E. Gruben's Transport Ltd.

Fuel Contingency Plan

PIN-E, Cape Peel, Nunavut

Revised February 15th, 2012

Introduction

The project objective is to cost effectively remediate and restore the remote Arctic intermediate DEW Line Site known as PIN-E, Cape Peel while minimizing disturbance to the sensitive arctic ecosystem.

PIN-E, Cape Peel, is a former Intermediate Distant Early Warning (DEW) Line radar station constructed in 1959 by the Department of National Defense (DND) and was subsequently abandoned in 1963, at which time responsibility for the site was assumed by Indian and Northern Affairs Canada (INAC). The site is located on the south coast of Victoria Island in Nunavut, at 69°04'N, 107°17'W, on the north shore of Dease Strait. It was one in a string of defense radar sites stretching across the Arctic from Alaska to Greenland, operated jointly by Canada and the US as "intermediate sites" between the alternating larger DEW Line Sites.

The nearest community and charter base is Cambridge Bay, located approximately 80 km to the east of the PIN-E site. Cape Peel, PIN-E is located approximately 340 km to the northeast of Kugluktuk, Nunavut. Yellowknife is located approximately 800 km to the south.

E. Gruben's Transport Ltd. (EGT) of Tuktoyaktuk is the prime contractor responsible for the cleanup of the Cape Peel, PIN-E site. Responsibility and authority for the remediation of the PIN-E site is currently retained by Indian and Northern Affairs Canada (INAC). To achieve the goal of site remediation and restoration INAC has retained the services of Public Works and Government Services Canada (PWGSC) to provide technical support, contract administration and Site supervision. The site is located within Nunavut Territory and subject to the terms of the Nunavut Comprehensive Land Claim Agreement (CLCA).

The remediation work for the PIN-E site requires the handling and disposal of both non-hazardous and hazardous materials. The work has been designed based upon the remedial guidelines and clean-up criteria of the INAC Abandoned Military Site Remediation Protocol. Any hazardous materials encountered on site will be handled according to regulations stipulated by the Canadian Environmental Protection Act (CEPA), Transportation of Dangerous Goods Act (TDGA) and the Nunavut/NWT Guideline for the General Management of Hazardous Waste as applicable. Some of the remediation materials will be managed and disposed of onsite and some non-hazardous materials will be transported to PIN-D for disposal in the Non-Hazardous Landfill; however there are certain hazardous materials that will require professional and careful handling, packaging and offsite southern transportation and disposal at licensed hazardous waste facilities.

Work on the site will include upgrading of site roads and airstrips to facilitate construction activities; demolition, segregation and disposal of buildings and infrastructure; collection, sorting, on-site transport and incineration of non-hazardous, unpainted, untreated combustible waste; collection, sorting, off-site transport from PIN-E to PIN-D, and disposal of PIN-E non-hazardous waste within the PIN-D Non-Hazardous Waste Landfill; excavation and disposal or treatment of Contaminated Soils, as required; construction, excavation of buried debris, segregation of debris into waste streams (hazardous and non-hazardous); transport and disposal of waste, off-site transport and disposal of designated contaminated soil to the Designated Waste

Disposal Facility; collection, excavation, sorting, containerization and off-site transport to the Designated Hazardous Waste Disposal Facility of all hazardous demolition, hazardous debris, hazardous soils and hazardous liquids; collection, cleaning and disposal of barrels and contents, on-site incineration of barrel contents that meet the DLCU Barrel Protocol criteria including solid and liquid non-hazardous wastes; dewatering and re-grading of site works and backfilling and grading of all excavated areas using local borrow material.

Mobilization to the site will take place via Northern Transportation Company Limited (NTCL) barge in late-July - August of 2011. Contract work will be conducted through the summer of 2011 and 2012. Demobilization from the site will take place in September of 2012.

Spill Prevention

EGT **pre-emergency planning** emphasizes the prevention of spills through training, refueling procedures and **to ensure that** adequate and appropriate equipment **is available in the unlikely event of a spill**.

Diesel P-50 fuel will be delivered to PIN-E via sea-lift (barge). Upon arrival the fuel will then be transferred by properly trained and certified personnel into a tandem axle fuel truck and delivered to the appropriate on-site tanks. The storage tanks that EGT intends to use will be registered with Environment Canada on the "Federal Identification Registry for Storage Tank Systems" (FIRSTS) database and mobilized to PIN-E empty during the initial project mobilization.

Each tank will be set up in accordance with the "Environmental Code of Practice for Above Ground Storage Tank Systems Containing Petroleum and Allied Petroleum Products Guidelines". The tanks will be fully certified tanks that meet the CEPA (1999), and the "Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations SOR/2008-197".

Gasoline for PIN-E will arrive at the site with the initial mobilization barge. Due to the small amount of gasoline required at the PIN-E site, gasoline will be shipped and stored in 205 liter steel drums. The gasoline drums will be individually identifiable, labeled to industry standards and all information necessary for health, safety and environmental purposes will be made available. Appropriate MSDS will be maintained at site. All barrels will be stored in accordance with the land use permit, and labeled with INAC's name and EGT's name, stored on pallets in an upright position and banded to said pallets. All fuel storage will be in an area that complies with all applicable regulations and approved by the Departmental Representative. Both EGT and the marine transport company have very specific written barge fuel transfer procedures which will be strictly followed during loading and offloading work. Site storage tanks will be filled to 85% capacity to allow for expansion of fuel as it warms.

All fueling activities will be conducted by properly trained staff, and only those personnel authorized will be permitted to dispense fuel. Refueling will not take place below the high water mark of any water body and shall be done in such a manner as to prevent any hydrocarbons from

entering any water body frequented by fish. Fuel usage records will be maintained on-site and will be kept to track individual unit usage as well as task usage.

Fire extinguishers, emergency spill equipment, including appropriate personal protective equipment, a minimum of two fuel pumps, empty drums, and absorbent materials sufficient to cleanup a 1000 liter spill will be positioned at all fuel storage sites. Smoking will be strictly prohibited within 100 meters of this area and No-Smoking signs will be posted. Spill mats or spill trays will be utilized under all mobile fueling containers. All mobile fuel equipment will be equipped with spill kits.

Contractor's fuel storage tanks will be located adjacent to the camp generator building. Fuel storage tanks will be located greater than 30 meters from the closest body of water.

There will be no bulk storage of oils, lubes, antifreeze in containers larger than 45 gallon drums. All will be supplied to site in 45 gallon drums and 5 gallon (22.5 l) pails or smaller containers. All drums will be new.

Propane will be used onsite for the camp facilities and will be stored in 1000 lb. propane tanks and 350 lb. "pig" tanks. Propane for shop use will be supplied in 100 lb. and 20 lb. cylinders.

Tanks, drums and cylinders belonging to EGT will be clearly marked with spray paint and stencils to distinguish them from tanks, drums and cylinders belonging to others on site.

MSDS will be available for all consumable products on site and all EGT personnel will have received WHMIS training. All handling and transport of dangerous goods will be supervised by TDG certified personnel. A general list of potentially harmful substances that can be spilled on site are as follows:

- Diesel Fuel – MSDS attached
- Gasoline – MSDS attached
- Diesel Fuel Conditioner – MSDS attached
- Engine Oil – MSDS attached
- HD Antifreeze – MSDS attached
- HD Brake Fluid – MSDS attached
- Hydraulic Oil – MSDS attached

Vehicles will be parked over drip trays.

The Equipment Foreman will inspect all fuel storage tanks daily. Wildlife monitors will also be required to conduct daily checks of fuel storage facilities as part of their normal rounds of inspection.

See attached fueling and fuel transfer procedures.

Spill Response

The site superintendent will develop an onsite Emergency Response Plan, which will establish muster points, evacuation routes, the safe distances of approach and places of refuge prior to the commencement of work and provide a copy to the DR. It will include the directions and methods of contacting and acquiring emergency medical transportation to the nearest or most appropriate medical center. Medical Aid will be provided by the onsite Medic.

All pick-ups and heavy equipment will carry small "equipment" spill kits. The foreman's truck, the generator shack, fuel storage tanks and refueling areas will have more substantial "drum" spill kits. All vehicles will carry a small quantity of oil absorbent rags. All mobile equipment will have company frequency "truck-to-truck" radios, as will the EGT site office and the Medic.

All spills will be reported and recorded for internal records. Minor spills will be reported to the Equipment Foreman by radio. The Equipment Foreman will assess the situation, including the potential risks to personnel, will decide on the most appropriate immediate response and will report to the Site Superintendent. This may simply involve applying sorbent pads or shoveling of granular materials into plastic bags for transfer to the PHC soils treatment area for on-site treatment or possibly boxing soils in 2.3 cu. m. sea-cans with hydro-carbon resistant liner.

A larger, more catastrophic spill would result in Emergency Response Procedures. The same emergency radio procedures will apply as for a medical emergency. The person who discovers the spill will use the radio call, "MEDIC! MEDIC! MEDIC!" This will signal all site personnel to cease any other radio use, cease other work and stand by for further direction. The Medic will take charge of all medical emergencies on site, but in this case pass control of the situation to the Equipment Foreman and/or Site Superintendent as soon as the emergency situation has been identified as a fuel spill.

The response to a larger spill may involve allocating heavy equipment and/or allocating personnel to the task. Appropriate PPE for the task will be checked and a Job Safety Analysis. The hazard assessment with reference to the applicable MSDS will be conducted prior to the cleanup effort.

Fuel Spill Action Plan

<u>Response procedures in the event of a spill.</u>

Priority 1 – Identify spill source and assess the hazard

Ensure safety of all persons in the vicinity.

