APPENDIX 10:

HOPE LAKE
REMEDIATION PROJECT

SPILL CONTINGENCY PLAN

E. Gruben's Transport Ltd.

Fuel Contingency Plan

Remediation of Hope Lake, NU

Summer 2012 Project Component

March 29, 2012

Introduction

The objective of the project is to remediate and restore three small remote arctic mining exploration sites collectively known as Hope Lake. These include the main Hope Lake site located at 67° 26' 30" N, 116° 28' 00" W in the Kitikmeot Region of Nunavut, approximately 75 kilometers southwest of the community of Kugluktuk NU as well as two peripheral sites, Husky Creek and Willow Creek. Husky Creek is located approximately 20 kilometers northeast of Hope Lake and Willow Creek is located approximately 22 kilometers southeast of Hope Lake. The work to be conducted in the summer of 2012 will be based out of Kugluktuk and the Hope Lake main site will be the base of field operations. Crews will be flown from Kugluktuk to the sites daily by rotary wing aircraft.

E. Gruben's Transport Ltd. (EGT) of Tuktoyaktuk is the prime contractor on this project. Responsibility and authority for the remediation of the Hope Lake sites rests with Aboriginal Affairs and Northern Development Canada (AANDC) who have retained the services of Public Works and Government Services Canada (PWGSC) to provide technical support, contract administration and site supervision. Activities related to the sites and the project are subject to the terms of the Nunavut Comprehensive Land Claims Agreement. EGT is responsible for the overall project management, logistics and the completion of the remediation activities.

The work to be conducted during the Summer 2012 component of the project requires fixed wing aircraft to deploy materials, equipment and fuel to the main Hope Lake site and rotary wing aircraft to move personnel, small equipment and materials between Kugluktuk and Hope Lake and between Hope Lake and the smaller Husky Creek and Willow Creek sites. There is a small usable airstrip at Hope Lake but there are no existing airstrips at Husky Creek or Willow Creek. Work crews will be moved to and from Kugluktuk daily. All fuel utilized during the Summer 2012 component of the project will be transported and contained in new 205 liter drums. Fuel required will include Jet A and/or Jet B for helicopter refueling and gasoline for the operation of All-Terrain Vehicles, for portable generators used to run small power tools and for gasoline-powered tools such as chainsaws and cut-off saws. With the exception of emergency shelters there will be no camps at the sites in the summer of 2012 and there will be no heavy equipment at the sites in the summer of 2012.

Helicopter refueling operations will be concentrated in Kugluktuk as much as possible, both for project cost effectiveness and to minimize fuel storage requirements at Hope Lake. Because we will try to maximize refueling out of Kugluktuk we will move as few drums to the Hope Lake site as possible and have arranged with our fixed wing contractor the shipment of 14 drums (2870 litres) to the site per week over the approximately 4 weeks of the summer 2012 component of the project. We fully expect that with careful planning we will be able to supply less than this total to the site and consume more from Kugluktuk. It is not anticipated that any fuel will be stored at the two peripheral sites, Husky Creek and Willow Creek, except for gasoline required for the day's activities at the sites. We expect to require approximately 4 drums of gasoline during the duration of the project for all uses at the three sites. We expect to not have more than 16 drums (3280 liters) of helicopter fuel and gasoline on site at any one time. If we were to run

out of fuel between weekly resupply flights we would simply sling in 2 drums beneath the helicopter from Kugluktuk.

Summer 2012 work to take place at the smaller Husky Creek and Willow Creek sites will include debris pickup and packaging, manual excavation and containerization of small quantities of contaminated soils, incineration of untreated wood and the collection and containerization of drums for transportation by helicopter to the Hope Lake site for further sampling and processing. Work at the Hope Lake site will consist of the handling of drums and debris arriving from the other two sites as well as the consolidation and sampling of drums from the Hope Lake site itself.

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.

Jet fuel and gasoline for the project will be transported and stored in 205 liter drums. The drums will be individually identifiable, labeled to industry standards and all information necessary for health, safety and environmental purposes will be available. Appropriate MSDS will be maintained at site. All barrels will be stored in accordance with the Land Use Permit, and labeled with EGT's name.

All fueling activities will be conducted by properly trained staff, and only those personnel authorized will be permitted to dispense fuel. Helicopter refueling will be conducted by the helicopter pilot with the assistance of other work personnel under the pilot's direction. Refueling will not take place within 30 meters 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, empty drums, and absorbent materials sufficient to cleanup a 1000 liter spill will be positioned at fuel storage sites. Smoking will be strictly prohibited within 100 meters of this area and No-Smoking signs will be posted. Spill trays will be utilized during refueling operations. All mobile equipment will be equipped with spill kits.

The fuel storage locations will be located adjacent to the airstrip at the Hope Lake main site with sufficient separation between helicopter fuel and gasoline so that neither refueling operation will interfere with the other. This area appears to be relatively level, high and dry and, since all summer 2012 fuel will be arriving by fixed-wing aircraft at the airstrip, will require the least possible movement of drums around the site. This area also appears to be considerably greater than 30 meters from the closest body of water.

Drums will be stored on site on raised platforms made from pallets and will be placed either; upright and banded together or on their sides with bungs at 3:00 o'clock and 9:00 o'clock positions. Only one drum of gasoline will be dispensed from at any time, and no drums will be

opened until the previous drum contents have been used. For helicopter refueling, two drums may be required at a single maximum refueling operation, but no more drums than are required to maintain the refueling operation will be opened at a time. Jerry cans used for refueling gasoline powered tools will be stored in drip trays when not in use and refueling will also take place in drip trays. Spill kits and fire extinguishers will be kept on hand for these refueling operations as well.

There will be no requirement for bulk storage of oils, lubes or antifreeze during summer 2012 operations. It is expected that we will require small quantities of motor oil, 2-cycle engine oil, chain oil and white gas (Coleman fuel). These will be supplied to the site in 1 liter and 4 liter jugs. Oils, lubes and white gas will be stored in a lined wooden seacan.

