévoir un poste de lavage des yeux à proximité.

Peau (mains, bras et corps) : Des gants résistants (Viton, nitrile) doivent toujours être portés lors de la manipulation de ce produit. Dans les espaces clos ou lorsque le risque d'exposition de la peau est plus élevé, porter des vêtements résistant au produit. Des douches doivent être disponibles en cas d'urgence.

Voies respiratoires : Si l'exposition dépasse les limites pour le lieu de travail, utiliser le respirateur approprié homologué par le NIOSH. Utiliser un respirateur à cartouche filtrante protégeant contre les vapeurs organiques homologué par le NIOSH ou un respirateur à adduction d'air homologué par le NIOSH. En cas de concentrations élevées dans l'air, utiliser un respirateur à adduction d'air homologué par le NIOSH, soit autonome ou à canalisation d'air fonctionnant en pression positive intermittente.

9. PROPRIÉTÉS PHYSIQUES ET CHIMIQUES

Description physique :	Liquide.
Aspect/couleur :	De clair à jaune
Odeur :	Odeur d'hydrocarbure.
Seuil moyen de perception de l'odeur :	Non disponible
Point de congélation/point d'écoulement :	Point de trouble -43 °C
Point d'ébullition :	150 - 330 °C
Masse volumique :	< 850 kg/m ³ @ 15 °C
Densité de vapeur (air = 1) :	Non disponible
Tension de vapeur (absolu) :	Non disponible
pH :	Non disponible
Point d'éclair :	V.cl. Pensky-Martens > 40 °C
Limite d'inflammabilité inférieure :	1 % (vol.)
Limite d'inflammabilité supérieure :	6 % (vol.)
Température d'autoinflammation :	250 °C
Viscosité :	1,3 - 3,6 cSt @ 40 °C

Vitesse d'évaporation (n-BuAc = 1) :	Non disponible
Coefficient de distribution (log K_{ow}) :	Non disponible
Solubilité dans l'eau :	Insoluble
Autre solvant :	Solvants à base d'hydrocarbures

10. STABILITÉ ET RÉACTIVITÉ

Chimiquement stable :	Oui
Polymérisation dangereuse :	Non
Sensibilité au choc mécanique :	Non
Sensibilité à l'électricité statique :	Oui
Produits de décomposition dangereux :	Les produits de la décomposition thermique dépendent en grande partie des conditions de la combustion.
Matériaux incompatibles :	Éviter les oxydants puissants.
Conditions de réactivité :	Éviter la chaleur excessive, les flammes nues et toutes les autres sources d'inflammation.

11. INFORMATION TOXICOLOGIQUE

Ingrédient (ou produit si non précisé)	Données toxicologiques
Carburant, Diesel, No. 2	DL50 Cutanée Lapin > 5 000 mg/kg DL50 Orale Rat = 9 000 mg/kg

Voies d'entrée :	L'exposition à ce produit est le plus susceptible de se produire par contact avec la peau ou inhalation.
Irritation :	Ce produit devrait causer une irritation de la peau mais il n'est pas supposé être un agent de sensibilisation de la peau.
Toxicité aiguë :	Les concentrations de vapeurs supérieures au niveau d'exposition recommandé irritent les yeux et les voies respiratoires, peuvent causer des maux de tête et des étourdissements, sont anesthésiques et peuvent avoir d'autres effets sur le système nerveux central.
Toxicité chronique :	Le contact prolongé et répété de ce produit avec la peau peut causer un dégraissement et un dessèchement de la peau se traduisant par une irritation et une dermatite. L'exposition prolongée à des vapeurs très concentrées peut causer des maux de tête, des étourdissements, des nausées, une vision brouillée et une dépression du système nerveux central.
Conditions préexistantes :	Des troubles préexistants des yeux, de la peau et des voies respiratoires peuvent être aggravés par une exposition à ce produit.
Carcinogénicité et mutagénicité :	Selon le Centre international de recherche sur le cancer (CIRC), ce produit ne peut être classé en fonction de sa cancérogénicité pour les humains. Des distillats moyens ont causé des cancers de la peau chez des animaux de laboratoire lorsqu'ils ont été appliqués de façon répétée et laissés en place entre les applications. Cela serait causé par une irritation continue de la peau. Une bonne hygiène personnelle doit être observée pour prévenir ce risque. L'American Conference of Governmental Industrial Hygienists (ACGIH) a classé ce produit A3 - cancérogène connu pour les animaux, sans effet connu pour les humains.