- Assess source, type and extent of spill.
- Assess hazards from the spill.
- Check for fire and explosion risk:
  - Extinguish all ignition sources in the area
  - Move machinery only if safe to do so or shut down if necessary

    - Isolate all live equipment to prevent sparks and enforce no smoking by site personnel
- Raise alarm and close affected area.

Priority 2 – Stop flow of spill

- Ensure that any necessary safety equipment is worn.
- Stop flow at source of spill – use ready mixed sealing compound to seal holes or fractures in containers, drums, bunds.
- Attempt to limit immediate spread of spill. Prevent off-site migration by surface runoff; place sorbent materials to form a runoff barrier.
- Priority should be given to protecting any drinking water supply area.
- If the spill occurs on ice or snow, attempts should be made to prevent it from reaching ice-free ground.

Priority 3 – Notify Site Superintendant

- Notify Site Superintendant as soon as possible after ensuring the safety of all personnel and attempting to stop flow and limit spread. Notify the source and volume of spill, fire risk, casualties etc.
- Site Superintendant to assess spill response classification and appropriate means of clean-up.
- Site Superintendant to notify appropriate regulatory agencies.

Priority 4 – Spill Containment

Containing spills significantly reduces the effort required to control and clean up the spill.

- For all spills, deploy absorbents to contain and soak up the fuel
- Prevent spread of fuel by using booms
- It may be possible to hold the fuel in depressions by using absorbent materials, or by building small dams.
- Response operations should not be commenced in the affected area until deemed safe.

Priority 5 – Spill Recovery and Clean-up

If the spill has been successfully contained on-site, commence spill clean-up operations.
Site superintendant to monitor spill and co-ordinate clean-up operations.
Site superintendant to complete the spill incident report and submit copies to appropriate agencies.

- Recover as much fuel as possible
- If possible, use pumps to remove the fuel from the ground straight into empty drums. Ensure that empty drums of good quality are available near spill site.
- Absorbent pads should be spread on any remaining fuel that cannot be pumped or manually removed.
- Fuel soaked absorbents must be picked up and placed in plastic bags or empty drums.
- Contaminated snow can be stored in drums which have had their tops removed. Allow the snow to melt and decant off the fuel.

- Any waste drums containing a mixture of fuel and snow or water are likely to freeze. To prevent drums from splitting use only good condition drums and do not fill to top.
- Drums containing recovered fuel or water, oil soaked absorbents and contaminated clothing must be disposed of in a proper manner.

Notes:

- As much fuel as possible should be removed immediately after the spill, and sound judgment should be used before excavating in tundra or muskeg terrain and this may also have negative environmental repercussions amounting to more damage than allowing small amounts of fuel to naturally degrade.
- The health and safety of personnel is paramount in the case of a fuel spill. Emergency spill response actions should not be undertaken in extreme weather conditions or during periods of darkness, unless the situation has been fully assessed by the Site Superintendant and deemed safe.
- Personnel should ensure that they are aware of the location and content of the spill kits.
- Medium to large spills (>200 liters) require a dedicated clean-up team.
- Spill Response Classification
  - Minor spills – Less than 10 liters – Easily contained.
  - Moderate spills – Less than 600 liters – Contain and clean up by on-site Spill Response Team.
  - Major spills – More than 1000 liters – Use of heavy equipment and possible off-site assistance may be required.

As well as a supply of heavy equipment (2 excavators, 2 loaders, 2 cats, 2 rock trucks, and pickup trucks) and a ready and plentiful supply of labor, we have at the site considerable other materials and equipment for the purposes of our contract work which could be used for spill containment and recovery. These include but are not limited to the following:

Drum Spill Kits: Polyethylene over-pack drum containing 2 ea. 10’ socks, 5 ea. 4’ socks, 1 lb. pre-mixed plugging compound, 50 pads, 5 pillows, 1 drain cover, 1 caution tape, 2 pairs of nitrile gloves, 2 ea. safety goggles, 2 coveralls, 10 disposal bags.

Equipment Spill Kits: Nylon carry bag containing 1 ea. 10’ sock, 30 pads, 1 pillow, 1 lb. pre-mixed plugging compound, 1 lb. dry plugging compound, 1 pr. nitrile gloves.

General Supplies:
50 bundles (100 ea.) sorbent pads,
10 polyethylene over-pack drums
50 bags floor-dry sorbent
50 2.3 cu. m. wooden 2.3 sea-cans surplus to identified contract needs
50 hydrocarbon resistant sea-can liners surplus to identified contract needs
100 6 mil poly sea-can liners surplus to identified contract needs
Steel garbage sloops
Fuel transfer pumps
Steel barrel wash tray

Empty steel drums
Sorbent booms, shovels, 6 mil poly bags, respirators

A spill kit, containing items from the above list including, shovels, barrels, absorbents, will be readily available at all locations where fuel is being stored or transferred in order to provide immediate response in the event of a spill.

Training

Site personnel will be trained on refueling procedures and on spill response. Spill response training will include site layout and identification of storage areas, how to initiate the spill response system, safety concerns related to spills including fire and explosion, personal exposure risks to potentially hazardous materials and the PPE which may be required to handle spills, environmental risks to both ground and waterways, approaches and options to containment and cleanup utilizing the various materials and equipment available onsite, the deployment of booms and other absorbents, the use of spill kits and their contents including the use of plugs and plugging compounds, reporting requirements

Reporting

All spills regardless of quantity will be reported to the on-site **Departmental Representative, EGT CEO/Project Manager, EGT Superintendant of Operations, EGT Safety Manager, AANDC Water Resources Inspector @ 867-975-4295 and the NWT/NU Spill Line @ 867-920-8130 (NWT/NU Spill Line Fax 867-873-6924)** where the release:

- Is near or into a water body;
- Is near or into a designated sensitive environment or sensitive wildlife habitat;
- Poses an imminent threat to human health or safety; or,
- Poses an imminent threat to a listed species at risk or its critical habitat.

A detailed report including GPS location must be submitted to the AANDC Water Resources Inspector no later than 30 days after the initial report for any occurrence.

Spill Report Forms will be kept with a copy of the spill contingency plan at all areas where potentially harmful substances or fuel are stored or transferred and extra copies will be available in the Site Superintendent's office.

The Site Superintendent will be responsible for all reporting and incident investigation requirements on site and will have full authority to ensure the safety of site personnel, to respond to spills immediately and to take any actions he deems necessary to prevent an escalation of any unplanned event or spill. The CEO/Project Manager, the Superintendent of Operations and the Safety/Loss Control Manager will provide advice, logistical and

technical support and financial authorities to respond to any unplanned event or spill as required.

Chief Executive Officer/Project Manager Russell Newmark	**TEL: 867-977-7008** **CEL: 867-678-0040**
Superintendent of Operations Doug Saunders	**TEL: 867-977-7017** **CEL: 867-678-0045**
Safety/Loss Control Manager Randy G. Hein	**TEL: 867-977-7014** **CEL: 403-638-9636**

Other useful contact numbers include:

GNU, Environmental Protection		867-975-6000
	(Fax)	867-975-6099
GNU, Water Board		867-360-6338
	(Fax)	867-360-6369
GNWT, Environmental Protection		867-873-7654
	(Fax)	867-873-0221
AANDC Manager of Field Ops		867-975-4295
Kitikmeot Inuit Association		867-983-2458
DFO		867-979-8000
Environment Canada		867-945-4644

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FUELING UP EQUIPMENT AND VEHICLES

When approaching fueling station you must first observe the area for any unusual appearances.

- **Fuel on the ground**
- **Hoses and nozzle on the ground**
- **Nozzle torn off hose**
- **Hose torn off pump or tank**

If you notice anything like that, immediately report it to your supervisor, before fueling up.

- **Before you begin fueling procedures shut off engine.**
- **Put drip pan into place.**
- **Clean around fill cap (dust, mud, snow, ice, etc.).**
- **Open filler cap carefully, a vacuum might be present.**
- **If filler cap can't be reached from the ground and you must climb onto the equipment, use extreme caution, especially during adverse conditions (wet, mud, snow and ice. If no steps or platforms are available use an appropriate ladder.**
- **Avoid going up steps or ladder with hose**
- **Turn pump on if so equipped and / or open valve at tank.**
- **Begin fueling, don't leave nozzle unattended. NEVER rely on automatic shut off.**
- **Don't overfill tank leave room for expansion.**
- **When finished reverse procedure.**
- **Use three point contact when ascending or descending.**
- **In case of a spill protect yourself, fuels can cause severe eye and skin irritations, contain the spill if possible, report the spill.**

READ LABELS OR MSDS, in particular FIRST AID MEASURES

- **Make sure pump and / or valves are turned off and hose put back in proper place.**
- **Don't forget to put cap back on**

This Job procedure is to be utilized as a guide only. Worksite practices and/or worksite conditions may necessitate change to the content, or order, of task steps in order to complete the job safely & efficiently.
Common sense should prevail