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 could be spilled on site are as follows:

- Jet Fuel – MSDS attached
- Gasoline – MSDS attached
- Engine Oil – MSDS attached
- Two-cycle Engine Oil – MSDS attached
- Chain Oil – MSDS attached
- White Gas (Coleman Fuel) – MSDS attached

The Site Superintendent will inspect all fuel storage areas 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. It will include the directions and methods of contacting and acquiring emergency medical transportation to the nearest or most appropriate medical center. If required, medical aid will be provided by the onsite trained first aid personnel.

Fuel storage/refueling areas will have more substantial “drum” spill kits as well as extra overpack drums on hand. ATVs will carry small portable spill kits. All crews on site will have hand-held radio communication. Two satellite phones will also be on site at all times.

All spills will be reported and recorded for internal records. Minor spills will be reported to the Site Superintendent by radio. The Site Superintendent will assess the situation, including the potential risks to personnel, and will decide on the most appropriate immediate response. This may be as simple as applying sorbent pads or shoveling of soil into plastic bags for transfer to a sea-can with hydro-carbon resistant liner.

A larger, more catastrophic spill would result in Emergency Response Procedures. Because we will have no bulk storage of any fuel on site, this is an extremely unlikely event. For a larger spill, 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 Site Superintendent will take control of the situation.

The response to a larger spill may involve allocating greater numbers of personnel to the task. Appropriate PPE for the task will be checked and a Job Safety Analysis will be completed. The hazard assessment will reference the applicable MSDS 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 personal protective equipment is worn.
- Stop flow at source of spill – use ready mixed sealing compound to seal holes or fractures in containers, drums, bungs.
- Attempt to limit immediate spread of spill. Prevent off-site migration by surface runoff by placing sorbent materials to form a runoff barrier and/or by shoveling small berms and lining with poly barrier and sorbents.
- Priority should be given to protecting any water bodies.

Priority 3 – Notify Site Superintendent

- Notify Site Superintendent 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 Superintendent to assess spill response classification and appropriate means of clean-up.
- Site Superintendent to notify Departmental Representative and 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.
The Site Superintendent will monitor spill and co-ordinate clean-up operations. He will also 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 and/or overpack drums are available near spill site.
- Absorbent pads should be spread on any remaining fuel that cannot be pumped or manually removed.
- Fuel soaked absorbents will be picked up and placed in plastic bags or empty drums.
- Contaminated soil or 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.
- 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 Superintendent 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 – Possible off-site assistance may be required.

As well as 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:
Bundles (100 ea.) sorbent pads,
Polyethylene over-pack drums
"floor-dry" sorbent
Wooden 2.3 cubic meter sea-cans
Hydrocarbon resistant sea-can liners
6 mil poly sea-can liners
Fuel transfer pumps
Empty steel drums
Sorbent booms, shovels, 6 mil poly bags

A spill kit, containing items from the above list, including shovels, barrels and 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 and the use of spill kits and their contents including the use of plugs and plugging compounds; and reporting requirements

Reporting

All spills regardless of quantity will be reported to the on-site Departmental Representative, EGT CEO/Project Manager, EGT Superintendent 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.

If applicable 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 with the Site Superintendent.

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, Superintendent of Operations and the Safety Officer will provide advice, logistical and technical support and financial authority to respond to any unplanned event or spill as required.

Chief Executive Officer/Project Manager	**TEL: 867-977-7008**
Russell Newmark	**CEL: 867-678-0040**
Superintendent of Operations	**TEL: 867-977-7017**
Doug Saunders	**CEL: 867-678-0045**
Site Superintendent	**Handheld radio Chan 31**
Jim Stevens - Onsite	
Safety/Loss Control Manager	**TEL: 867-977-7014**
Randy G. Hein	**CEL: 403-638-9636**

Other useful contact numbers include:

GNU, Environmental Protection	867-975-6000
GNU, Water Board	867-360-6338
AANDC Manager of Field Operations	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.

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			

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: **EASYMIX 2-CYCLE MOTOR OIL**
Product Description: Base Oil and Additives
MSDS Number: 2858
Intended Use: Two cycle engine oil

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

Reportable Hazardous Substance(s) or Complex Substance(s)

Name	CAS#	Concentration*	Acute Toxicity
HYDROTREATED LIGHT DISTILLATE	64742-47-8	20 - 30%	Dermal Lethality: LD50 > 3000 mg/kg (Rabbit); Oral Lethality: LD50 > 5000 mg/kg (Rat)

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 3 HAZARDS IDENTIFICATION

This material is considered to be hazardous according to regulatory guidelines (see (M)SDS Section 15).

PHYSICAL/CHEMICAL EFFECTS

Combustible. Material can release vapours that readily form flammable mixtures. Vapour accumulation could flash and/or explode if ignited. Material can accumulate static charges which may cause an incendiary electrical discharge.

HEALTH EFFECTS

Low order of toxicity. Excessive exposure may result in eye, skin, or respiratory irritation. Breathing of high vapour concentrations may cause dizziness, light-headedness, headache, nausea and loss of co-ordination. Continued inhalation may result in unconsciousness.

NFPA Hazard ID:	Health:	0	Flammability:	2	Reactivity:	0
HMIS Hazard ID:	Health:	0	Flammability:	2	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.

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: Combustible.

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

FLAMMABILITY PROPERTIES

Flash Point [Method]: >65C (149F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
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: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. All equipment used when handling the product must be grounded. Do not touch or walk through spilled material. Prevent entry into waterways, sewer, basements or confined areas. A vapour-suppressing foam may be used to reduce vapour. Use clean non-sparking tools to collect absorbed material. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Large Spills: Water spray may reduce vapour, but may not prevent ignition in enclosed spaces. 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

Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Use proper bonding and/or earthing procedures. Prevent small spills and leakage to avoid slip hazard. Material can accumulate static charges which may cause an electrical spark (ignition source).

Static Accumulator: This material is a static accumulator.

STORAGE

Keep container closed. Handle containers with care. Open slowly in order to control possible pressure release. Store in a cool, well-ventilated area. Storage containers should be earthed and bonded. Drums must be earthed and bonded and equipped with self-closing valves, pressure vacuum bungs and flame arresters.