12. RENSEIGNEMENTS ÉCOLOGIQUES

Ne pas laisser ce produit ou l'eau qui sert à combattre un incendie où ce produit est en cause pénétrer dans les égouts, les lacs, les cours d'eau ou les canalisations d'eau potable. Boucher les égouts et bloquer les fossés. Les règlements provinciaux exigent et les règlements fédéraux peuvent exiger que les agences de protection de l'environnement ou d'autres organismes soient avertis en cas de déversement. La région polluée doit être nettoyée et remise à son état original ou à la satisfaction des autorités. Peut causer une pollution des organismes aquatiques.

Biodégradabilité:

N'est pas facilement biodégradable.

Bioaccumulation:

Possibilité d'accumulation dans les organismes vivants.

Coefficient de distribution (log K_{ow}):

Non disponible

Toxicité en Milieu Aquatique

Peut être nocif pour la vie aquatique.

Ingrédient:	Données toxicologiques
Définition(s):	CL et CE sont respectivement la concentration de la charge létale et la concentration de la charge effective. La concentration représente la quantité de la substance qui est placée dans l'eau de façon à obtenir la concentration toxique. Ces concentrations remplacent les concentrations létales et effectives traditionnelles pour les substances à faible solubilité. WAF (water accomodated fraction) est la fraction adaptée à l'eau. Un hydrocarbure légèrement soluble est remué dans de l'eau, puis la partie insoluble est enlevée. La solution restante correspond à la fraction adaptée à l'eau.
Carburant, Diesel, No. 2	CE50 - vitesse de croissance Algues (72hr) 10 - 100 mg/L CE50 Daphnia Magna (72hr) 10 - 100 mg/L CL50 (méthode WAF) Truite arc-en-ciel (96hr) 10 - 100 mg/L

13. ÉLIMINATION DU PRODUIT

Priorités de gestion des déchets (selon leur volume et leur concentration) : 1. Recycler (retraiter), 2. Récupérer l'énergie 3. Incinérer, 4. Remettre à une installation d'élimination des déchets autorisée. Ne pas essayer de brûler les déchets sur les lieux. Incinérer avec l'approbation des organismes de protection de l'environnement dans un endroit approuvé détenant un permis.

14. RENSEIGNEMENTS SUR LE TRANSPORT**Description d'expédition du TMD (route et rail)**

Numéro de l'ONU	UN1202
Nom d'expédition approprié	DIESEL
Classe de danger	Class 3 Liquides inflammables
Groupe d'emballage	PG III
Renseignements additionnels	Non réglementé en contenants de 450 litres ou moins.
Description d'expédition	DIESEL Class 3 UN1202 PG III Non réglementé en contenants de 450 litres ou moins.

15. RENSEIGNEMENTS SUR LA RÉGLEMENTATION

Ce produit a été classifié conformément aux critères de danger du Règlement sur les produits contrôlés (RPC) du Canada et la FS contient toute l'information requise en vertu du RPC.

Catégorie SIMDUT et description : Catégorie B3 Liquide combustible
Catégorie D2B Irritation de la peau

Statut LPCE/NLPCE : Ce produit, ou tous ses composants, figurent sur la liste intérieure des substances, en vertu de la Loi canadienne sur la protection de l'environnement.

Autres règlements : Normes fédérales canadiennes inexistantes.

16. AUTRES RENSEIGNEMENTS**ÉTIQUETTE**

Mention de danger : Liquide combustible.
Irritant pour la peau.

Précautions lors de la manipulation : Éliminer toutes les sources d'inflammation.
Éviter l'exposition prolongée aux vapeurs.
Porter des protecteurs oculaires et des gants appropriés.
Mettre à la masse et à la terre le matériel et les contenants de transfert pour éviter l'accumulation d'électricité statique.
Les contenants vides sont dangereux, car ils peuvent contenir des poussières, des vapeurs ou des résidus liquides inflammables/explosifs. Tenir loin des étincelles et de la flamme nue.

Premiers soins : Laver la peau contaminée à l'eau et au savon.
Rincer les yeux à grande eau.
Si une personne est incommodée par les vapeurs, l'amener à l'air frais.
Ne pas faire vomir.
Obtenir des soins médicaux.