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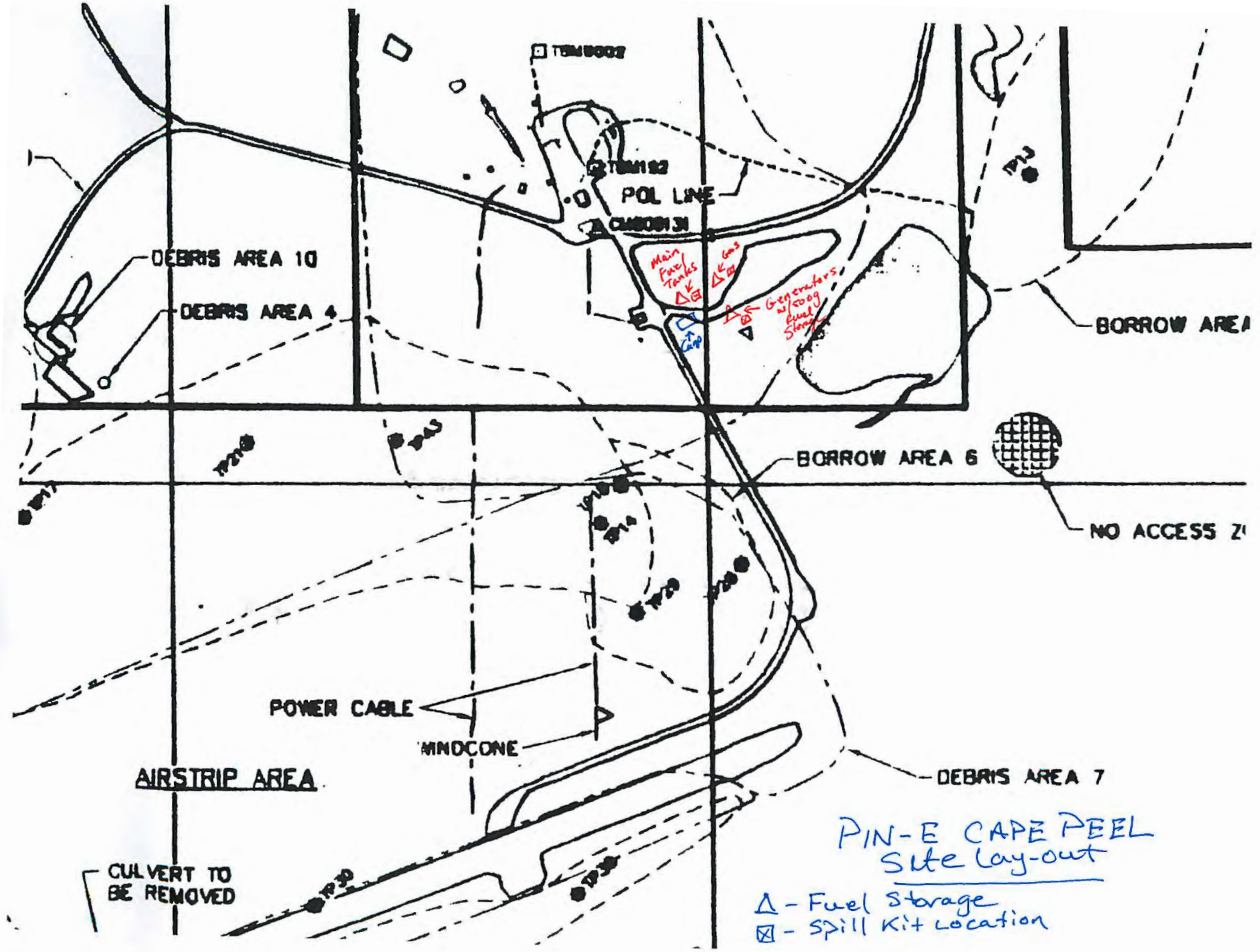
FLUID TRANSFER GUIDELINES

Many spills occur during routine fueling, pumping, and other fluid transfer operations. Most of these spills can be avoided by paying attention and taking simple precautions. EGT has developed field-wide fluid transfer guidelines, which are summarized below.

- **Do not operate equipment unless trained by a competent person.**
- **Check all vehicles and equipment. If a leak is apparent, or there are other obvious problems with the equipment; stop the job and have repairs done. Surface liners or drip pans may be used to contain leaks for a short time during critical operations; however, liners are not an acceptable substitute for maintenance.**
- **Park vehicles and equipment away from water bodies, tundra, and wildlife habitat. Do not park on the edges of the pad.**
- **Position equipment so that valves, piping, tanks, etc., are protected from damage by other vehicles or equipment.**
- **Verify that adequate surface liners and absorbents are on hand.**
- **Make sure all equipment is properly grounded.**
- **Inspect hoses, connections, valves, etc., before starting any fluid transfers. Be sure that valves are in proper position and each connection is tightened properly.**
- **Before starting, check all tank and container levels, valves, and vents to prevent overfilling or accidental releases.**
- **Surface liners or drip pans are required under all potential spill points.**
- **Maintain a constant line-of sight with critical components throughout fluid transfer procedure. Be prepared to stop the transfer immediately if you notice any leaks. Do not attempt to fix a leak while fluid is being transferred. Never leave fluid transfer operations unattended. After transfer is complete, continue to take precautions while breaking connections. When finished, check the area for spills. Report all spills immediately to your supervisor and the 24-hour Spill Report Line (867) 920-8130.**

This Job procedure is to be utilized as a guide only. Worksite practices and/or worksite conditions may necessitate change to the content, or order, of task steps in order to complete the job safely & efficiently.
Common sense should prevail.


POL LINE
DEBRIS AREA 10
DEBRIS AREA 4
Main Fuel Tanks
Gas
Generators w/ cooling Fuel Storage
Camp
BORROW AREA
BORROW AREA 6
NO ACCESS Z
POWER CABLE
WINDCONE
AIRSTRIP AREA
DEBRIS AREA 7
CULVERT TO BE REMOVED
PIN-E CAPE PEEL
Site Lay-out
Δ - Fuel Storage
⊠ - Spill Kit Location

Northwest Territories Nunavut 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	☐ ORIGINAL SPILL REPORT, OR	REPORT NUMBER
B	OCCURRENCE DATE: MONTH – DAY – YEAR	OCCURRENCE TIME	☐ UPDATE # _____ TO THE ORIGINAL SPILL REPORT	____-_____
C	LAND USE PERMIT NUMBER (IF APPLICABLE)	WATER LICENCE NUMBER (IF APPLICABLE)		
D	GEOGRAPHIC PLACE NAME OR DISTANCE AND DIRECTION FROM NAMED LOCATION	REGION ☐ NWT ☐ NUNAVUT ☐ ADJACENT JURISDICTION OR OCEAN		
E	LATITUDE DEGREES MINUTES SECONDS	LONGITUDE DEGREES MINUTES SECONDS		
F	RESPONSIBLE PARTY OR VESSEL NAME	RESPONSIBLE PARTY ADDRESS OR OFFICE LOCATION		
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 ENVIRONMENT	
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

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 ☐ EC ☐ CCG ☐ GNWT ☐ GN ☐ ILA ☐ INAC ☐ NEB ☐ TC | SIGNIFICANCE ☐ MINOR ☐ MAJOR ☐ UNKNOWN | FILE STATUS ☐ OPEN ☐ CLOSED

AGENCY	CONTACT NAME	CONTACT TIME	REMARKS
LEAD AGENCY			
FIRST SUPPORT AGENCY			
SECOND SUPPORT AGENCY			
THIRD SUPPORT AGENCY			

Shell Canada Limited
Material Safety Data Sheet

Effective Date: 2011-10-27
Supersedes: 2008-10-30

Class B3 Combustible Liquid

Class D2B Skin Irritation

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **REGULAR SULPHUR DIESEL FUEL MARKED**
PRODUCT USE: Fuel
PRODUCT CODE: **325-111**

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

TELEPHONE NUMBERS

Shell Emergency Number	1-800-661-7378
CANUTEC 24 HOUR EMERGENCY NUMBER	1-613-996-6666
For general information:	1-800-661-1600
	www.shell.ca

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.
*An asterisk in the product name designates a trade-mark of Shell Brands International AG. Used under license.

2. HAZARDS IDENTIFICATION

Physical Description: Liquid Red Colour Dyed for tax purposes 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.
Ingestion may result in vomiting. Avoid aspiration of vomitus into lungs as small quantities may result in aspiration pneumonitis.
Handling: Eliminate all ignition sources.
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.
Avoid prolonged exposure to vapours.

For further information on health effects, see Section 11.

3. 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.

4. FIRST AID MEASURES

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

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

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. Avoid inhalation of smoke. 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. Containers exposed to intense heat may rupture. Use water to cool fire exposed containers. 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. Wear appropriate breathing apparatus (if applicable) and protective clothing. Handling equipment must be

grounded. Work upwind of spill if it is safe to do so. Avoid direct contact with material. 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. Adsorb residue or small spills with adsorbent material and remove to non-leaking containers for disposal. Notify appropriate environmental agency(ies). After area has been cleaned up to the satisfaction of regulatory authorities, flush area with water to remove trace residue. Dispose of recovered material as noted under Disposal Considerations.

7. HANDLING AND STORAGE

Handling: 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):

The exposure limits listed here are provided for guidance only. Consult local, provincial and territorial authorities for specific values.
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. Local ventilation recommended where general 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: 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 AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Red Colour Dyed for tax purposes
Odour:	Hydrocarbon Odour
Odour Threshold:	Not available
Freezing/Pour Point:	Not available
Boiling Point:	150 - 330 °C
Density:	< 876 kg/m3 @ 15 °C
Vapour Density (Air = 1):	Not available
Vapour Pressure (absolute):	Not available
pH:	Not available
Flash Point:	PMCC > 40 °C
Lower Flammable Limit:	1 % (vol.)
Upper Flammable Limit:	6 % (vol.)
Autoignition Temperature:	250 °C
Viscosity:	1.3 - 4.5 mm2/s @ 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 Oral Rat = 9000 mg/kg LD50 Dermal Rabbit > 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.

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 and avian organisms. The immediate effect of a release is the physical impairment of the environment from the coating of surfaces, resulting in the disruption of oxygen, water and light to flora and fauna. Prolonged exposure may result in the partitioning of light-end hydrocarbon fractions into the water and gas phases of the subsurface soil environment with potential to adversely affect soil and groundwater quality.