SECTION 8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Substance Name	Form	Limit/Standard			Note	Source
HYDROTREATED LIGHT DISTILLATE	Vapour.	TWA	1200 mg/m3	184 ppm		Supplier
HYDROTREATED LIGHT DISTILLATE [total hydrocarbon vapour]	Non-Aerosol	TWA	200 mg/m3		Skin	ACGIH

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:

Use explosion-proof ventilation equipment to stay below exposure limits.

PERSONAL PROTECTION

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

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

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

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

No protection is ordinarily required under normal conditions of use.

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

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

No skin protection is ordinarily required under normal conditions of use. In accordance with good industrial hygiene practices, precautions should be taken to avoid skin contact.

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

ENVIRONMENTAL CONTROLS

See Sections 6, 7, 12, 13.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

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

GENERAL INFORMATION

Physical State: Liquid
Colour: green
Odour: Characteristic
Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 C): 0.86
Flash Point [Method]: >65C (149F) [ASTM D-92]
Flammable Limits (Approximate volume % in air): LEL: N/D UEL: N/D
Autoignition Temperature: N/D
Boiling Point / Range: 150C (302F) - 615C (1139F)
Vapour Density (Air = 1): N/D
VAPOUR PRESSURE: 4.2 kPa (31.5 mm Hg) at 20°C
Evaporation Rate (N-Butyl Acetate = 1): < 1
pH: N/A
Log Pow (n-Octanol/Water Partition Coefficient): > 3.5
Solubility in Water: Negligible
Viscosity: [N/D at 40°C]
Oxidizing properties: See Sections 3, 15, 16.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A
Pour Point: -39°C (-38°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: Heat, sparks, flame, and build up of static electricity.

MATERIALS TO AVOID: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute Toxicity

Route of Exposure	Conclusion / Remarks
INHALATION	
Toxicity (Rat): LC50 > 5000 mg/m³	Minimally Toxic. Based on test data for structurally similar materials.
Irritation: No end point data.	Elevated temperatures or mechanical action may form vapours, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs. 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 test data for structurally similar materials.
Eye	
Irritation (Rabbit): Data available.	May cause mild, short-lasting discomfort to eyes. Based on test data for structurally similar materials.

CHRONIC/OTHER EFFECTS

For the product itself:

Vapour/aerosol concentrations above recommended exposure levels are irritating to the eyes and respiratory tract, may cause headaches, dizziness, anaesthesia, drowsiness, unconsciousness and other central nervous system effects including death.

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.

Chemical Name	CAS Number	List Citations
HYDROTREATED LIGHT DISTILLATE	64742-47-8	4

--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

More volatile component -- Highly volatile, will partition rapidly to air. Not expected to partition to sediment and wastewater solids.

High molecular wt. 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:

Majority of components -- Expected to be inherently biodegradable

Atmospheric Oxidation:

More volatile component -- Expected to degrade rapidly in air

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 Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14 TRANSPORT INFORMATION

LAND (TDG) : Not Regulated for Land Transport

LAND (DOT)

Proper Shipping Name: COMBUSTIBLE LIQUID, N.O.S. (HYDROTREATED LIGHT DISTILLATE)
Hazard Class & Division: COMBUSTIBLE LIQUID
ID Number: NA1993
Packing Group: III
ERG Number: 128
Label(s): NONE
Transport Document Name: COMBUSTIBLE LIQUID, N.O.S. (Hydrotreated Light Distillate), COMBUSTIBLE LIQUID, NA1993, PG III

Footnote: This material is not regulated under 49 CFR in a container of 450 litre/119 gallon capacity or less when transported solely by land, as long as the material is not a hazardous waste, a marine pollutant, or specifically listed as a hazardous substance.

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

AIR (IATA) : Not Regulated for Air Transport

SECTION 15 REGULATORY INFORMATION

WHMIS Classification: Class B, Division 3: Combustible Liquids

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: AICS, DSL, KECI, TSCA
Special Cases:

Inventory	Status
ELINCS	Restrictions Apply
ENCS	Not determined
IECSC	Not determined
PICCS	Not determined

The Following Ingredients are Cited on the Lists Below:

Chemical Name	CAS Number	List Citations
DIPROPYLENE GLYCOL METHYL ETHER	34590-94-8	1

--REGULATORY LISTS SEARCHED--

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

SECTION 16 OTHER INFORMATION

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

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

Revision Changes:
Section 04: First Aid Eye - Header was modified.
Section 04: First Aid Ingestion - Header was modified.
Section 05: Fire Fighting Measures - Fire Fighting Instruction was modified.
Section 06: Notification Procedures - Header was modified.
Section 13: Empty Container Warning was modified.
Section 09: Phys/Chem Properties Note was modified.
Section 11: Ingestion Acute Lethality - Header was modified.
Section 09: Boiling Point C(F) was modified.
Section 08: Hand Protection was modified.
Section 09: Vapour Pressure - Header was modified.
Section 07: Handling and Storage-Handling was modified.
Hazard Identification: Physical/Chemical Hazard was modified.
Section 05: Hazardous Combustion Products was modified.
Section 06: Accidental Release- Spill Management- Water was modified.
Section 09: Relative Density - Header was modified.
Section 09: Flash Point C(F) was modified.
Section 15: National Chemical Inventory Listing - Header was modified.