Révisions : Cette fiche signalétique a été révisée et mise à jour.
Des modifications ont été apportées à :
Rubrique 1
Rubrique 3
Rubrique 5
Rubrique 8
Rubrique 9
Rubrique 12

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 None anticipated

Decomposition:

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

Revision Date: 01/23/2003

Revision 1

Number:

Telephone Number: 1-87-Permatex (877) 376-2839



Material Safety Data Sheet

May be used to comply with
OSHA's Hazard Communication Standard,
29 CFR 1910.1200. This 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)

PROPANE

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 BernzOmatic	Emergency Telephone Number 800-654-9011
Address (Number, Street, City, State, and ZIP Code) 1 Bernzomatic Drive Medina, NY 14103	Telephone Number for Information 800-424-9300 Date Prepared June 11, 2011 Signature of Preparer (optional)

Section II - Hazard Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	US OSHA PEL	ACGIH TLV	Other Limits Recommended	% (optional)
PROPANE (CAS No. 74-98-6)	1000PPM	1000PPM	N/A	100
NFPA HAZARD RATINGS Health - 1 Flammability - 4 Reactivity - 0			HMIS RATINGS Health - 0 Flammability - 4 Reactivity - 0	

Notes: When propane fuel is burned efficiently, the normal by-products of combustion are CO₂ and H₂O.

Inefficient burning may add CO to the by-products of combustion.

Section III - Physical/Chemical Characteristics

Boiling Point:	-44° F	Specific Gravity (H ₂ O = 1):	Liquid @ 60° F .51
Vapor Pressure (mm Hg.):	@ 100° F 197psig	Melting Point:	Not Applicable
Vapor Density (AIR = 1):	@ 1 ATM @ 60° F 1.56	Evaporation Rate (Butyl Acetate = 1):	Not Applicable
Solubility in Water: Insoluble			
Appearance and Odor (At Normal Conditions): Colorless - Rotten Egg Odor.			



Section IV - Fire and Explosion Hazard Data

Flash Point (Method Used): -156° F Closed Cup	Flammable Limits:	LEL 2.1	UEL 9.5
Extinguishing Media:			
Stop flow of gas or oxygen.			
Special Fire Fighting Procedures:			
Use water to cool tanks.			
Unusual Fire and Explosion Hazards:			
Auto ignition temp. 842° F. Heavier than air (vapor density 1.5). May travel a considerable distance to a source of ignition and flashback.			

Section V - Reactivity Data

Stability:	Unstable	NO	Conditions to Avoid:
	Stable	X	N/A
Incompatibility (Materials to Avoid): N/A			
Hazardous Decomposition or Byproducts At temperatures above the melting point metal oxide fumes may be evolved.			
Hazardous Polymerization:	May Occur	NO	Conditions to Avoid:
	Will Not Occur	X	N/A

Section VI - Health Hazard Data

Route(s) of Entry:	Inhalation? YES	Skin? YES	Ingestion? NO
Health Hazards (Acute and Chronic) Contact with liquid propane may cause frost burns.			
Carcinogenicity:	NTP? Not listed as a carcinogen	IARC Monographs? Not listed as a carcinogen	OSHA Regulated? Not listed as a carcinogen
Signs and Symptoms of Exposure: High concentrations may cause headaches and drowsiness.			
Medical Conditions Generally Aggravated by Exposure: Not Applicable			
Emergency and First Aid Procedures: Remove exposed person from contaminated area.			
Warning: This fuel and by-products of combustion of this fuel, contain chemicals known to the State of California to cause cancer, birth defects, and other reproductive harm.			



Section VII - Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled:	Remove ignition sources and ventilate area.
Waste Disposal Method:	Vent gas to atmosphere in flame free, spark free area outdoors.
Precautions to Be taken in Handling and Storing:	Store at temperatures below 120° F in well ventilated, spark free, flame free area.
Other Precautions:	None

Section VIII - Control Measures

Respiratory Protection (<i>Specify Type</i>):	Not required with normal use.
Ventilation:	Local Exhaust – N/A Mechanical (General) – N/A Special – N/A Other – N/A
Protective Gloves:	Not Required
Eye Protection:	Not Required
Other Protective Clothing or Equipment:	Not Required
Work/Hygienic Practices:	N/A


Section IX – Transportation Information

WHMIS Classification:	A – Compressed Gas & B1 – Flammable Gas
Class:	2.1
Proper Shipping Name:	Petroleum Gas, Liquefied
Hazard Classification:	Flammable Gas
UN Number:	1075

Section X – Additional Information

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 39 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

Appendix F - NT-NU Spill Report

The information contained herein is proprietary to 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.