Biodegradability: Not readily biodegradable.

Bioaccumulation: Potential for bioaccumulation.
Potential for bioconcentration.

Partition Coefficient (log K_{OW}): Not available

Aquatic Toxicity: Product is expected to be toxic to aquatic organisms.

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

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. TRANSPORT 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. This product and/or all components are listed on the U.S. EPA TSCA Inventory.
Other Regulatory Status:	Provincial criteria are likely and should be requested when notifying provincial authorities. The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

16. OTHER INFORMATION

LABEL STATEMENTS

Hazard Statement :	Combustible Liquid. Irritating to skin.
Handling Statement:	Eliminate all ignition sources. 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. Avoid prolonged exposure to vapours.
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.

Husky Energy Material Safety Data Sheet

WHMIS	Personal Protection	TDG Road/Rail
		

Section I. Product Identification and Uses

Common/Trade name	**Gasoline (Midgrade Unleaded)** **Gasoline (Premium Unleaded)** **Gasoline (Regular Unleaded)**		
Synonyms	Not available.	**CAS #**	8006-61-9
Chemical family	Petroleum Hydrocarbon.	**DSL**	Listed on the DSL (Domestic Substancs List).
Supplier	Husky Oil Marketing Company Box 6525 Station 'D' Calgary, Alberta T2P 3G7 (403) 298-6111	**Manufacturer**	Husky Oil Box 1390 Prince George, B.C. V2L 4V4 250-960-2500
Material uses	Motor Fuel		

Section 2. First Aid Measures

Eye contact	Flush eyes for at least 15 minutes with clean water. Patch lightly, allowing drainage. Seek medical attention.
Skin contact	Remove contaminated clothing. Wash skin thoroughly with soap and water. Seek medical attention if irritation develops.
Inhalation	Protect rescuer. Move exposed person to fresh air. If breathing has stopped apply artificial respiration. Seek medical attention.
Ingestion	If swallowed, do not induce vomiting or give liquids. Seek immediate medical attention.

Section 3. Hazardous Ingredients

		Exposure Limits						
Name	**CAS #**	**TWA (ppm)**	**TWA (Mg/M3)**	**STEL (ppm)**	**STEL (Mg/M3)**	**CEIL (ppm)**	**CEIL (Mg/M3)**	**% by Weight**
GASOLINE (MIDGRADE UNLEADED)								
Naphtha, catalytic reformed	68955-35-1	100	525	n/av	n/av	n/av	n/av	30-60
Naphtha, light catalytic cracked.	64741-55-5	100	525	n/av	n/av	n/av	n/av	15-40
Naphtha, petroleum	64741-70-4	100	525	n/av	n/av	n/av	n/av	5-10
Hydrocarbons, C1-C4	68527-19-5	n/av	n/av	n/av	n/av	n/av	n/av	1-5
Benzene	71-43-2	0.5	1.6	2.5	8	n/av	n/av	1
Proprietary Detergent Additive	n/av	n/av	n/av	n/av	n/av	n/av	n/av	<1
GASOLINE (PREMIUM UNLEADED)								
Naphtha, catalytic reformed	68955-35-1	100	525	n/av	n/av	n/av	n/av	60-100
Naphtha, light catalytic cracked.	64741-55-5	100	525	n/av	n/av	n/av	n/av	15-40
Naphtha, petroleum	64741-70-4	100	525	n/av	n/av	n/av	n/av	1-5
Hydrocarbons, C1-C4	68527-19-5	n/av	n/av	n/av	n/av	n/av	n/av	1-5
Benzene	71-43-2	0.5	1.6	2.5	8	n/av	n/av	1
Proprietary Detergent Additive	n/av	n/av	n/av	n/av	n/av	n/av	n/av	<1
GASOLINE (REGULAR UNLEADED)								
Naphtha, catalytic reformed	68955-35-1	100	525	n/av	n/av	n/av	n/av	7-13
Naphtha, light catalytic cracked.	64741-55-5	100	525	n/av	n/av	n/av	n/av	40-70
Naphtha, petroleum	64741-70-4	100	525	n/av	n/av	n/av	n/av	10-30
Hydrocarbons, C1-C4	68527-19-5	n/av	n/av	n/av	n/av	n/av	n/av	1-5
Benzene	71-43-2	0.5	1.6	2.5	8	n/av	n/av	1
Proprietary Detergent Additive	n/av	n/av	n/av	n/av	n/av	n/av	n/av	< 1

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Toxicity values of the hazardous ingredients	**Naphtha, catalytic reformed:** ORAL (LD50): Acute: 6620 mg/kg [Rat]. **Naphtha, light catalytic cracked.:** ORAL (LD50): Acute: 5000 mg/kg [Rat]. DERMAL (LD50): Acute: 3000 mg/kg [Rat]. **Naphtha, petroleum** LD50: Not available. LC50: Not available. **Hydrocarbons, C1-C4** LD50: Not available. LC50: Not available. **Benzene:** ORAL (LD50): Acute: 3400 mg/kg [Rat]. VAPOUR (LC50): 10,000 ppm 8 hr (rat)

Section 4. Physical Data

Physical state and appearance	Liquid. Colourless or dyed red or purple.
Odor	Petroleum Odour
pH (1% soln/water)	Not applicable.
Odor threshold	0.12 - 0.15 ppm recognition. 0.06 - 0.08 ppm threshold.
Evaporation rate	Not available.
Freezing point	Not available.
Boiling point	30°C - 215°C
Specific gravity	0.7 (Water = 1)
Volatility	Not available.
Vapor density	Not available.
Vapor pressure	Not available.
Water/oil dist. coeff.	Not available.
Solubility	Insoluble in cold water.
Molecular Weight	Not applicable.
Melting Point	Not available.
Density	Not available.

Section 5. Fire and Explosion Data

Auto-ignition temperature	257°C (494.6°F)
Flash points	CLOSED CUP: -50°C (-58°F) (TCC)
Flammable limits	LOWER: 1.3% UPPER: 7.1%
Extinguishing Media	Use DRY chemicals, CO2, or foam to extinguish fire. Water may not be an effective medium to extinguish fire. Product will float and can be reignited on the water surface. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
Special fire fighting procedures	Use supplied air or self contained breathing apparatus (SCBA) for large fires or for fires in enclosed areas.
Flammability	Extremely flammable. Released vapours may form flammable/explosive mixtures at or above the flash point. Vapours may travel considerable distances to ignition sources and cause a flash fire. All storage containers and pumping equipment must be grounded.
	Remark No additional remark.

Continued on Next Page

Risks of explosion	This material is sensitive to static discharge. This product is not sensitive to mechanical impact.
	Remark No additional remark.

Section 6. Reactivity Data

Stability	The product is stable.
Hazardous decomp. products	Carbon monoxide, carbon dioxide and irritant fumes and gases including sulphur oxides, nitrogen oxides and aldehydes.
Reactivity	Incompatible material: Strong acids, strong oxidizers, chlorine. Hazardous polymerization: Will not occur.
	Remark No additional remark.

Section 7. Toxicological Properties

Routes of entry	Ingestion. Inhalation. Eye contact. Skin contact.
TLV	Gasoline TWA: 300 ppm, STEL: 500 ppm from ACGIH Benzene TWA: 0.5 ppm, STEL: 2.5 ppm from ACGIH, SKIN Stoddard Solvent: TWA: 100 ppm, 525 mg/m3 from ACGIH Consult local authorities for acceptable exposure limits.
Toxicity to animals	Gasoline: LC50: Inhalation: Rat & mouse 300 gm/m3. LD50: Acute, Rat 18.75 mL/kg, rabbit 5 mL/kg
	Remark No additional remark.
Chronic effects	Gasoline has been classified by IARC (International Agency for Research on Cancer) as a product which is possibly carcinogenic to humans (IARC group 2B). This product contains benzene. Benzene has been classified by IARC as a group 1 product indicating sufficent evidence of carcinogenicity. Prolonged exposure to benzene at concentrations exceeding the exposure limit may cause damage to the blood producing system resulting in blood disorders such as leukemia. This product contains xylene. High exposure to xylene has produced fetotoxic effects in animal studies.
	Remark No additional remark.
Acute effects	Sensitizing Capabiltiy: No effects known. Irritancy: Moderate skin, eye and upper respiratory tract irritant.
Ingestion	Pulmonary aspiration hazard if swallowed and vomiting occurs. Product is irritating to the digestive tract. Ingestion may result in central nervous system depression with symptoms including dizziness, nausea, headache, and unconsciousness.
Skin	Prolonged skin contact can cause defatting of the skin resulting in dry cracked skin and dermatitis.
Eyes	Product vapours are moderately irritating to the eyes with effects beginning near 200-500 PPM.
Inhalation	Product vapours are moderately irritating to the respiratory tract. At concentrations near 1000 ppm, central nervous system effects such as headache, blurred vision, dizziness, and loss of coordination may occur. Exposure to vapour concentrations exceeding 5000 PPM may result in loss of consciousness, coma and death.
	Remark No additional remark.
Synergistic materials	Not available.

Continued on Next Page

Section 8. Preventive Measures

Waste disposal	Dispose of in accordance with all federal, provincial and local regulations.
Storage	Store in cool, well ventilated areas away from all sources of ignition. Confined spaces and head spaces in storage tanks may contain toxic, and flammable concentrations of hydrocarbon vapours.
Ventilation	In poorly ventilated areas, provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapours below their respective threshold limit values.
Spill and leak	Evacuate unecessary personnel. Eliminate all ignition sources. Stop leak if without risk. Contain spill and absorb with inert absorbent. Large spills should be removed with explosion proof vacuum equipment. Large pools may be covered with foam to prevent vapour evolution. Comply with federal, provincial, and local requirements for spill notification.