Section 15: National Chemical Inventory Listing was modified.
Section 16: Health Hazards - Header was modified.
Section 16: Physical Hazards - Header was modified.
Section 08: Exposure Limits Table was modified.
Section 16: Water Spill was modified.
Section 15: List Citation Table - Header was modified.
Section 15: Special Cases - Header was added.
Section 15: Special Cases Table was added.
Section 15: Inventory - Header was added.
Section 15: Status - Header was added.
Section 15: Canadian List Citations Table was added.
Section 11: Chemical Name - Header was added.
Section 11: CAS Number - Header was added.
Section 11: List Citation - Header was added.
Section 11: Tox List Cited Table was added.
Section 15: Chemical Name - Header was added.
Section 15: CAS Number - Header was added.
Section 15: List Citations -Header was added.
Section 11: Chronic Tox - Component - WHMIS was added.
Section 11: Chronic Tox - Component - Header was added.
Section 11: Other Health Effects Header was added.
Composition: CAS Number was added.
Composition: Concentration - Header was added.
Composition: Primary Ingredient Name was added.
Composition: Substances Table - Header was added.
Composition: No components was added.
Composition: Concentration Footnote was added.
Section 08: OEL Table - Substance Name Column - Header was added.
Section 08: OEL Table - Form Column - Header was added.
Section 08: OEL Table - Limit Column - Header was added.
Section 08: OEL Table - Notation Column - Header was added.
Section 08: OEL Table - Source Column - Header was added.
Section 13: Regulatory Disposal Information - Header was added.
Section 13: Regulatory Disposal Information - Header was deleted.
Composition: Concentration Footnote was deleted.
Section 11: Other Health Effects Header was deleted.
Composition: Primary Ingredient Name was deleted.
Composition: CAS Number was deleted.
Composition: Concentration - Header was deleted.
Composition: Substances Table - Header was deleted.
Composition: No components was deleted.
Section 11: Chronic Tox - Component was deleted.
Section 11: Chronic Tox - Component - Header was deleted.
Section 08: OEL Table - Form Column - Header was deleted.
Section 08: OEL Table - Limit Column - Header was deleted.
Section 08: OEL Table - Notation Column - Header was deleted.
Section 08: OEL Table - Source Column - Header was deleted.
Section 08: OEL Table - Substance Name Column - Header was deleted.
Section 09: Form - Header was deleted.
Section 09: Physical State was deleted.

Precautionary Label Text:
WHMIS Classification: Class B, Division 3: Combustible Liquids

Health Hazards
May cause central nervous system depression.
Physical Hazards
Combustible. Material can accumulate static charges which may cause an incendiary electrical discharge.

PRECAUTIONS
Use proper bonding and/or earthing procedures.

FIRST AID
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.

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

Skin: Wash contact areas with soap and water.

FIRE FIGHTING MEDIA
Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

SPILL/LEAK
Land Spill: Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Stop leak if you can do so without risk. Prevent entry into waterways, sewer, basements or confined areas. A vapour-suppressing foam may be used to reduce vapour. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. 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. Report spills as required to appropriate authorities. Seek the advice of a specialist before using dispersants.
Use
Not intended or suitable for use in or around a household or dwelling.

DGN: 5003025 (1011886)

Prepared By: Imperial Oil Limited, IH and Product Safety

Material Safety Data Sheet

Lantern Fuel (Coleman)

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Calumet Lubricants Company
2780 Waterfront Pkwy E. Suite 200
Indianapolis, IN 46214

COMPANY CONTACT: Jennifer Hall
TELEPHONE NUMBER: (318)949-2421

EMERGENCY TELEPHONE NUMBERS
Darwin Parker @ Calumet Lubricant
(318)832-4236 8am - 4pm cst M-F.
Chemtrec (800)424-9300 After Business Hrs.

PRODUCT NAME: Calumet Lantern Fuel (Coleman)
PRODUCT CODE: 0170-00
CHEMICAL NAME: Light Hydrotreated Distillate
CAS NUMBER: 68410-97-9
CHEMICAL FAMILY: Petroleum Hydrocarbon Naphtha
CHEMICAL FORMULA: C5-C9

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME	EXPOSURE LIMITS	CONCENTRAION PERCENT BY VOLUME
Light Hydrotreated Distillate CAS NUMBER: 68410-97-9	Petroleum Distillate (Naphtha) TWA-400ppm	100.0

3. HAZARDS IDENTIFICATION

**********EMERGENCY OVERVIEW**********
WARNING: Flammable Liquid and Vapor. Harmful if inhaled and may cause delayed lung injury. Can cause nervous system depression. Aspiration hazard if swallowed - can enter

lungs and cause damage. Keep away from heat, sparks, and flame. Avoid breathing vapor. Use ventilation adequate to keep vapor below recommended exposure limits. Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.
****

POTENTIAL HEALTH EFFECTS

PRIMARY ROUTE(S) OF ENTRY
Skin.

EYES
Tests on similar materials suggest acute irritation.

SKIN
Tests on similar materials indicate acute irritation upon short-term exposure and chronic dermatitis on prolonged contact.

INGESTION
Acute aspiration hazard. Tests on similar materials indicate the possibility of the following symptoms: headache, nausea, drowsiness, fatigue, pneumonitis, pulmonary adema, central nervous system depression, convulsions, and loss of consciousness.

INHALATION
Acute Irritation. Tests on similar materials indicate the possibility of the following symptoms: headache, nasal and respiratory irritation, nausea, drowsiness, breathlessness, fatigue, central nervous system depression, convulsions, and loss of consciousness.

CHRONIC (CANCER INFORMATION)
Prolonged and/or repeated contact with this material may produce skin and eye irritation.

Carcinogen listed by:	National Toxicology Program	(NO)
	I. A. R. C.	(NO)
	OSHA	(NO)
	ACGIH	(NO)

This product does not require a cancer hazard warning in accordance with the OSHA Hazard Communicated Standard.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Personnel with pre-existing skin disorders should avoid contact with this product.

4. FIRST AID MEASURES

EYES
Flush eyes immediately with water a minimum of 15 minutes occasionally lifting lower and

upper lids. Get medical attention promptly.

SKIN
Wash skin thoroughly with soap and water. Immediately remove contaminated clothing and launder before reuse. If irritation or rash develops, obtain medical assistance.

INGESTION
Call a physician immediately. Do not induce vomiting except at the instruction of a physician. Never give anything by mouth to an unconscious person.

INHALATION
Remove patient to fresh air and consult a physician. If breathing is difficult, give oxygen. If not breathing give artificial respiration.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES
FLASH POINT: <0°F <-18°C Tag Closed Cup
AUTOIGNITION: n/av. °F n/av. °C
FLAMMABILITY CLASS: IB
LOWER EXPLOSIVE LIMIT (%): n/av. % (estimated)
UPPER EXPLOSIVE LIMIT (%): n/av. % (estimated)
FIRE AND EXPLOSIVE HAZARDS
Can form flammable mixtures with air and flash at room temperature. Explosion hazard in fire situation. Vapor heavier than air and may travel considerable distance to a source of ignition and flash back.
EXTINGUISHING MEDIA
Dry Chemical, carbon dioxide, and foam. CAUTION: Water stream may spread fire.
FIRE FIGHTERING INSTRUCTIONS
Use water spray only to cool containers exposed to flames. Do not enter enclosed or a confined work space without proper protective equipment. Fire fighting personnel should wear respiratory protection (positive pressure if available). If leak or spill has not ignited, use water spray to disperse the vapors.
Products of combustion include fumes, smoke and carbon monoxide.