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 40 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	



Canada

NT-NU SPILL REPORT

OIL, GASOLINE, CHEMICALS AND OTHER HAZARDOUS MATERIALS

NT-NU 24-HOUR SPILL REPORT LINE

TEL: (867) 920-8130

FAX: (867) 873-6924


EMAIL: spills@gov.nt.ca

REPORT LINE USE ONLY

A	REPORT DATE: MONTH – DAY – YEAR		REPORT TIME	<input type="checkbox"/> ORIGINAL SPILL REPORT, OR <input type="checkbox"/> UPDATE # TO THE ORIGINAL SPILL REPORT	REPORT NUMBER -
	OCCURRENCE DATE: MONTH – DAY – YEAR		OCCURRENCE TIME		
C	LAND USE PERMIT NUMBER (IF APPLICABLE) IOL - Commercial Lease: Q13C301		WATER LICENCE NUMBER (IF APPLICABLE) 2AM-MRY1325 Type "A"		
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM THE NAMED LOCATION Mary River Mine Site, Baffin Island, NU			REGION <input type="checkbox"/> NWT <input checked="" type="checkbox"/> NUNAVUT <input type="checkbox"/> ADJACENT JURISDICTION OR OCEAN	
E	LATITUDE DEGREES MINUTES SECONDS		LONGITUDE DEGREES MINUTES SECONDS		
F	RESPONSIBLE PARTY OR VESSEL NAME Baffin Iron Mines Corp.		RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION 2275 Middle Road East, Suite 300, ON L6H 0C3		
G	ANY	CONTRACTOR	INVOLVED	CONTRACTOR	ADDRESS OR OFFICE LOCATION
H	PRODUCT SPILLED		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER
	SECOND PRODUCT SPILLED (IF APPLICABLE)		QUANTITY IN LITRES, KILOGRAMS OR CUBIC METRES		U.N. NUMBER
I	SPILL SOURCE		SPILL CAUSE		AREA OF CONTAMINATION IN SQUARE METRES
J	FACTORS AFFECTING SPILL OR RECOVERY		DESCRIBE ANY ASSISTANCE REQUIRED		HAZARDS TO PERSONS, PROPERTY OR EQUIPMENT
K	ADDITIONAL INFORMATION, COMMENTS, ACTIONS PROPOSED OR TAKEN TO CONTAIN, RECOVER OR DISPOSE OF SPILLED PRODUCT AND CONTAMINATED MATERIALS				
L	REPORTED TO SPILL LINE BY	POSITION	EMPLOYER	LOCATION CALLING FROM	TELEPHONE
M	ANY ALTERNATE CONTACT	POSITION	EMPLOYER	ALTERNATE CONTACT LOCATION	ALTERNATE TELEPHONE

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	Exploration Spill Contingency Plan	Issue Date: June 17, 2014 Revision: 0	Page 41 of 41
	Environment	Document #: BAF-PH1-830-P16-0037	

REPORT LINE USE ONLY					
N	RECEIVED AT SPILL LINE BY	POSITION Station operator	EMPLOYER	LOCATION CALLED Yellowknife, NT	REPORT LINE NUMBER (867) 920-8130
LEAD AGENCY <input type="checkbox"/> EC <input type="checkbox"/> CCG <input type="checkbox"/> GNWT <input type="checkbox"/> GN <input type="checkbox"/> ILA <input type="checkbox"/> INAC <input type="checkbox"/> NEB <input type="checkbox"/> TC			SIGNIFICANCE <input type="checkbox"/> MINOR <input type="checkbox"/> MAJOR <input type="checkbox"/> UNKNOWN		FILE STATUS <input type="checkbox"/> OPEN <input type="checkbox"/> CLOSED
AGENCY	CONTACT NAME		CONTACT TIME	REMARKS	
LEAD AGENCY					
FIRST SUPPORT AGENCY					
SECOND SUPPORT AGENCY					
THIRD SUPPORT AGENCY					

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