Section 9. Classification/Regulatory Information

TDG road / rail

TDG CLASS 3.1: Flammable liquid.

UN1203 Shipping Name: Gasoline

Remark
No additional remark.

WHMIS

WHMIS CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
WHMIS CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

Remark
Not acceptable for transport by passenger ship.

Other

This product is on the Domestic Substances List (DSL). TSCA (Toxic Substance Control Act): This product is listed on the TSCA Inventory.
Refer to federal, provincial, and local legislation for further requirements.

Section 10. Protective Clothing

Eye	Non-vented chemical goggles to protect against splashing of product into the eyes and to prevent eye irritation from the solvent vapours.
Skin	Impervious gloves and clothing should be worn as appropriate to protect against skin contact. Neoprene or nitrile material is suggested.
Respiratory	Respiratory protection may be required in poorly ventilated areas. Properly fitted air purifying masks equipped with organic vapour filters will provide protection at low concentrations. Air supplied respirators or positive pressure self contained breathing apparatus is required when atmospheric concentrations of hydrocarbon vapours are likely to exceed 10X the occupational exposure limit .
Other	As required by the situation according to your companies policies and procedures. Contact your supervisor for direction.

Continued on Next Page

Section 11. Preparation Information

References TOMES PLUS by Micromedex Inc. Provisional Domestic Substances List (CEPA) CPPI WHMIS Classification Guidelines Product/stream Toxicology Testing Priority List. -Manufacturer's Material Safety Data Sheet. -SAX, N.I. Dangerous Properties of Industrial Materials. Toronto, Van Nostrand Reinold, 6e ed. 1984.

MSDS Status

Acronyms: TLV = Threshold Limit Value N/AP = Not applicable N/AV = Not Available COC = Cleveland Open Cup PMCC = Pensky Martens Closed Cup

Validated by Husky Corporate Hygiene on 3/19/2009.	**Verified by Husky Corporate Hygiene.**
Supersedes: 03/19/2003	**Printed 3/9/2009.**

Emergency Phone # 403-262-2111

SECTION I-MATERIAL IDENTIFICATION AND USE

Material Name/Identifier:	Diesel Fuel Conditioner	Stock No.	991/992/993/994/995/998
Manufacturer's Name:	Kleen-Flo Tumbler Industries Ltd	Street Address:	75 Advance Blvd.
City:	Brampton	Province:	Ontario
Postal Code:	L6T 4N1	Emergency Phone #:	(905) 793-4311
Chemical Name:	N.Ap. (mixture)	Chemical Family:	Blend of aliphatic alcohol & aromatic hydrocarbons.
Chemical Formula:	N/Ap.(mixture)	Trade Names & Synonyms:	Diesel Fuel Conditioner
Material Use:	disesel fuel additive	Molecular Weight:	N/Av. (Mixture)

SECTION II-HAZARDOUS INGREDIENTS OF MATERIAL

Hazardous Ingredients	C.A.S.	Approximate Concentration	LD50 Species & Route	LC50 Species & Route
2-propanol	67-63-0	60-90%	5045 mg/kg rat-oral	16000 ppm (4hr) rat-inh.
Dimethylbenzene	1330-20-7	10-30%	4300 mg/kg rabbit-dermal	5000 ppm (4hr) rat-inh.
Ethyl benzene	100-41-4	1-5%	3500mg/kg rat-oral	4000 ppm(4hr) rat-inhal

SECTION III-PHYSICAL DATA FOR MATERIAL

Physical State:	Liquid	Odour/Appearance:	Colourless, water white liquid, alcohol odour
Specific Gravity:	0.8 @ 15°C	Odour Threshold(p.p.m.):	N/E
Boiling Point:	82-137°C	Evaporation Rate:	N/E
Freezing Point:	N/Av.	Solubility in Water:	87%
% Volatile(by volume):	100%	Vapour Pressure(mm)Hg:	4.4 kPa at 20°C
Vapour Density(Air=1):	2.2	Coefficient of Water/Oil Distribut:	N/E
pH	N.Ap.		

SECTION IV-FIRE AND EXPLOSION HAZARD OF MATERIAL

Flammability Yes/No	Yes	If yes under which conditions?	Can be ignited under normal temp. conditions.
Auto Ignition Temperature	N/E	Means of Extinction:	Alcohol Foam, carbon dioxide
Flashpoint and Method:	11°C Tag closed cup	Hazardous Combustion Products:	Carbon monoxide, carbon dioxide, hydrocarbon fumes & smoke
Upper Flammable limit (%vol)	12	Lower Flammable Limit(% by volume):	2
Explosion Data:	Sensitivity to Mech. Impact: Use only non-sparking tool	Sensitivity to Static Discharge:	Use grounded equipment

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?	Avoid contact with strong oxidizing materials, it may react with aluminum at high temp.
Reactivity and under what conditions?	Normally stable but can become unstable at elevated temp. and pressure.		
Hazardous Decomposition Products:	Carbon monoxide, carbon dioxide produced on combustion.		

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

Material Name/Identifier:	Diesel Fuel Conditioner	Stock No. 991/992/993/994/995/998	PAGE 2

SECTION VI-TOXICOLOGICAL PROPERTIES OF PRODUCT

Route of Entry:	--SKIN CONTACT -x-SKIN ABSORPTION -x-EYE CONTACT -x-INHALATION -x-INGESTION		
Effects of Acute Exposure:	May cause slight eye irritation, headaches, nausea, dizziness, drowsiness and central nervous system depression.		
Effects of chronic exposure:	High exposure to dimethylbenzene to some animal studies have been reported to cause health effects on		
	developing embryo/fetus. These effects were often at levels toxic to mother. The significance of these findings to		
	humans has not been determined.		
LD 50 of Product:	N/E	LC 50 of Product:	N/E
Irritancy of Product:	skin and eye irritant	Exposure limits of products: 2-propanol- 400 ppm,	
Sensitization of Product:	N/Av.	Ethyl benzene- 100 ppm, Dimethylbenzene- 100 ppn	
		Toxicologically Synergistic Materials:	N/Av.
--CARCINOGENICITY --REPRODUCTIVE EFFECTS --TERATOGENICITY --MUTAGENICITY			None known

SECTION VII-PREVENTIVE MEASURES

Personal Protective Equipment to be used:

Gloves(specify):	Nitrile, viton & polyethylene	Eye(specify):	Chemical safety glasses
Respiratory(specify):	Organic canister mask	Clothing: Plastic apron Footwear: Oil resistant soles.	
Respiratory Protection:	If used indoors or on a continuous basis, use of cartridge type respirator is recommended		
Engineering Control:	If used indoors or on a continuous basis, maintain of TLV using adequate ventilation.		
Handling procedure & Equip.	Use spark resistant tools and equipment for transfers.		
Leak and Spill Procedure:	Dyke and contain land spill. Soak residue with natural absorbent.		
Waste Disposal:	Dispose at an approved waste disposal facility.		
DSL Listing	All ingredients in the product are listed in the inventory.		
Storage Requirements:	Keep in a cool place. Keep away from heat, spark and flame.		
TDG Classification	991/992/993 : Consumer Commodity, 994/995/996/998 as follows:		
	Flammable liquids, N.O.S.* (2-propanol/Xylene), Class 3, UN 1993, Pkg.Gr.II		
WHMIS Classification:	991/992/993 - Consumer Commodity, complies with CCCR 2001. #994/995/998 - Class B2, D2B & D2A		

SECTION VIII-FIRST AID MEASURES

Eye:	Flush with water for at least 15 minutes.
Skin:	Wash with soap and water
Inhalation:	Remove to fresh air and restore breathing if required.
Ingestion:	DO NOT INDUCE VOMITING. Guard against aspiration into lungs. Consult doctor immediately.

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

Additional Info/Comments:		Source used: Supplier's data	
Phone Number:	(905) 793-4311	Prepared By: Quality Control Laboratory	
Date Prepared:	January 16, 2009	Kleen-Flo Tumbler Industries Limited	

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

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

[image]

Material Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Supreme Motor Oil

Product Use: Engine Oil

Product Number(s): CPS220002, CPS220011, CPS220059, CPS220060

Synonyms: Chevron Supreme Motor Oil SAE 10W-40, Chevron Supreme Motor Oil SAE 20W-50, Chevron Supreme Motor Oil SAE 30, Chevron Supreme Motor Oil SAE 40

Company Identification

Chevron Lubricants Canada Inc.

Lubrifiants Chevron Canada

6975-A Pacific Circle

Mississauga, ONT L5T 2H3

Canada

www.chevronlubricants.com

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

MSDS Requests: (800) 414-6737

SECTION 2 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	75 - 95 %weight

Information on ingredients that are considered Controlled Products and/or that appear on the WHMIS Ingredient Disclosure List (IDL) is provided as required by the Canadian Hazardous Products Act (HPA, Sections 13 and 14). Ingredients considered hazardous under the OSHA Hazard Communication Standard, 29 CFR 1910.1200, are also listed. See Section 15 for additional regulatory information.

SECTION 3 HAZARDS IDENTIFICATION

IMMEDIATE HEALTH EFFECTS

Eye: Not expected to cause prolonged or significant eye irritation.

Skin: Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.

Ingestion: Not expected to be harmful if swallowed.

Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

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: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.

Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

Flashpoint: (Cleveland Open Cup) 205 °C (401 °F) (Min)

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.

PROTECTION OF FIRE FIGHTERS:

Fire Fighting Instructions: This material will burn although it is not easily ignited. 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 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

Precautionary Measures: Keep out of the reach of children.