6. ACCIDENTAL RELEASE MEASURES

Notify emergency response personnel. Evacuate area and remove ignition sources. Build dike to contain flow. Remove free liquid. Shut off ignition source. Contain spill and keep from entering waterways or sewers. Use personal protective equipment. Advise EPA; state agency if required. Absorb on inert material. Shovel, sweep or vacuum spill and place in closed container for disposal.

7. HANDLING AND STORAGE

HANDLING AND STORAGE PRECAUTIONS
Store as OSHA Class IB flammable liquid. Keep away from flames, sparks or hot surfaces. Never use a torch to cut or weld on or near container. Empty oil containers can contain explosive vapors. Wash thoroughly after handling. Do not store with strong oxidizers. Lab samples should be sorted and handled in a lab hood. Use explosion proof ventilation equipment.

STORAGE PRECAUTIONS
Empty containers retain product residue (liquid and Vapor) and can be dangerous. Do not pressurize.
Storage Temperature: ambient or less

WORK/HYGIENIC PRACTICES
Wash hands with soap and water before eating, drinking, smoking or use of toilet facilities. Take a shower after work if general contact occurs. Remove oil-soaked clothing and launder before reuse. Launder or discard contaminated shoes and leather gloves.

8. EXPOSURE ONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS
Use adequate ventilation to keep oil mists of this material below applicable standard(S). See Section on occupational exposure limits.
EYE/FACE PROTECTION
Safety glasses, splash goggles, of face shield as appropriate. Have suitable eye water wash available.
SKIN PROTECTION
Avoid prolonged and/or repeated skin contact. If prolonged contact cannot be avoided, wear protective impervious gloves and clothing. Acceptable materials for gloves are neoprene; nitrilee; viton.
RESPIRATORY PROTECTION
Up to 500 ppm hexane / 4000 ppm naptha, half mask organic vapor respirator. Up to 2500 ppm hexane / 20,000 ppm naptha, full face organic vapor respirator or full face supplied air respirator. Greater that 2500 ppm hexane / 20,000 ppm naptha, fire fighting, or unknown concentration, self contained breathing apparatus with positive pressure.
OTHER/GENERAL PROTECTION
If there is a likelihood of splashing, an oil resistant clothing should be worn. Never wear oil soaked clothing. Launder or dry clean before wearing. Discard oil soaked shoes. Affix warning labels on containers in accordance with 29 CFR 1910.1200 (Hazard Communication Standard).
Maintain local or dilution ventilation to keep air concentration below 50 ppm hexane / 400 ppm naptha. Loading, unloading, tank gauging, etc., remain upwind. Request assistance of safety and industrial hygiene personnel to determine air concentrations.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE
Clear Liquid.
ODOR
Petroleum Naphtha.
ODOR THRESHOLD
N.D.
BASIC PHYSICAL PROPERTIES
PHYSICAL STATE: Liquid
BOILING POINT: IBF >100°F IBF >38°C
MELTING POINT: N/A°F N/A°C
VAPOR PRESSURE: 518 mm @ 68°F
VAPOR DENSITY (AIR=1): 3
SPECIFIC GRAVITY: 0.69 Water = 1
PACKING DENSITY: N/A
SOLUBILITY (H2O): negligible
PERCENT VOLATILES: 100
VOLATILE ORGANIC COMPOUNDS (VOC) CONTENT: 100.0%
EVAPORATION RATAE: n/av
pH: essentially neutral
VISCOSITY: n/av
Physical data may vary slightly to meet specifications.

10. STABILITY AND REACTIVITY

STABILITY: Stable under normal conditions
CONDITIONS TO AVOID (STABILITY)
Sources of ignition.
INCOMPATIBLE MATERIALS
Strong oxidizers
HAZARDOUS DECOMPOSITION PRODUCTS
Incomplete combustion may produce fumes, smoke, carbon monoxide and other asphyxiants.
HAZARDOUS POLYMERIZATION: will not occur

11. TOXICOLOGICAL INFORMATION

ACUTE STUDIES
EYE EFFECTS
Irritation on contact.
SKIN EFFECTS
May cause irritation or dermatitis with prolonged and repeated contact.
ACUTE ORAL EFFECTS
Tests on similar materials indicate an order of acute oral toxicity.
ACUTE INHALATION EFFECTS
Acute toxicity expected on inhalation

MEDICAL CONDITIONS AGGRAVTED BY OVEREXPOSURE

Dermatitis and Sensitive skin.
This product is not listed as carcinogenic or a potential carcinogen by the National Toxicology Program, by the I.A.R.C. monographs or by OSHA. Nevertheless, good industrial hygienic practices are recommended.

12. ECOLOGICAL INFORMATION

No specific ecological data are available for this product. Please refer to Section 6 for information regarding accidental releases and Section 15 for regulatory reporting information.

13. DISPOSAL CONSIDERATIONS

Follow federal, sate and local regulations. If "used", RCRA criteria must be determined. Do not flush to drain/storm sewer. Contract to authorized disposal service. If permitted incineration may be practical. Recommend recycling.

14. TRASPORT INFORMATION

PROPER SHIPPING NAME:
Petroleum Distillates, nos, Class 3, UN 1268, PG II
HAZARD CLASS: Class 3 Flammable Liquid
DOT IDENTIFICAION NUMBER: UN1268
DOT SHIPPING LABEL: DOT Hazardous Material

15. REGULATORY INFORMATION

U.S. FEDERAL REGULATORY INFORMATION

SARA 302 Threshold Planning Quantity:		not applicable
SARA 304 Reportable Quantity:		not applicable
SARA 311 Categories:	Immediate (Acute) Health Effects	-- N
	Delayed (Chronic) Health Effects	-- Y
	Fire Hazard	-- Y
	Sudden Release of Pressure Hazard	-- N
	Reactivity Hazard	-- N
EPA/TSCA Inventory:	The components of this product are listed on the EPA/TSCA inventory of chemicals	

EPA Hazard Classification Code: NOT APPLICABLE

Comprehensive Environmental Response, Compensation and Liability Act (CERCIA):
No chemicals in this product are subject to the reporting requirements of CERCIA Section 101(14)(F). When this product is used in a mixture, or as an ingredient in another product, or in a manufacturing operation, the petroleum exclusion may terminate and an accidental spill may require reporting to the National Response Center.