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.

Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

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 in a well-ventilated area.

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: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.

Respiratory Protection: No respiratory protection is normally required.

If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.

Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

NOTE ON OCCUPATIONAL EXPOSURE LIMITS: Consult local authorities for acceptable provincial values in Canada. Consult the Canadian Standards Association Standard 94.4-2002 Selection, Use and Care of Respirators.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Amber

Physical State: Liquid

Odor: Petroleum odor

pH: Not Applicable

Vapor Pressure: <0.01 mmHg @ 100 °C (212 °F)

Vapor Density (Air = 1): >1

Boiling Point: >315°C (599°F)

Solubility: Soluble in hydrocarbons; insoluble in water

Freezing Point: Not Applicable

Specific Gravity: 0.885 @ 15.6°C (60.1°F) / 15.6°C (60.1°F) (Typical)

Viscosity: 9.9 cSt @ 100°C (212°F) (Min)

Evaporation Rate: No Data Available

Odor Threshold: No Data Available

Coefficient of Water/Oil Distribution: 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: None known (None expected)

Hazardous Polymerization: Hazardous polymerization will not occur.

Sensitivity to Mechanical Impact: No.

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: LD50: >5g/kg (rabbit). The acute dermal toxicity hazard is based on evaluation of data for similar materials or product components.

Acute Oral Toxicity: LD50: >5 g/kg (rat) 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.For additional information on the acute toxicity of the components, call the technical information center.

ADDITIONAL TOXICOLOGY INFORMATION:

This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B). These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3). Contains an overbased calcium branched alkyl phenate sulfide.

Skin Absorption: In an in vitro study using a structurally-related radio-labeled material and human skin, skin absorption was 0.1µg/cm2/hr. Skin absorption was also minimal in in vitro and in vivo studies with rats. Repeated Dose Toxicity: In a 28-day oral toxicity study in rats at 50, 300, or 1000 mg/kg/day, systemic toxicity (reduced body weight gain, increased adrenal gland weight) was observed only at the high dose. In a 28-day dermal toxicity study in rats at approximately 21.5, 107, or 269 mg/kg/day, no toxicity was observed.

Reproductive Toxicity: No adverse reproductive effects were observed in a reproduction screening study of two finished lubricating oils containing 5% and 25% of this material and up to 1.68% branched alkylphenol, although male body weight was reduced.

Contains a branched alkylphenol and a calcium branched alkylphenol.

Repeated Dose Toxicity: In female rats dosed orally at 5, 20, 60, 250 or 1000 mg/kg/day for 20 days, time to sexual maturation was decreased and organ weights (ovary, uterus, liver and adrenal) were altered at >= 60 mg/kg/day. In a 28-day oral study in rats at 5, 20, 60, 180 and 300 mg/kg/day, body weight gain was decreased in males and food consumption was decreased in both sexes at >= 180 mg/kg/day. At >= 180 mg/kg/day, effects on reproductive organs in both sexes did not completely recover by 14 days post-treatment. Liver and adrenal changes occurred at >= 20 mg/kg/day. Thyroid hypertrophy occurred in males in all treated groups but did not persist through 14 days post-treatment.

Developmental Toxicity: In an oral rat developmental study at 20, 100, and 300 mg/kg/day, maternal weight gains were reduced during gestation and post-dosing at 300 mg/kg/day. At 300 mg/kg/day, there were increased incidences of fetal structural effects and reduced fetal body weights. During use in engines, contamination of oil with low levels of cancer-causing combustion products occurs. Used motor oils have been shown to cause skin cancer in mice following repeated application and continuous exposure. Brief or intermittent skin contact with used motor oil is not expected to have serious effects in humans if the oil is thoroughly removed by washing with soap and water.

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 not 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. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods. (See B.C. Reg. GY/92 Waste Management Act; R.R.O. 1990, Reg. 347 General-Waste Management; C.C.SM.c. W40 The Waste Reduction and Prevention Act; N.S. Reg. 51/95 and N.S. Reg. 179/96 for examples of Provincial legislation.)

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.

TC Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORTATION UNDER TDG REGULATIONS

IMO/IMDG Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE (AMENDMENT 34-08)

ICAO/IATA Shipping Description: PETROLEUM LUBRICATING OIL; NOT REGULATED AS DANGEROUS

GOODS FOR TRANSPORT UNDER ICAO TI OR IATA DGR

DOT Shipping Description: PETROLEUM LUBRICATING OIL, NOT REGULATED AS A HAZARDOUS MATERIAL FOR TRANSPORTATION UNDER 49 CFR

Additional Information: NOT HAZARDOUS BY U.S. DOT. ADR/RID HAZARD CLASS NOT APPLICABLE.

SECTION 15 REGULATORY INFORMATION

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1
01-2A=IARC Group 2A
01-2B=IARC Group 2B
35=WHMIS IDL

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:

All components comply with the following chemical inventory requirements: AICS (Australia), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), PICCS (Philippines), TSCA (United States).

One or more components has been notified but may not be listed in the following chemical inventories: DSL (Canada). Secondary notification by the importer may be required.

WHMIS CLASSIFICATION:

This product is not considered a controlled product according to the criteria of the Canadian Controlled Products Regulations.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations. (See Hazardous Products Act (HPA), R.S.C. 1985, c.H-3,s.2).

MSDS PREPARATION:

This Material Safety Data Sheet has been prepared by the Toxicology and Health Risk Assessment Unit, ERTC, P.O. Box 1627, Richmond, CA 94804, (888)676-6183.

Revision Date: July 31, 2009

SECTION 16 OTHER INFORMATION

HMIS RATINGS: Health: 1 Flammability: 1 Reactivity: 0

LABEL RECOMMENDATION:

Label Category : ENGINE OIL 1 - ENG1

REVISION STATEMENT: This revision updates the following sections of this Material Safety Data Sheet: 9,11,12,14,15,16

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 Government 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

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

WHMIS (Pictograms)	WHMIS (Classification)	Personal protective equipment
	Class D-2A: Material causing other toxic effects (Very toxic).	

Section 1. Product and Company Identification

Product name / Trade name	Diesel Radiator Antifreeze	**Associated Product's Item Code**	15-254
Synonym	Not available.	**CAS #**	Not applicable.
Chemical family	Glycol.	**Validation date**	Feb. 20 2009
Chemical formula	Not applicable.	**Print date**	Feb. 20 2009
Manufacturer	Recochem Inc. 850 Montee de Liesse Montreal, Quebec H4T 1P4 (514) 341-3550 www.recochem.com	**In case of emergency**	Recochem Inc. Communications and Regulatory Affairs Department (905) 791-1788
Material uses	Industrial applications: Coolant and antifreeze formulations.		

Section 2. Hazards identification

Emergency Overview

MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

May cause target organ damage, based on animal data.

Potential Acute Health Effects

See section 11 for more detailed information on health effects and symptoms.

Toxic by ingestion. May cause abdominal discomfort or pain, nausea, vomiting, dizziness, central nervous system effects and coma. Cardiac failure, pulmonary edema and severe kidney damage may develop.
May cause mild eye irritation.
May cause mild skin irritation.
Unlikely to be inhaled because of physical characteristics, however, heated material may produce vapours, which may cause irritation to lungs if inhaled excessively. Inhalation, particularly of mist, may cause irritation of the nose and throat with headache. High vapour concentrations may produce nausea, vomiting, headache, dizziness and irregular eye movement.

Note to Physician

The signs and symptoms in ethylene glycol poisoning are those of metabolic acidosis, central nervous system depression and kidney injury. Clinical chemistry may reveal anion-gap metabolic acidosis and uremia. Treatment with ethanol to inhibit the metabolism of glycol to oxalate.Early administration of ethanol may counter the toxic effects of ethylene glycol (cardiopulmonary effects attributed to metabolic acidosis and renal damage).
Hemodialysis or peritoneal dialysis have been of benefit
Pre-existing respiratory and skin disorders may be aggravated by over-exposure to this product.
Treat symptomatically and supportively.

Continued on next page

Section 3. Composition, information on ingredients

Canada

Name	CAS number	%
ethanediol	107-21-1	90 - 99

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.

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 adverse health effects persist or are severe. 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 if adverse health effects persist or are severe. 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	See section 2 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	Emits acrid smoke and irritating fumes when heated to decomposition.May be combustible at high temperature.
Explosion Hazards	Not a product presenting risks of explosion.

Continued on next page

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 breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage

Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls, personal protection

Engineering controls

No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

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
Canada	
ethanediol	**ACGIH (Canada, 2003).** CEIL: 100 mg/m³ **CA Alberta Provincial (Canada, 10/2006).** 15 min OEL: 100 mg/m³ 15 minute(s). Form: aerosol **CA British Columbia Provincial (Canada, 7/2007).** STEL: 100 mg/m³ 15 minute(s). Form: Aerosol TWA: 10 mg/m³ 8 hour(s). Form: Particulate

Continued on next page

STEL: 20 mg/m³ 15 minute(s). Form: Particulate
STEL: 50 ppm 15 minute(s). Form: Vapour
CA Ontario Provincial (Canada, 3/2007).
CEV: 100 mg/m³
CA Quebec Provincial (Canada, 12/2006).
STEV: 50 ppm 15 minute(s). Form: vapour and mist
STEV: 127 mg/m³ 15 minute(s). Form: vapour and mist

United States

ethanediol

ACGIH TLV (United States, 1/2007).
C: 100 mg/m³ Form: Aerosol
OSHA PEL 1989 (United States, 3/1989).
CEIL: 50 ppm
CEIL: 125 mg/m³

Section 9. Physical and chemical properties

Physical State and Appearance	Clear viscous liquid.	**Odour**	Odourless.
Molecular weight	62.07 g/mole	**Taste**	Sweet.
pH	Not available.	**Colour**	Green.
Boiling/condensation point	197°C (386.6°F)	**Volatility**	0% (w/w).
Melting/freezing point	-13°C (8.6°F)	**Evaporation rate**	0.01 compared to Butyl acetate.
Relative density	1.12 to 1.15	**Odour Threshold**	Not available.
Vapour Pressure	0.06 mm of Hg (@ 20°C)	**Viscosity**	Not available.
Vapour Density	2.1 (Air = 1)	**Solubility**	Soluble in water, methanol, diethyl ether.
VOC Content	1115 (g/l).	**Other Properties**	Not available.