SARA TITLE III NOTIFICATIONS AND INFORMAITON

SARA TITLE III	- HAZARD CLASSES:	Chronic Health Hazard Fire Hazard

SARA TITLE III - SECTION 313 SUPPLIER NOTIFICATION

The following chemicals are subject to the reporting regulations of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 362:

Cyclohexane	CAS # 110-82-7	Up to 15wt %
N-Hexane	CAS # 110-54-3	Up to 25wt %

16. OTHER INFORMATION

NFPA HAZARD RATING	-- HEALTH:		1 Slight
	-- FIRE:		4 Extreme
	-- REACTIVITY:		0 Negligible
PREPARED BY:	Jennifer Hall	PHONE:	(318)949-2421
SUPERCEDES MSDS DATED:		04/01/96	

REVISED
9. Physical Properties
15. SARA Title III
12. Ecological Information
2. Composition

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

The information contained herein is based upon data believed to be reliable and reflects our best professional judgement. Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained therein and assume no responsibility regarding the suitability of the information for the user's intended purpose or for he consequence of its use. Each individual should make a determination as to the suitability of the information for his/her particular purpose(s).

[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.

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

Continued on Next Page

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

Imperial Oil

MATERIAL SAFETY DATA SHEET

Date Prepared: November 25, 2003
Supersedes: November 21, 2003
MSDS Number: 08525

1. PRODUCT INFORMATION

Product Identifier: KEROSENE TYPE AVIATION TURBINE FUEL
ESSO TURBO FUEL A
ESSO TURBO FUEL A-1
ESSO JET A
ESSO JET A-1
JET A
JET A-1
TURBO FUEL A
TURBO FUEL A-1
TURBO FUEL A-1 F34
TURBO FUEL A-1 JP8
JET A-1 (FSII)
CAN/CGSB-3.23 GRADE F34

Application and Use:
Aviation turbine fuel

Product Description:

A mixture of aliphatic and aromatic hydrocarbons and additives.

REGULATORY CLASSIFICATION

WHMIS:
Class B, Division 3: Combustible Liquids.
Class D, Division 2, Subdivision A: Very Toxic Material.
Class D, Division 2, Subdivision B: Toxic Material

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT
All components of this product are either on the Domestic Substances List (DSL), exempt, or have been notified under CEPA.

TDG INFORMATION (RAIL/ROAD):

Shipping Name: FUEL, AVIATION, TURBINE ENGINES
Class: 3

Packing Group: III
PIN Number: UN1863
Marine Pollutant: Not applicable

In containers of 454 litres capacity or less this product is exempt from TDG regulations.

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr. (519) 339-2145
Technical Info. (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3

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2. REGULATED COMPONENTS

The following components are defined in accordance with sub-paragraph 13(a)(i) to (iv) or paragraph 14(a) of the Hazardous Products Act:

NAME	%	CAS #	
Kerosene, straight run	0-100 V/V	8008-20-6	LD50:>5g/kg,oral,rat
Diethylene glycol monomethyl ether	0-0.15 V/V	111-77-3	LD50:7g/kg,orl,rat LD50:>2.0/kg,skn.rbt

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3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: not available
Viscosity: 8.00 cSt at -20 deg C
Vapour Density: 4
Boiling Point: 205 to 300 deg C
Evaporation rate: not available (1= n-butylacetate)
Solubility in water: NEGLIGIBLE
Freezing/Pour Point: -47 deg C ASTM D2386
Odour Threshold: 0.552mg/m3
Vapour Pressure: 4 kPa at 38 deg C
Density: 0.81 g/cc at 15 deg C
Appearance/odour: White or pale yellow liquid, petroleum odour

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4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

Negligible hazard at normal temperatures (up to 38 deg C).
High vapour concentrations are irritating to the eyes, nose, throat and lungs; may cause headaches and dizziness; may be anesthetic and may cause other central nervous system effects.
Avoid breathing vapours or mists.

EYE CONTACT:

Slightly irritating, but will not injure eye tissue.

SKIN CONTACT:

Irritating.
Frequent or prolonged contact may irritate the skin and cause a skin rash (dermatitis).
Low toxicity.

INGESTION:

Low toxicity.
Small amounts of this liquid drawn into the lungs from swallowing or vomiting may cause severe health effects (e.g. bronchopneumonia or pulmonary edema).

CHRONIC:

Lifetime skin painting tests indicate that materials of similar composition have produced skin cancer in experimental animals. The relationship of these results to humans has not been fully established.
Contains diethylene glycol monomethyl ether (DIEGME). Prolonged and repeated exposure through inhalation or extensive skin contact with DIEGME may result in toxic effects on the kidneys, the reproductive system and/or the embryo/fetus.

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:

Oral	:	LD50 > 5000 mg/kg (Rat)
Dermal	:	LD50 > 2000 mg/kg (Rabbit)
Inhalation	:	LC50 > 2500 mg/m3 (Rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer Recommends:
For kerosene and other middle distillate fuels, 500 mg/m3 for total vapour/aerosol exposure and 5 mg/m3 for stable aerosols.

ACGIH recommends:
For Kerosene (skin), ACGIH recommends a TWA of 200 mg/m3 and categorizes it as an animal carcinogen.

Local regulated limits may vary.

5. FIRST AID MEASURES

INHALATION:

In emergency situations use proper respiratory protection to immediately remove the affected victim from exposure. Administer artificial respiration if breathing has stopped. Keep at rest. Call for prompt medical attention.

EYE CONTACT:

Flush eyes with large amounts of water until irritation subsides. If irritation persists, get medical attention.

SKIN CONTACT:

Immediately flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun. If irritation persists, seek medical attention.

INGESTION:

DO NOT induce vomiting since it is important that no amount of the material should enter the lungs (aspiration). Keep at rest. Get prompt medical attention.

6. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTION:

The selection of personal protective equipment varies, depending upon conditions of use.
In open systems where contact is likely, wear safety goggles, chemical-resistant overalls, and chemically impervious gloves.
Where only incidental contact is likely, wear safety goggles, long sleeves, and chemical-resistant gloves.
Where concentrations in air may exceed the occupational exposure limits given in Section 4 and where engineering, work practices or other means of exposure reduction are not adequate, approved respirators may be necessary to prevent overexposure by inhalation.

ENGINEERING CONTROLS:

The use of local exhaust ventilation is recommended to control emissions near the source. Laboratory samples should be handled in a fumehood. Provide mechanical ventilation of confined spaces.
Use explosion-proof ventilation equipment.

HANDLING, STORAGE AND SHIPPING:

Keep containers closed. Handle and open containers with care.

Store in a cool, well ventilated place away from incompatible materials.
In keeping with good personal hygiene practices, wash hands thoroughly after handling the material.
Store and load at normal (up to 38 deg C) temperature and at atmospheric pressure.
Material will accumulate static charges which may cause a spark. Static charge build-up could become an ignition source. Use proper relaxation and grounding procedures.
Empty containers may contain product residue. Do not pressurize cut, heat, or weld empty containers. Do not reuse empty containers without commercial cleaning or reconditioning.

LAND SPILL:

Eliminate source of ignition. Keep public away. Prevent additional discharge of material, if possible to do so without hazard.
Prevent spills from entering sewers, watercourses or low areas. Contain spilled liquid with sand or earth. Do not use combustible materials such as sawdust.
Recover by pumping (use an explosion proof motor or hand pump), or by using a suitable absorbent.
Consult an expert on disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately.
Take all additional action necessary to prevent and remedy the adverse effects of the spill.

WATER SPILL:

Remove from surface by skimming or with suitable absorbents. If allowed by local authorities and environmental agencies, sinking and/or suitable dispersants may be used in unconfined waters.
Consult an expert on disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately.
Take all additional action necessary to prevent and remedy the adverse effects of the spill.

7. FIRE AND EXPLOSION HAZARD

Flashpoint and method: 38 deg C TCC ASTM D56

Autoignition: NA Flammable Limits: LEL: NA UEL: NA

GENERAL HAZARDS:

Combustible Liquid; may form combustible mixtures at or above the flash point.
Decomposes; flammable/toxic gases will form at elevated temperatures (thermal decomposition).
Toxic gases will form upon combustion.
Static Discharge; material may accumulate static charges which may cause a fire.

FIRE FIGHTING:

Use water spray to cool fire exposed surfaces and to protect personnel.
Shut off fuel to fire if possible to do so without hazard. If a leak or spill has not ignited use water spray to disperse the vapours.
Use foam or dry chemical to extinguish fire.
Respiratory and eye protection required for fire fighting personnel.
Avoid spraying water directly into storage containers due to danger of boilover.
A self-contained breathing apparatus (SCBA) should be used for all indoor fires and any significant outdoor fires. For small outdoor fires, which may easily be extinguished with a portable fire extinguisher, use of an SCBA may not be required.

HAZARDOUS COMBUSTION PRODUCTS:

Smoke, carbon monoxide, carbon dioxide, oxides of sulphur.
In addition, small amounts of nitrogen oxides will be formed.

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8. REACTIVITY DATA

STABILITY:

This product is stable. Hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:

Strong oxidizing agents. Use product with caution around heat, sparks, pilo lights, static electricity and open flames.

HAZARDOUS DECOMPOSITION:

See: Hazardous Combustion Products

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9. NOTES

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

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REVISION SUMMARY:
Since 21 November 2003, this MSDS has been revised in Section(s):
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10. PREPARATION

Date Prepared: November 25, 2003
Prepared by: Lubricants & Specialties
IMPERIAL OIL

Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(800) 268-3183

CAUTION: " The information contained herein relates only to this product or material and may not be valid when used in combination with any other product or material or in any process. If the product is not to be used for a purpose or under conditions which are normal or reasonably foreseeable, this information cannot be relied upon as complete or applicable. For greater certainty, uses other than those described in Section 1 must be reviewed with the supplier. The information contained herein is based on the information available at the indicated date of preparation. This MSDS is for the use of Imperial Oil customers and their employees and agents only. Any further distribution of this MSDS by Imperial Oil customers is prohibited without the written consent of Imperial Oil."

IMPERIAL OIL
MATERIAL SAFETY DATA SHEET

TURBINE FUEL TYPE AVIATION, WIDE CUT

Date Prepared: December 03, 2003
Supersedes: May 31, 2003
MSDS Number: 08524

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1. PRODUCT INFORMATION

Product Identifier: TURBINE FUEL AVIATION, WIDE CUT TYPE
ESSO TURBO FUEL B
ESSO JET B
JET B
TURBO FUEL B
TURBO FUEL B F40
TURBO FUEL B JP4
ESSO TURBO FUEL B (FSII)
JET B (FSII)
AVIATION TURBINE FUEL (JP4)
CAN/CGSB-3.22 GRADE F40
ESSO JET B (FSII)

Application and Use:
Aviation turbine fuel

Product Description:

A mixture of aliphatic and aromatic hydrocarbons and additives.

REGULATORY CLASSIFICATION

WHMIS:
Class B, Division 2: Flammable Liquids.
Class D, Division 2, Subdivision A: Very Toxic Material.
Class D, Division 2, Subdivision B: Toxic Material

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT
All components of this product are either on the Domestic Substances List (DSL) or are exempt.

TDG INFORMATION (RAIL/ROAD):

Shipping Name:	FUEL, AVIATION, TURBINE ENGINES
Class:	3
Packing Group:	II
PIN Number:	UN1863
Marine Pollutant:	Not applicable

Please be aware that other regulations may apply.