The product is:	May be combustible at high temperature.
Auto-ignition temperature	400°C (752°F)
Flash Point	Values for 100% EG Closed cup: 116°C (240.8°F) [Tagliabue.] Open cup: 115.6°C (240.1°F) [Cleveland]
Flammable limits	Lower: 3.2% Upper: 15.3%
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

Continued on next page

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	No additional remark.
Incompatibility with various substances	Reactive with oxidizing agents, acids, alkalis.
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
ethanediol	LD50 Dermal	Rabbit	9500 mg/kg	-
	LD50 Dermal	Rabbit	9530 uL/kg	-
	LD50 Intraperitoneal	Rat	5010 mg/kg	-
	LD50 Intravenous	Rat	3260 mg/kg	-
	LD50 Oral	Rat	4700 mg/kg	-
	LD50 Oral	Rat	4000 mg/kg	-
	LD50 Subcutaneous	Rat	2800 mg/kg	-
	LD50 Unreported	Rat	13 g/kg	-
	LDLo Intramuscular	Rat	3300 mg/kg	-
	LDLo Intravenous	Rat	2800 mg/kg	-
	LDLo Intramuscular	Rat	3300 mg/kg	-
	TDLo Oral	Rat	1110 mg/kg	-
	TDLo Oral	Rat	5000 mg/kg	-
	TDLo Oral	Rat	120 mg/kg	-
	TDLo Oral	Rat	1000 mg/kg	-
	TDLo Subcutaneous	Rat	3000 mg/kg	-

Conclusion/Summary : Toxic for humans or animal life.

Chronic toxicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Exposure can cause dermatitis.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
ethanediol	A4	-	-	-	-	-

Mutagenicity

Conclusion/Summary : Not available.

Continued on next page

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 : This product shows a low bioaccumulation potential.

Canada

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
ethanediol	Daphnia.	Acute EC50 >100 mg/L	Daphnia	4 hours
	Algae.	Acute IC50 >100 mg/L	Algae	1 hours
	Fish.	Acute LC50 >100 mg/L	Fish	24 hours
	-	Acute LC50 27540 mg/L Fresh water	Fish - Lepomis macrochirus	96 hours
	-	Acute LC50 >100 ml/L Fresh water	Fish - Lepomis macrochirus	96 hours
	-	Acute LC50 41 to 47 ml/L Fresh water	Fish - Oncorhynchus mykiss	96 hours
	-	Acute LC50 16 to 18 ml/L Fresh water	Fish - Oncorhynchus mykiss	96 hours
	-	Acute LC50 >18500 mg/L Fresh water	Fish - Oncorhynchus mykiss	96 hours
	-	Acute LC50 10500000 to 12700000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 10000000 to 12300000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 >10000000 ug/L Fresh water	Fish - Pimephales promelas	96 hours
	-	Acute LC50 >10000000 ug/L Fresh water	Daphnia - Daphnia magna	48 hours
	-	Acute LC50 8050000 ug/L	Fish - Pimephales promelas	96 hours

Continued on next page

		Fresh water		
	-	Acute LC50 6900000 to 8800000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 49000000 to 60000000 ug/L Fresh water	Fish - Pimephales promelas	96 hours
	-	Acute LC50 22600000 to 26500000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 25500000 to 29800000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 13900000 to 16600000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 13140000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Chronic NOEC 11610000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Chronic NOEC 24000000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 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	Not applicable.
UN number	Not applicable.
Packing Group	Not applicable.
Special provisions	Not applicable.
IMDG Classification	
Class	Not controlled under IMDG.
Subsidiary class	Not applicable.
Proper Shipping Name IMDG	Not applicable.
UN number	Not applicable.
Packing Group	Not applicable.
Marine pollutant	Not a pollutant.
Special provisions	Not applicable.
United States DOT (Classification)	
Class	Class 9: Miscellaneous hazardous material.
Subsidiary class	-
Proper Shipping Name (United States) DOT	Environmentally hazardous substance, liquid, n.o.s. (Ethylene glycol)
UN number	UN 3082
Packing Group	III
Special provisions	In single containers of 5000 lbs capacity or less this product is exempt from DOT regulations (not regulated). Does not require label or placards. Reportable Quantity (RQ)= 5000 lbs (2268 kg) (as ethylene glycol) For bulk shipments equal to or greater than Reportable Quantity (RQ), please adhere to classification as outlined in DOT Classification section.
International Air Transport Association (IATA)	For air shipment classification and associated regulations, please refer to the latest edition of IATA Dangerous Goods Regulations.

Continued on next page

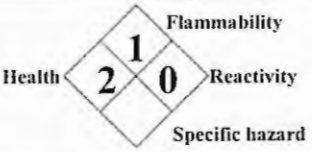
Section 15. Regulatory information

WHMIS Classification (Canada)	Class D-2A: Material causing other toxic effects (Very 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.

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

Health	2
Flammability	1
Reactivity	0
Personal protection	B

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



Section 16. Other information

Validated and verified by Compliance and Technical Information Manager Feb. 20 2009 **ph.# 905-791-1788.** | **Printed** Feb. 20 2009

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

SECTION I-MATERIAL IDENTIFICATION AND USE

Material Name/Identifier:	Dot 3 Heavy Duty Brake Fluid	Stock No.	525/527/528/529/530
Manufacturer's Name:	Kleen-Flo Tumbler Industries Ltd	Street Address:	75 Advance Blvd.
City:	Brampton	Province:	Ontario
Postal Code:	L6T 4N1	Emergency Phone #:	(905) 793-4311
Chemical Name:	mixture (N.Ap.)	Chemical Family:	Glycol ether
Chemical Formula:	mixture (N.Ap.)	Trade Names & Synonyms:	none
Material Use:	Brake fluid	Molecular Weight:	mixture (N.Ap.)

SECTION II-HAZARDOUS INGREDIENTS OF MATERIAL

Hazardous Ingredients	C.A.S.	Approximate % Concentration	LD50 Species & Route	LC50 Species & Route
Triethylene glycol monoethyl ether	112-50-5	15 - 40	7750 mg/kg rat-oral	N/Av.
Triethylene glycol monobutyl ether	143-22-6	10 - 30	3500 mg/kg rabbit-dermal	>200ppm (1hr) rat-inhal
Triethylene glycol monomethyl ether	112-35-6	10 -30	7400mg/kg rabbit-dermal	N/Av.
Tetraethylene glycol	112-60-7	10 -30	22460mg/kg rabbit-dermal	N/Av.
Polyethylene glycol monomethyl ether	9004-74-4	5 - 15	7400mg/kg rabbit-dermal	N/Av.
Polyethylene glycol monombutyl ether	9004-77-7	1 - 10	3500mg/kg rabbit-dermal	N/Av.
Pentaethylene glycol	4792-15-8	1 - 10	20000mg/kg rabbit-dermal	N/Av.
Triethylene glycol	112-27-6	1 - 10	18016mg/kg rabbit-dermal	4.5mg/L(4hr) rat-inhal
Poly(ethylene oxide)	25322-68-3	1 - 5	>20000mg/kg rabbit-dermal	N/Av.
Diethylene glycol	111-46-6	1 - 5	12510mg/kg rabbit-dermal	4.4mg/L (4hr) rat-inhal
Diethylene glycol monobutyl ether	112-34-5	1 - 5	4000 mg/kg rabbit-dermal	N/Av.
Tetraethylene glycol monoethyl ether	5650-20-4	1 - 5	N/Av.	N/Av.
Hexaethylene glycol	2615-15-8	1 - 5	N/Av.	N/Av.
Sodium phosphate	7601-54-9	1 - 5	N/Av.	N/Av.
Sodium Hydroxide	1310-73-2	0.1 - 1	N/Av.	N/Av.
Diisopropanolamine	110-97-4	0.1 - 1.5	8000mg/kg rabbit-dermal	N/Av.
Potassium dihydrogen phosphate	7778-77-0	1 - 5	N/Av.	N/Av.
Phosphoric acid monosodium salt	7558-80-7	1 - 5	>5000mg/kg rabbit-dermal	N/Av.
Phosphoric acid	7664-38-2	0.1 - 1	N/Av.	N/Av.

SECTION III-PHYSICAL DATA FOR MATERIAL

Physical State:	Liquid	Odour/Appearance:	Mild etheral odour, transparent yellow colour
Specific Gravity:	1.018	Odour Threshold(p.p.m.):	N/E
Boiling Point:	262 °C	Evaporation Rate:	N/E
Pour Point	- 51oC	Solubility in Water:	Soluble
% Volatile(by volume):	N/Av.	Vapour Pressure(mm)Hg:	N/E
Vapour Density(Air=1):	6	Coefficient of Water/Oil Distrib. :	N/E
pH:	8 - 11.5		

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: carbon dioixde, dry chemicals, foam	
Flashpoint and Method:	135 oC PMcc	Hazardous Combustion Products: Carbon monoxide,	
		carbon dioxide, and oxides of nitrogen	
Upper Flammable limit (%vol)	N/E	Lower Flammable Limit (% by volume):	N/E
Explosion Data:	Sensitivity to mechanical impact: No.	Sensitivity to Static Discharge:	No.

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? Avoid stronge alkalies at high temp, strong	
		acids and oxidizing agents	
Reactivity and under what conditions?	Stable under normal conditions		
Hazardous Decomposition Products:	Carbon monoxide or carbon dioxide on burning		

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:	Headache, dizziness, nausea, vomiting, cough, pulmonary edema. Skin contact may cause slight irritation.		
	Prolonged or repeated contact may cause defatting and drying of the skin		
Effects of Chronic Exposure:	Contains one or more amines which may react with nitrites to form nitrosamines.		
	Some nitrosamines have been shown to be carcingenic in laboratory animals.		
Irritancy of Product:	eye irritant	Exposure Limits of Product:	N/E
Sensitization of Product:	N/E	Toxicologically Synergistic Materials:	N/E
--CARCINOGENICITY --REPRODUCTIVE EFFECTS --TERATOGENICITY --MUTAGENICITY			none known

SECTION VII-PREVENTIVE MEASURES

Personal Protective Equipment to be used:

Gloves(specify):	PVC-coated, nitrile or viton	Eye (specify):	Safety Glasses
Respiratory(specify):	Not required in normal use	Clothing:	Not required
Respiratory Protection:	If used indoors or on a continuous basis, use of cartridge type respirator is recommended		
Engineering Controls:	Local and mechanical ventilation if operated on a continuous period.		
Leak and Spill Procedure:	For large spills, collect and contain for disposal.		
	Small spills could be flushed with large quantities of water.		
Waste Disposal:	Dispose according to local government regulations		
Storage Requirements:	Store at room temperature. Keep lid tightly closed on when not in use		
Handling Procedures and	PROCESS HAZARD: Do not operate brake fluid at elevated temperature and pressure or with		
equipment:	sudden ingress of air into vacuum equipment, it may result in ignitions without the presence of		
	an obvious ignition source. Any use of this product in elevated temperature processes should be		
	thoroughly evaluated to maintain safe operating conditions.		
DSL & TSCA:	The ingredients of this product are listed on the DSL.		
TDG Classification:	Not regulated		
WHMIS Classification:	Consumer Commodity: 525/526/527/528/529 D2B: 530/531		

SECTION VIII-FIRST AID MEASURES

Eye:	Flush with plenty of water for 15 minutes. Consult an ophthalmologist.
Skin:	Remove contaminated clothing. Wash with soap and water.
Inhalation	No emergency care is anticipated. Move person to fresh air; if effects occur, consult a physician.
Ingestion:	If patient is conscious, give two glasses of water. DO NOT INDUCE VOMITING.
	This should be done by trained medical personnel. Obtain medical attention.

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

Additional Info/Comments:		Sources Used:	Dow Chemical Company.
Phone Number:	(905) 793-4311	Prepared By:	Quality Control Laboratory
Date Prepared:	July 20, 2010		Kleen-Flo Tumbler Industries Limited

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

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

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: UNITED FARMERS OF ALBERTA HYDRAULIC OIL XL L
Product Description: Base Oil and Additives
MSDS Number: 15371
Intended Use: Hydraulic fluid

This product is

OBSOLETE

The MSDS cannot be updated

COMPANY IDENTIFICATION

Supplier: Imperial Oil Products Division
240 4th Avenue
Calgary, ALBERTA. T2P 3M9 Canada

24 Hour Environmental / Health Emergency Telephone	519-339-2145
Transportation Emergency Phone Number	519-339-2145
Product Technical Information	1-800-268-3183
Supplier General Contact	1-800-567-3776

SECTION 2 COMPOSITION / INFORMATION ON INGREDIENTS

No Reportable Hazardous Substance(s) or Complex Substance(s).

SECTION 3 HAZARDS IDENTIFICATION

This material is not considered to be hazardous according to regulatory guidelines see Section 15.

HEALTH EFFECTS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. High-pressure injection under skin may cause serious damage.

NFPA Hazard ID:	Health: 0	Flammability: 1	Reactivity: 0
HMIS Hazard ID:	Health: 0	Flammability: 1	Reactivity: 0

Note: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 4 FIRST AID MEASURES

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

Wash contact areas with soap and water. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

EYE CONTACT

Flush thoroughly with water. If irritation occurs, get medical assistance.

INGESTION

First aid is normally not required. Seek medical attention if discomfort occurs.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Unusual Fire Hazards: Pressurised mists may form a flammable mixture.

Hazardous Combustion Products: Smoke, Fume, Sulphur Oxides, Aldehydes, Oxides of carbon, Incomplete combustion products

FLAMMABILITY PROPERTIES

Flash Point [Method]: 200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D

SECTION 6 ACCIDENTAL RELEASE MEASURES

NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do so without risk. Recover by pumping or with suitable absorbent.

Water Spill: Stop leak if you can do so without risk. Confine the spill immediately with booms. Warn other

shipping. Remove from the surface by skimming or with suitable absorbents. Seek the advice of a specialist before using dispersants.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7 HANDLING AND STORAGE

HANDLING

Prevent small spills and leakage to avoid slip hazard.

Static Accumulator: This material is a static accumulator.

STORAGE

Do not store in open or unlabelled containers.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits/standards for materials that can be formed when handling this product: When mists / aerosols can occur, the following are recommended: 5 mg/m³ - ACGIH TLV, 10 mg/m³ - ACGIH STEL.

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

No special requirements under ordinary conditions of use and with adequate ventilation.

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate,

gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Work conditions can greatly effect glove durability; inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:
No protection is ordinarily required under normal conditions of use.

Eye Protection: If contact is likely, safety glasses with side shields are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:
No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practise good housekeeping.

ENVIRONMENTAL CONTROLS
See Sections 6, 7, 12, 13.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Typical physical and chemical properties are given below. Consult the Supplier in Section 1 for additional data.

GENERAL INFORMATION
Physical State: Liquid
Form: N/D
Colour: pale yellow
Odour: Characteristic
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION
Relative Density (at 15 °C): 0.86
Flash Point [Method]: 200°C (392°F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: 0.9 UEL: 7.0
Autoignition Temperature: N/D
Boiling Point / Range: 322°C (612°F) - 615°C (1139°F)
Vapour Density (Air = 1): N/D
Vapour Pressure: [N/D at 20°C] | < 1 kPa (7.5 mm Hg) at 38°C
Evaporation Rate (N-Butyl Acetate = 1): < 0.1
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: 32 cSt (32 mm²/sec) at 40°C
Oxidizing properties: See Sections 3, 15, 16.

OTHER INFORMATION
Freezing Point: N/D
Melting Point: N/A
Pour Point: -33°C (-27°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 assessment of the components.
Irritation: No end point data.	Negligible hazard at ambient/normal handling temperatures. Based on assessment of the components.
INGESTION	
Toxicity (Rat): LD50 > 2000 mg/kg	Minimally Toxic. Based on test data for structurally similar materials.
Skin	
Toxicity (Rabbit): LD50 > 2000 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 assessment of the components.
Eye	
Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.

CHRONIC/OTHER EFFECTS

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 sensitising in test animals.

Additional information is available by request.

CMR Status: None.

--REGULATORY LISTS SEARCHED--

1 = IARC 1
2 = IARC 2A
3 = IARC 2B
4 = ACGIH ALL
5 = ACGIH A1
6 = ACGIH A2

SECTION 12 ECOLOGICAL INFORMATION

The information given is based on data available for the material, the components of the material, and similar materials.

ECOTOXICITY

Material -- Not expected to be harmful to aquatic organisms.

MOBILITY

Base oil component -- Low solubility and floats and is expected to migrate from water to the land. Expected to partition to sediment and wastewater solids.

PERSISTENCE AND DEGRADABILITY

Biodegradation:

Base oil component -- Expected to be inherently biodegradable

BIOACCUMULATION POTENTIAL

Base oil component -- Has the potential to bioaccumulate, however metabolism or physical properties may reduce the bioconcentration or limit bioavailability.

SECTION 13 DISPOSAL CONSIDERATIONS

Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Product is suitable for burning in an enclosed controlled burner for fuel value or disposal by supervised incineration at very high temperatures to prevent formation of undesirable combustion products.

REGULATORY DISPOSAL INFORMATION

Empty Container Warning (where applicable): Empty containers may retain residue and can be dangerous. 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. Do not attempt to refill or clean container since residue is difficult to remove. Empty drums should be completely drained, properly bunged and promptly returned to a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations.

SECTION 14 TRANSPORT INFORMATION

LAND (TDG) : Not Regulated for Land Transport

LAND (DOT) : Not Regulated for Land Transport

SEA (IMDG) : Not Regulated for Sea Transport according to IMDG-Code

AIR (IATA) : Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

WHMIS Classification: Not controlled

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the (M)SDS contains all the information required by the Controlled Products Regulations.

CEPA: All components of this material are either on the Canadian Domestic Substances List (DSL), exempt, or have been notified under CEPA.

NATIONAL CHEMICAL INVENTORY LISTING: DSL, TSCA

The Following Ingredients are Cited on the Lists Below: None.

--REGULATORY LISTS SEARCHED--

1 = TSCA 4	3 = TSCA 5e	5 = TSCA 12b
2 = TSCA 5a2	4 = TSCA 6	6 = NPRI

SECTION 16 OTHER INFORMATION

N/D = Not determined, N/A = Not applicable

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:
No revision information is available.

WHMIS Classification: Not controlled

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DGN: 5013635 (1011690)

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