TELEPHONE NUMBERS MANUFACTURER/SUPPLIER:

Emergency 24 hr. (519) 339-2145 IMPERIAL OIL
Technical Info. (800) 268-3183 Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(416) 968-4441

2. REGULATED COMPONENTS

The following components are defined in accordance with sub-paragraph 13(a)(i) to (iv) or paragraph 14(a) of the Hazardous Products Act:

NAME	%	CAS #	
Kerosene, straight run	40-70 V/V	8008-20-6	LD50:>5g/kg,oral,rat
Naphtha, full range	30-60 V/V	64741-42-0	
Diethylene glycol monomethyl ether	0-0.15 V/V	111-77-3	LD50:7g/kg,orl,rat LD50:>2.0/kg,skn.rbt

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: not available
Viscosity: 0.60 cSt at 40 deg C
Vapour Density: 4
Boiling Point: 40 to 270 deg C
Evaporation rate: <1 (1= n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: -58 deg C ASTM D 2386
Odour Threshold: not available
Vapour Pressure: 21 kPa at 38 deg C
Density: 0.78 g/cc at 15 deg C
Appearance/odour: White or pale yellow liquid, petroleum odour

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

Negligible hazard at normal temperatures (up to 38 deg C).
High vapour concentrations are irritating to the eyes, nose, throat and lungs; may cause headaches and dizziness; may be anesthetic and may cause other central nervous system effects.
Avoid breathing vapours or mists.

EYE CONTACT:

Slightly irritating, but will not injure eye tissue.

SKIN CONTACT:

Irritating.
Frequent or prolonged contact may irritate the skin and cause a skin rash (dermatitis).
Low toxicity.

INGESTION:

Low toxicity.

Small amounts of this liquid drawn into the lungs from swallowing or vomiting may cause severe health effects (e.g. bronchopneumonia or pulmonary edema).

CHRONIC:

Contains benzene. Human health studies (epidemiology) indicate that prolonged and/or repeated overexposures to benzene may cause damage to the blood producing system and serious blood disorders, including leukemia.
Animal tests suggest that prolonged and/or repeated overexposures to benzene may damage the embryo/fetus. The relationship of these animal studies to humans has not been fully established.
Contains n-hexane. Prolonged and/or repeated exposures may cause damage to the peripheral nervous system (e.g. fingers, feet, arms etc.).
Contains diethylene glycol monomethyl ether (DIEGME). Prolonged and repeated exposure through inhalation or extensive skin contact with DIEGME may result in toxic effects on the kidneys, the reproductive system and/or the embryo/fetus.

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:

Oral	:	LD50 > 5000 mg/kg	(Rat)
Dermal	:	LD50 > 2000 mg/kg	(Rabbit)
Inhalation	:	LC50 > 2500 mg/m3	(Rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer Recommends:
100 ppm based on composition.

ACGIH recommends:
For n-Hexane (skin), 50 ppm (176 mg/m3).
For Benzene, ACGIH recommends a TWA of 0.5 ppm (1.6 mg/m3), (skin), and categorizes it as a confirmed human carcinogen.

Local regulated limits may vary.

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5. FIRST AID MEASURES

INHALATION:

In emergency situations use proper respiratory protection to immediately remove the affected victim from exposure. Administer artificial respiration if breathing has stopped. Keep at rest. Call for prompt medical attention.

EYE CONTACT:

Flush eyes with large amounts of water until irritation subsides. If irritation persists, get medical attention.

SKIN CONTACT:

Immediately flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun. If irritation persists, seek medical attention.

INGESTION:

DO NOT induce vomiting since it is important that no amount of the material should enter the lungs (aspiration). Keep at rest. Get prompt medical attention.

6. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTION:

The selection of personal protective equipment varies, depending upon conditions of use.
In open systems where contact is likely, wear safety goggles, chemical-resistant overalls, and chemically impervious gloves.
Where only incidental contact is likely, wear safety goggles, long sleeves, and chemical-resistant gloves.
Where concentrations in air may exceed the occupational exposure limits given in Section 4 and where engineering, work practices or other means of exposure reduction are not adequate, approved respirators may be necessary to prevent overexposure by inhalation.

ENGINEERING CONTROLS:

The use of local exhaust ventilation is recommended to control emissions near the source. Laboratory samples should be handled in a fumehood. Provide mechanical ventilation of confined spaces.
Use explosion-proof ventilation equipment.

HANDLING, STORAGE AND SHIPPING:

Keep containers closed. Handle and open containers with care.
Store in a cool, well ventilated place away from incompatible materials.
In keeping with good personal hygiene practices, wash hands thoroughly after handling the material.
Store and load at normal (up to 38 deg C) temperature and at atmospheric pressure.
Material will accumulate static charges which may cause a spark. Static charge build-up could become an ignition source. Use proper relaxation and grounding procedures.
Empty containers may contain product residue. Do not pressurize cut, heat, or weld empty containers. Do not reuse empty containers without commercial cleaning or reconditioning.

LAND SPILL:

Eliminate source of ignition. Keep public away. Prevent additional discharge of material, if possible to do so without hazard.
Vapours or dust may be harmful or fatal. Warn occupants of downwind areas.

Prevent spills from entering sewers, watercourses or low areas. Contain spilled liquid with sand or earth. Do not use combustible materials such as sawdust.
Recover by pumping (use an explosion proof motor or hand pump), or by using a suitable absorbent.
Consult an expert on disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill.

WATER SPILL:

Eliminate all sources of ignition. Vapours or dust may be harmful or fatal. Warn occupants and shipping in downwind areas.
Consult an expert on disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately. Take all additional action necessary to prevent and remedy the adverse effects of the spill.

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7. FIRE AND EXPLOSION HAZARD

Flashpoint and method: -18 deg C COC ASTM D92

Autoignition: NA Flammable Limits: LEL: 0.6% UEL: 8.0%

GENERAL HAZARDS:

Extremely flammable; material will readily ignite at normal temperatures.
Flammable Liquid; may release vapours that form flammable mixtures at or above the flash point.
Decomposes; flammable/toxic gases will form at elevated temperatures (thermal decomposition).
Toxic gases will form upon combustion.
Static Discharge; material may accumulate static charges which may cause a fire.

FIRE FIGHTING: