

**SPILL CONTINGENCY PLAN**  
**Barrow Project, Kugaaruk Region, Nunavut**  
**Indicator Minerals Inc.**

May, 2005

# SPILL CONTINGENCY PLAN

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## **1.0 Introduction**

The Indicator Minerals Inc. Spill Contingency Plan shall be in effect from April 01, 2004 to February 2008. All future amendments will be posted and recorded on the attached amendment record form.

This Indicator Minerals Inc. Spill Contingency Plan encompasses the Barrow Project, Kugaaruk, Nunavut.

This Spill Contingency Plan is posted at the drill site, and field house.

Indicator Minerals Inc. endeavors to take every reasonable precaution toward ensuring the protection and conservation of the natural environment, the safety and health of Indicator Minerals Inc. employees, sub-contractors and contractors and (protecting) the community (at large) from any harmful effects of its materials and operations.

## **2.0 Facilities**

No camp facilities will be established. All activities are based from the community of Kugaaruk, Nunavut. If and when it is required minimal fuel, oils and drilling additives will be stored at the drill site.

## **3.0 Petroleum and Chemical Product Storage and Inventory**

### **3.1 Remote Location Fuel Inventory, Storage and Handling Procedures**

At times, Indicator Minerals Inc. may establish a fuel caches for use during our exploration program. Typically these caches would consist of 19, 205 litre steel drums or less of jet fuel and or diesel, stored in accordance with CSA approved methods of storage of a drummed product. These drums are stored horizontally, on the ground with the bungs positioned at the mid-way point. This storage method prevents contact of surface water with the bungs and possible contamination of the fuel and keeps the bung seals submerged in fuel, which prevents the seals from drying out and leaking. Fuel will be stored no less than 30m from the high water mark of any water body. Whenever practical a natural depression in an area with low permeability should be chosen to prevent the spreading of chemicals or fuels. Remote fuel storage locations (e.g. fuel cache) will be plotted on a suitable topographic map and the GPS positions will be recorded. An updated inventory of the fuel used will be maintained. Regular visual inspections will be conducted of all fuel caches. Empty or otherwise no longer required fuel drums will be retrieved from all locations. Empty drums will be returned to the fuel supplier for recycling. Full fuel drums will not be stored remotely for more than one year. Fuel storage locations will have a suitable spill response kit.

### **3.2 Petroleum Product Transfer**

Manual and automatic pumps (and aviation fuel filters for jet fuel) are used for the transfer of all petroleum products. Smoking, sparks, or open flame are prohibited in fuel storage and fuelling areas at all times. Drip pans or the appropriate impenetrable container/material shall be used when refueling. Only personnel trained in fuel transfer and are familiar with the equipment may refuel.

## **4.0 Risk Assessment and Mitigation of Risk**

### **4.1 Petroleum Products and Other Fuels**

Following, is a list of potential sources of fuel spills:

- 1) Drummed product: Leaks or ruptures may occur. This includes and is not limited to drums of jet A/ B, diesel, waste fuel, waste oil.
- 2) Fuel cylinders: Propane, leaks may occur at the valves. All cylinders are secured at all times.
- 3) Aircraft and equipment: Aircraft (fixed and rotary wing), pumps. Incidents involving leaking or dripping fuels and oils may occur due to malfunctions, impact damage, and lack of regular maintenance, improper storage, or faulty operation.

Regular inspection and maintenance in accordance with recognized and accepted standard practices at all Indicator Minerals Inc. Barrow Project drill sites and/ or fuel caches, reduces risks associated with the categories listed above.

Spill response training is provided to personnel who handle fuels and other petroleum products, and at minimum one emergency response drill will be held during the season. A report will be prepared by the response coordinator following each drill, noting response time, personnel involved and any problems or deficiencies encountered. This report will be used to evaluate emergency response capability and remedy any deficiencies if required.

Oil/Fuel Spill Kits are positioned at all drill sites and/ or fuel caches. A list of Spill Kits, their location, description, and contents are listed in Section 8.

## **5.0 Responding to Failures and Spills**

### **5.1 Spill Response Contact List**

**Indicator Minerals Inc. 24 hour telephone contact:**

**Dave Kelsch**

Work: 604-331-4605  
Home: 780-949-4417  
Cell: 780 915-6640

### **5.2 Basic Steps — Spill Procedure**

In the case of any spill or other environmental emergency, it is necessary to react in the most immediate, safe, and environmentally responsible manner. No spill or incident is so minor that it can be ignored.

The basic steps of the response plan are as follows:

- 1) Ensure the safety of all persons at all times.
- 2) Identify and find the spill substance and its source, and if possible, stop the process or shut off the source.
- 3) Inform the immediate supervisor or his/her designate at once, so that he/she may take appropriated action. (Appropriate action includes the notification of a government official, if required, Spill Report forms are included in Appendix 3.
- 4) Contain the spill or environmental hazard, as per its nature, and as per the advice of the Spill Line as required.

- 5) Implement any necessary cleanup or remedial action.

### 5.3 Basic Steps — Chain of Command

- 1) **Immediately** notify Indicator Minerals Inc. All spills MUST be reported to:

#### **24-Hour Spill Line**

Tel. 1-867-920-8130, Fx. 1-867-873-6924.

#### **Diand Water Resources Inspector**

Tel. 1-867-975 4289

#### **Environment Canada Personnel**

Tel: 1-867-975-4639

- 2) **A Spill Report Form (Appendix 2)** is filled out as completely as possible before or after contacting the 24 Hour Spill Line.
- 3) Other members of the team are notified as deemed necessary.

### 5.4 Other contacts for spill notification

Kitikmeot Inuit Association, Kugluktuk	1-867-982-3310
Fisheries and Oceans Canada	1-867-979-8007
Environmental Protection	1-867-975-4644
Environment 24-Hour Emergency Pager	1-867-920-5131

## **6.0 Taking Action**

### **6.1 Before the Fact: Preventative Measures**

The following actions illustrate the proactive approach of Indicator Minerals Inc. to environmental care. In addition, these actions minimize the potential for spills during fuel handling, transfer and storage:

- 1) Fuel transfer hoses with cam lock mechanisms are used.
- 2) Carefully monitor fuel content in the receiving vessel during transfer.
- 3) Clean up drips and minor spills immediately.
- 4) Regularly inspect drums, tanks and hoses for leaks or potential to leak.
- 6) Train personnel, especially those who will be operators, in proper fuel handling and spill response procedures.
- 7) Spill pans are to be used when refueling equipment.

### **6.2 After the Fact: Mitigative Measures**

1. First steps to take when a spill occurs:

- a) Ensure your own safety and that of others around you, beginning with those nearest to the scene.
- b) Control danger to human life, if necessary.
- c) Identify the source of the spill.
- d) Notify your supervisor.
- e) Assess whether or not the spill can be readily stopped.
- f) Contain or stop the spill at the source, if possible, by following these actions:

If filling is in progress, STOP AT ONCE.

Close or shut off valves.

Place plastic sheeting at the foot of the tank, barrel, or piece of equipment to prevent seepage into the ground or runoff of fuel

Use absorbent materials (sheets, pads, booms) to absorb and contain the fuel spill.

Use a patch kit to seal leaks, if practical to do so.

2. Secondary steps to take:

Determine status of the spill event.

If necessary, pump fuel from a damaged and/or leaking tank or drum into a refuge container.

Notify the 24-hour Spill Report Line, and receive further instructions from the appropriate contact agencies listed in *Section 5.4*. (e.g. disposal of contaminated soil or ice/snow in sealed containers for removal from site, etc.).

Complete and Fax a copy of the Spill Report Form (*Appendix 3*).

Notify permitting authorities.

If possible, resume cleanup and containment.

### 6.3 Fuel Spills on Land

“Land” may be defined as soil, gravel, sand, rock, and vegetation. Advice on spill containment and cleanup may be obtained from the DIAND Water Resource Inspector.

#### 6.3.1 Procedure for Spills on Rock

For hydrocarbon spills on rock outcrops, boulder fields, etc.:

- 1) First responder or his designate obtains plastic tarp(s) and absorbent sheeting on-site.
- 2) A berm of peat, native soil or snow is constructed down slope of the seepage or spill.
- 3) The tarp is placed in such a way that the fuel can pool for collection and removal (e.g. at the foot of the berm). If there is a large volume of spilled product, pump the liquid into spare empty drums for sealing and disposal.
- 4) Absorbent sheeting is placed on the rock to soak up spilled oil, fuel, etc.
- 5) Multi Sorb (crushed lava rock) can be used to scrub the rock surface.
- 6) Saturated material is disposed of in an empty drum, which is then labeled and sealed. Alternatively, the pads may be wrung out into the empty drum(s), the drums marked and then secured for eventual disposal.

- 7) Depending on the nature and volume of the spill, the 24-Hour Spill Line may be contacted after Step 4 or Step 5.

#### 6.3.2 Procedure for Spills on Land

- 1) First responder or his designate obtains plastic tarp(s), absorbent sheeting, Multi Sorb or other ultra-dry absorbent and any other necessary spill containment equipment, pump, hoses, etc.
- 2) A berm of peat, native soil or snow is constructed down slope of the seepage or spill.
- 3) The tarp is placed in such a way that the fuel can pool for collection and removal (e.g. at the foot of the berm). If there is a large volume of spilled product, pump the liquid into spare empty drums, and dispose of product as advised by the 24-Hour Spill Line.
- 4) Petroleum-product sheen on vegetation may be controlled by applying a thin dusting of Multi Sorb or other ultra-dry absorbent to the groundcover.
- 5) Contact the 24-Hour Spill Line, Receive instructions from the appropriate contact agencies listed in Section 5.4 regarding collection of the contaminated soil or vegetation, its removal and site cleanup/restoration.

### 6.4 Fuel Spills on Water

#### 6.4.1 Procedure for Spills on Water

It is important to immediately limit the extent of spills. The following is the procedure to be implemented when an incident occurs:

- 1) If the spill is small, deploy hydrophobic (water repellent) absorbent pads on the water. Hydrophobic pads readily absorb hydrocarbons. Alternatively, an ultra-dry absorbent designed for use on water-based spills may be deployed.
- 2) If the spill is larger, ready several empty drums to act as refuge containers for the spill.
- 3) Deploy *containment* booms on the water surface to “fence in” the spill area gradually and to prevent it from spreading. Keep in mind those environmental factors such as high winds and wave action can adversely affect attempts at spill cleanup.
- 4) *Absorbent* booms can then be deployed to encircle and then absorb any hydrocarbon spillage that may have escaped the *containment* boom.
- 5) Once a boom has been secured, a skimmer may be brought on-scene to aid in capture of the hydrocarbon; once captured, the product should be pumped to the empty fuel drums and held for disposal.
- 6) As soon as possible either during or after the incident, contact the 24-Hour Spill Line. (This will ensure government agencies are informed).

### 6.5 Fuel spills on Snow and Ice

By its nature, snow is an absorbent, and fuel spilled on snow is collected with relative ease, either by shovel, in the case of small-range spills, and by loader, in the case of more extensive spills.



#### 6.5.1 Procedure for Spills on Snow

- 1) Assess the nature of the spill. Necessary equipment might include shovels, plastic tarp(s), empty drums, and wheeled equipment.
- 2) Shovel or scrape contaminated snow and deposit in empty refuge drums. If the spill is more extensive, build peat-bale berms or compacted snow berms with plastic over top, around the affected area.
- 3) Either during or immediately after the accident, notify the 24-Hour Spill Line. Receive instructions on the preferred disposal method (e.g. storage in sealed drums, incineration or deposit in a designated lined containment area on land) from the appropriate contact agencies listed in *Section 5.4*.

#### 6.5.2 Procedure for spills on Ice

Spills on ice are handled in similar fashion as those on snow. However, as ice presents the added danger of immediate access to water, care must be taken to respond quickly to such spills. Should fuel seep or flow through cracks or breaks in the ice, despite all precautions, assistance should be sought immediately.

- 1) Construct a compacted-snow berm around the edge of the spill area.
- 2) Although hard ice will retard or prevent fuel entry to the receiving waters below, all contaminated snow and ice, as well as objects embedded in the ice (such as gravel or frozen absorbent pads) must be scraped from the ice surface and disposed of in an appropriated manner.
- 3) Contact the 24-Hour Spill Line. Receive disposal instructions (e.g. sealing in drums, burn off, etc.) from the appropriate contact agencies listed in *Section 5.4*.

### 6.6 Procedure for Chemical Spills

- 1) Assess the hazard of the spilled material. REFER TO THE MSDS SHEETS NOW. Members of the emergency response team who might be susceptible in certain situations, (such as asthmatics, where fumes or airborne particles are evident), should be replaced with alternates.
- 2) Assemble the necessary safety equipment before response (e.g. latex or other protective gloves, goggles, or safety glasses, masks or breathers, etc.)
- 3) Apply absorbents to soak up liquids.
- 4) Place plastic sheeting over solid chemicals, such as dusts and powders, to prevent their disbursement by wind or investigation by birds or other mammals.
- 5) Neutralize acids or caustics. Place spilled material and contaminated cleanup supplies in an empty refuge drum and seal for disposal.
- 6) Contact the 24-Hour Spill Line. Receive instructions on disposal methods and designated locations from the appropriate contact agencies listed in *Section 5.4*.

## **6.7 Procedure for Loss of External Load**

The loss of external loads of fuel, oil, or chemicals from aircraft almost certainly results in complete and catastrophic failure of the container that once held the product. Immediate response is imperative.

- 1) Mark the loss target with GPS coordinates and relay to camp or base ASAP. Include quantity and type of load loss.
- 2) Base or camp will contact 24-Hour Spill Line, and receive direction and instruction.
- 3) Administer the appropriate procedure for Spills on Land, Water, Snow, or Ice.

## **7.0 Spill Equipment**

Complete spill kits, oil absorbent kits, are kept on hand at all camps.

The contents of the spill kit are listed below:

- 1 – 360 litre/79 gallon polyethylene overpack drum
- 4 – oil sorbent booms (5" X 10')
- 100 – oil sorbent sheets (16.5" X 20" X 3/8")
- 1 – drain cover (36" X 36" X 1/16")
- 1 – Caution tape (3" X 500')
- 1 – 1 lb plugging compound
- 2 – pair Nitrile gloves
- 2 – pair Safety goggles
- 2 – pair Tyvek coveralls
- 1 – instruction booklet
- 10 – printed disposable bags (24" X 48")

Sorbent capacity of this spill kit is 240 litres.

## **8.0 Training and Practice Drills**

### **8.1 Training**

All members of the Response Team will be familiar with the spill response resources at hand, this Contingency Plan, and appropriate spill response methods. Involvement of other employees may be required, from time to time.

This familiarity will be acquired through:

- 1) Initial or refresher training, as appropriate, provided once per season.
- 2) Regular inventory updates are provided in list form to all team members. Information to be reported includes listing of all resources, number of items, their location, condition, date of last inspection and any special comments (such as expiry dates, under whose authority they may be accessed and special handling instructions).

## **8.2 Practice Drills**

Indicator Minerals Inc. is aware that without practice, no Contingency Plan has value.

At least one practice drill will be held per season to give personnel a chance to practice emergency response skills. Each practice will be evaluated and a report prepared with the objective of learning where gaps and deficiencies (either in skills or physical resources) exist, and in what areas more practice is required.

## Appendix #1

## Manual Distribution

Title

**Company President**

## Bruce Counts

### Project Supervisor

Dave Kelsch

## Safety Officer

Johanna Tuck

An amendment instruction sheet shall be included that lists and identifies pages in the manual to be added or replaced.

[illegible]

## **Appendix #2**

### **Spill Report Form**

No spills have occurred to date.



**Appendix #3**

**MSDS Sheets**

## 25A HELICOPTER DRILL RIG WEIGHTS

<u>Item</u>	<u>Unit Weight</u>	<u>No. of Units</u>	<u>Extension</u>
1) BBS25A fly drill rig	7,000 lb.	1	7,000 lb.
2) NQ drill rods 10ft.	51 lb.	150	7,650 lb.
3) NW casing 10 ft.	70 lb.	2	140 lb.
4) NW casing 5 ft	35	2	70 lb.
5) NW casing 2 ft	14	2	28 lb.
6) HW casing 10 ft	114	10	1,140 lb.
7) HW casing 2 ft	23	4	92 lb.
8) Water supply pumps	500 lb	3	1,500 lb.
9) water line	0.6 lb/ft	7,000 ft.	4,200 lb.
10) hand tools	300 lb.	1 set	300 lb.
11) drill spares	500 lb.	1 set	500 lb.
12) set-up timbers	1,000 lb.	2 set	2,000 lb.
13) core boxes	6 lb.	25	150 lb.
14) rod grease	50 lb.	6	300 lb.
15) Lubes/Oils	50 lb.	4	200 lb.
16) Linseed soap	50 lb.	1	50 lb.
17) Misc. Fluids for drilling	50 lb.	30	<u>1,500 lb.</u>

fly rigs  
5000 lb

sub total.....26,4200 lb.  
10% contingency.....2,640 lb.  
Total..... 29,000 lb.

1) Water consumption – using NQ tools, we would use 7-8 gallons/minute while drilling.





# WESTCOAST DRILLING SUPPLIES LTD.

#6 - 2351 SIMPSON ROAD  
RICHMOND, B.C. V6X 2R2

TEL: (604) 278-4954  
FAX: (604) 278-4914

*Serving the Drilling Industry*

EMERGENCY PHONE NO.: (604) 278-4954

## MATERIAL SAFETY DATA SHEET

### SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME: 550 X POLYMER  
CHEMICAL FAMILY: Copolymer of Acrylamide and Sodium Acrylate  
PRODUCT USE: Drilling Mud Additive  
WHMIS CLASSIFICATION: Not a Controlled Product under WHMIS  
WORK PLACE HAZARD: Not Applicable  
TRANSPORTATION OF DANGEROUS GOODS (TDGR)  
CLASSIFICATION: Not Applicable  
PACKAGE GROUP: Not Applicable  
PRODUCT IDENTIFICATION NUMBER (PIN): Not Applicable

### SECTION II: HAZARDOUS INGREDIENTS

<u>INGREDIENT</u>	<u>PERCENTAGE</u>	<u>CAS NUMBER</u>	<u>LD(50)</u>	<u>LC(50)</u>
No Hazardous Ingredients				

### SECTION III: TOXICOLOGICAL PROPERTIES

#### ROUTE OF ENTRY:

[ ] skin, [ ] eye contact, [xxx] inhalation, [ ] ingestion

SKIN CONTACT: Prolonged contact may cause skin irritation or dermatitis in some individuals.

EYE CONTACT: May Cause irritation.

INHALATION: May cause sneezing, slight irritation of nose and throat.

INGESTION: Not available

EFFECTS OF ACUTE EXPOSURE: Not available

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**SECTION IV: FIRST AID MEASURES**

**SKIN CONTACT:** Wash exposed area with soap and water. If irritation or abnormalities persist, call a physician.

**EYE CONTACT:** Immediately flush eyes with water for 15 minutes and call a physician.

**INHALATION:** Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

**INGESTION:** Do not induce vomiting. If conscious, dilute by giving two glasses of water. Call a physician immediately.

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**SECTION V: PHYSICAL DATA**

APPEARANCE AND ODOUR:	White granular solid; faint odour
DENSITY (SPECIFIC GRAVITY):	0.80
BOILING POINT:	Decomposes
MELTING POINT:	Not Applicable
WATER SOLUBILITY:	Soluble
% VOLATILE BY VOLUME:	Not Applicable
EVAPORATION RATE:	Not Applicable
VAPOUR PRESSURE: (MM Hg)	Very Low
VAPOUR DENSITY: (Air = 1)	Not Applicable

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**SECTION VI: FIRE AND EXPLOSION HAZARD DATA**

**FLASH POINT:** Not Applicable

**FLAMMABLE LIMIT:** Not Applicable

**EXTINGUISHING MEDIA:** Dry chemical, foam, CO<sub>2</sub>

**SPECIAL FIRE FIGHTING PROCEDURES:** Use self-contained respirators for fire fighting personnel.

**UNUSUAL FIRE AND EXPLOSION HAZARDS:** Oxides of carbon and nitrogen and products of incomplete combustion.

---

**SECTION VII: REACTIVITY DATA**

**STABLE [XXX]            INSTABLE: [ ]**

**INCOMPATIBILITY (CONDITIONS TO AVOID):** Strong oxidizing agents and caustic solutions.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Not Applicable

**HAZARDOUS POLYMERIZATION:** Will not occur [xxx]    May occur [ ]

## SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION: Suggest NIOSH/MESA approved dust mask.

VENTILATION: Ten (10) changes per hour suggested.

PROTECTIVE GLOVES: Suggest plastic or rubber.

EYE PROTECTION: Suggest goggles.

OTHER PROTECTIVE EQUIPMENT: Suggest rubber apron.

### PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Avoid prolonged or frequent contact when handling material. Do not inhale dust or breathe vapour. Keep container closed when not in use. Store in a cool and dry location away from oxidizing and reducing agents.

### STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK

Ventilate area. Wear rubber boots, gloves and a self-contained breathing apparatus if ventilation is not adequate. Collect into a waste container. Avoid raising dust. Wash spill site after material pick-up. Water solutions are very slippery. May constitute a hazard following a spill.

### WASTE DISPOSAL METHOD

Dispose of waste according to federal, provincial and local regulations.

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## SECTION IX: PREPARATION

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

Date issued: January 1, 1991

Date Revised:

By: Product Safety Committee

AMENDMENT

HAZARDOUS INGREDIENTS (550 X)

MATERIAL OR COMPONENT	WT%	HAZARD DATA
COPOLYACRYLAMIDE/SODIUM ACRYLATE		NOT CONSIDERED HAZARDOUS

ENVIRONMENTAL

DEGRADABILITY/AQUATIC TOXICITY: N. D.

OCTANOL/WATER PARTITION COEFFICIENT: N. D.

WASTE DISPOSAL METHODS: INCINERATION AND/OR DISPOSAL IN CHEMICAL LANDFILL. DISPOSER MUST COMPLY WITH FEDERAL STATE AND LOCAL DISPOSAL OR DISCHARGE LAWS.

RCRA STATUS OF UNUSED MATERIAL IF DISCARDED: NOT A "HAZARDOUS WASTE"

HAZARDOUS WASTE NUMBER: N. A.

REPORTABLE QUANTITY: EPA 40 CFR (CERCLA 102): N. A.

THRESHOLD PLANNING QUANTITY: EPA 40 CFR 355 (SERA 301-304): N. A.

TOXIC CHEMICAL RELEASE REPORTING: EPA 40 CFR 372 (SERA 311-313): N. A.

EPA HAZARD CLASSIFICATION CODE: ACUTE - YES  
FIRE - NO  
CHRONIC - NO  
PRESSURE - NO  
REACTIVE - NO

HMIS AND NFPA RATINGS:

	HMIS	NFPA
HEALTH	1	1
FLAMMABILITY	0	0
REACTIVITY	1	1
SPECIAL	N.A.	N.A.



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## MATERIAL SAFETY DATA SHEET

### SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME: LINSEED SOAP

CHEMICAL FAMILY: Lubricating grease

WHMIS CLASSIFICATION: Not Regulated

WORK PLACE HAZARD: Not Applicable

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not Available

PACKAGE GROUP: Not Applicable

PRODUCT IDENTIFICATION NUMBER (PIN): Not Applicable (Petroleum Lubricating Grease)

### SECTION II: HAZARDOUS INGREDIENTS

<u>INGREDIENT</u>	<u>PERCENTAGE</u>	<u>CAS NUMBER</u>	<u>LD(50)</u>	<u>LC(50)</u>
Linseed Soap	100%	Mixture		

### SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY: Information not available

[ ] skin, [ ] eye contact, [xxx] inhalation, [ ] ingestion

SKIN CONTACT: Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis.

EYE CONTACT: Not available

INHALATION: Inhalation of oil mist or vapours from hot grease may cause irritation of the upper respiratory tract. Long term intensive exposure may cause benign lung fibrosis.

INGESTION: Not Available.

CHRONIC OVEREXPOSURE: Not Determined.

IRRITATION INDEX: SKIN: Not Available

SYMPTOMS OF EXPOSURE: Not Available

EXPOSURE INFORMATION: Oil mist (particulate): 5 mg/M<sup>3</sup> (TLV/TWA) ACGIH 88/89  
10 mg/m<sup>3</sup> (TLV/STEL) ACGIH 88/89

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#### SECTION IV: FIRST AID MEASURES

SKIN CONTACT: Remove contaminated clothing. Wash contaminated skin with mild soap and water. Wipe excess from skin.

EYE CONTACT: Flush eyes with water for at least fifteen (15) minutes.

INHALATION: Remove victim from further exposure. Additional first aid treatment is not ordinarily required.

INGESTION: Do not induce vomiting. Obtain medical attention immediately.

OTHER INSTRUCTIONS: None.

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#### SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	Semi-solid brown coloured grease; slight hydrocarbon odour
DENSITY (SPECIFIC GRAVITY):	1.0
BOILING POINT:	100 Degree C
MELTING POINT:	Not Available
WATER SOLUBILITY:	Miscible
% VOLATILE BY VOLUME:	Not Available
EVAPORATION RATE:	Not Available
VAPOUR PRESSURE: (MM Hg)	Not Available
VAPOUR DENSITY: (Air = 1)	Not Available
Ph:	9.5
VISCOSITY:	Not Available

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#### SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: 222°C      FLAMMABLE LIMIT: Not Available

AUTO IGNITION TEMP: 343°C

EXTINGUISHING MEDIA: Dry Chemical, Carbon Dioxide CO<sub>2</sub>, Foam, Water fog.

SPECIAL FIRE FIGHTING PROCEDURES: No special procedures - Avoid inhalation of smoke. Caution, spilled material is slippery. Use water to cool fire-exposed containers.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None currently known.



**SECTION VII: REACTIVITY DATA**

STABLE: [yes]      INSTABLE: [ ]

INCOMPATIBILITY (CONDITIONS TO AVOID): Not Available

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide; carbon dioxide and dense smoke are produced on combustion. Avoid excessive heat, formation of vapours or mists.

HAZARDOUS POLYMERIZATION: Will not occur [ ]      May occur [ ] Not Available

**SECTION VIII: PREVENTATIVE MEASURES**

RESPIRATORY PROTECTION: Under conditions of high heat use an air purifying respirator (mechanical filter with accompanying organic vapour cartridge)

VENTILATION: Highly recommended for all indoor situations to control fugitive emissions. Concentrations in air should be maintained below the recommended threshold limit value if unprotected personnel are involved.

LOCAL: If oil mist is present or if exposure is exceeded.

MAKE-UP AIR: Should always be supplied to balance air exhausted (either generally or locally).

PROTECTIVE GLOVES: Impervious gloves (viton, nitrile, PVC, neoprene) should be worn at all times when handling this product.

EYE PROTECTION: Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes.

OTHER PROTECTIVE EQUIPMENT: Impervious clothing (apron, coveralls) should be worn in confined workspaces or where the risk of skin exposure is much higher.

PERMISSIBLE CONCENTRATIONS: Not Available

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE**

Store in a cool, dry, well ventilated area, away from heat and ignition sources, Avoid excessive heat, formation of oil mist, breathing of vapours and mist of hot oil and prolonged or repeated contact with skin. Launder contaminated clothing prior to reuse. Properly dispose of contaminated leather articles, including shoes, that cannot be decontaminated.

**STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK**

Spilled material is slippery. Isolate hazard area and restrict access. Wear appropriate breathing apparatus (if applicable) and protective clothing. Stop leak only if safe to do so. Contain a land spill by diking. For large spills remove by mechanical means and place in containers. Clean area with appropriate cleaner. Do not allow product or run off from fire control to enter storm or sanitary sewers, lakes, rivers, streams or public waterways. Block off drains and ditches. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities.



# WESTCOAST DRILLING SUPPLIES LTD.

#6 - 2351 SIMPSON ROAD  
RICHMOND, B.C. V6X 2R2

TEL: (604) 278-4954  
FAX: (604) 278-4914

Serving the Drilling Industry

EMERGENCY PHONE NO. (604) 278-4954

## MATERIAL SAFETY DATA SHEET

### SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME: BIG BEAR DIAMOND DRILL ROD GREASE

CHEMICAL FAMILY: Hydrocarbon

WHMIS CLASSIFICATION: Not Regulated

WORK PLACE HAZARD: Not Applicable

### TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not Regulated

PACKAGE GROUP: Not Applicable

PRODUCT IDENTIFICATION NUMBER (PIN): Not Applicable

### SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD/50	LC/50
Severely hydrotreated naphthenic oils	< 75.00%	64742-52-5	> 3 g/kg (Dermal Rabbit)	Not Determined
Barium soap	< 35.00%	68201-19-4	> 5 g/kg (Oral Rat) Not Determined	

### SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:

[X] skin, [ ] eye contact, [ ] inhalation, [ ] ingestion

SKIN CONTACT: Acute exposure is believed to be minimally irritating.

EYE CONTACT: Acute exposure is believed to be minimally irritating.

INHALATION: Believed to minimally irritating if not in excess of permissible concentrations; see section VIII.

INGESTION: Not Available.

CHRONIC OVEREXPOSURE: Not Determined.



IRRITATION INDEX: SKIN: Believed to be 1.0 - 2.0/8.0 (rabbit); slightly irritating  
EYES: Believed to be <15/110 (rabbit); no appreciable effect

SYMPTOMS OF EXPOSURE: None expected other than possible minor irritation. Considered practically non-toxic.

#### SECTION IV: FIRST AID MEASURES

SKIN CONTACT: None considered necessary.

EYE CONTACT: As with most foreign materials, should eye contact occur, flush eyes with plenty of water.

INHALATION: None considered necessary.

INGESTION: None considered necessary. Do not induce vomiting.

OTHER INSTRUCTIONS: In some cases of ingestion and/or inhalation, medical attention should be obtained.

#### SECTION V: PHYSICAL DATA

APPEARANCE AND ODOUR:	Brownish yellow, fibrous grease
DENSITY (SPECIFIC GRAVITY):	> 1.0
BOILING POINT:	700°F
MELTING POINT:	400°F
WATER SOLUBILITY:	Negligible
% VOLATILE BY VOLUME:	Not Determined
EVAPORATION RATE:	Not Determined
VAPOUR PRESSURE: (MM Hg)	Not Determined (low)
VAPOUR DENSITY: (Air = 1)	> 1.0
Ph:	Not Applicable
VISCOSITY:	NLGI No. 3-4 grease

#### SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: > 350°F (COC Method) FLAMMABLE LIMIT: Not Determined

EXTINGUISHING MEDIA: According to the National Fire Protection Association Guide, use water spray, Dry Chemical, Foam, Carbon Dioxide CO<sub>2</sub>. Water or foam may cause frothing.

SPECIAL FIRE FIGHTING PROCEDURES: Use water to cool fire-exposed containers. If a leak or spill has not ignited, use water spray to disperse the vapours and to provide protection for persons attempting to stop the leak. See Hazardous Decomposition Products, Section VII.

UNUSUAL FIRE AND EXPLOSION HAZARDS: None

## SECTION VII: REACTIVITY DATA

STABLE: ☒

INSTABLE: ☐ Info not available

INCOMPATIBILITY (CONDITIONS TO AVOID): Strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS: This material decomposes at a high temperature to form carbon monoxide; carbon dioxide, aldehydes and ketones, combustion products of nitrogen and sulphur.

HAZARDOUS POLYMERIZATION: Will not occur ☒ May occur ☐

## SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION: None required if exposures are within the permissible concentrations; See below.

VENTILATION: Natural dilution.

PROTECTIVE GLOVES: Neoprene

EYE PROTECTION: Chemical type goggles or face shield optional.

OTHER PROTECTIVE EQUIPMENT: Standard work clothing and work shoes.

PERMISSIBLE CONCENTRATIONS: AIR: 5 mg/cubic metre of air for mineral oil mist averaged over an 8 hour daily exposure (ACGIH, 1986 - 87)

## PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE

Exposed persons should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water and laundering or dry cleaning soiled work clothing at least weekly. Minimum feasible handling temperatures should be maintained. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

## STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK

Contain spill if possible. Wipe up or absorb on suitable material and shovel up.

## WASTE DISPOSAL METHOD

Re-evaluation of the product may be required by the user at the time of disposal, since the product uses transformations, mixtures and processes may influence waste classification. Disposal should be in accordance with applicable federal, provincial and local regulations.

## SECTION IX: PREPARATION

The information contained herein is given in good faith, but no warranty, expressed or implied is made.  
Date issued: Sept. 17, 1993 By: Product Safety Committee  
Date Revised:

The information in this document is compiled from information maintained by the United States Department of Defense (DOD). Anyone using this information is solely responsible for the accuracy and applicability of this information to a particular use or situation.  
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**Section 1 - Product and Company Identification**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Product Identification:** NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L  
**Date of MSDS:** 10/01/1990 **Technical Review Date:** 11/27/1992  
**FSC:** 9140 **NIIN:** 00-286-5294  
**Submitter:** D DG  
**Status Code:** C  
**MFN:** 01  
**Article:** N  
**Kit Part:** N

**Manufacturer's Information**

**Manufacturer's Name:** CONOCO INC.  
**Post Office Box:** 2197  
**Manufacturer's Address1:**  
**Manufacturer's Address2:** HOUSTON, TX 77252  
**Manufacturer's Country:** US  
**General Information Telephone:** 713-293-5550  
**Emergency Telephone:** 800-441-3637  
**Emergency Telephone:** 800-441-3637  
**MSDS Preparer's Name:** N/P  
**Proprietary:** N  
**Reviewed:** Y  
**Published:** Y  
**CAGE:** DO839  
**Special Project Code:** N

**Item Description**

**Item Name:** DIESEL FUEL  
**Item Manager:**  
**Specification Number:** VV-F-800  
**Type/Grade/Class:** GRADE DF-2  
**Unit of Issue:** GL  
**Unit of Issue Quantity:** X  
**Type of Container:** BULK

**Contractor Information**

**Contractor's Name:** CONOCO INC  
**Post Office Box:** 2197  
**Contractor's Address1:**  
**Contractor's Address2:** HOUSTON, TX 77252  
**Contractor's Telephone:** 713-293-5550  
**Contractor's CAGE:** 5R396

## Contractor Information

**Contractor's Name:** CONOCO INC.  
**Post Office Box:** 1267  
**Contractor's Address1:** N/K  
**Contractor's Address2:** PONCA CITY, OK 74603  
**Contractor's Telephone:** 405767-6000  
**Contractor's CAGE:** DO839

---

### Section 2 - Composition/Information on Ingredients NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

---

**Ingredient Name:** HYDROCARBONS (ALIPHATIC AND AROMATIC)  
**Ingredient CAS Number:** **Ingredient CAS Code:** X  
**RTECS Number:** **RTECS Code:** X  
**=WT:** **=WT Code:**  
**=Volume:** **=Volume Code:**  
**>WT:** **>WT Code:**  
**>Volume:** **>Volume Code:**  
**<WT:** **<WT Code:**  
**<Volume:** **<Volume Code:**  
**% Low WT:** **% Low WT Code:**  
**% High WT:** **% High WT Code:**  
**% Low Volume:** **% Low Volume Code:**  
**% High Volume:** **% High Volume Code:**  
**% Text:** >90  
**% Enviromental Weight:**  
**Other REC Limits:** 400 PPM  
**OSHA PEL:** UNKNOWN **OSHA PEL Code:** M  
**OSHA STEL:** **OSHA STEL Code:**  
**ACGIH TLV:** UNKNOWN **ACGIH TLV Code:** M  
**ACGIH STEL:** N/P **ACGIH STEL Code:**  
**EPA Reporting Quantity:**  
**DOT Reporting Quantity:**  
**Ozone Depleting Chemical:**

**Ingredient Name:** NAPHTHALENE (SARA III)  
**Ingredient CAS Number:** 91-20-3 **Ingredient CAS Code:** M  
**RTECS Number:** QJ0525000 **RTECS Code:** M  
**=WT:** **=WT Code:**  
**=Volume:** **=Volume Code:**  
**>WT:** **>WT Code:**  
**>Volume:** **>Volume Code:**  
**<WT:** **<WT Code:**  
**<Volume:** **<Volume Code:**  
**% Low WT:** **% Low WT Code:**  
**% High WT:** **% High WT Code:**  
**% Low Volume:** **% Low Volume Code:**  
**% High Volume:** **% High Volume Code:**  
**% Text:** 3.0  
**% Enviromental Weight:**  
**Other REC Limits:** NONE RECOMMENDED  
**OSHA PEL:** 10 PPM/15 STEL **OSHA PEL Code:** M  
**OSHA STEL:** **OSHA STEL Code:**  
**ACGIH TLV:** 10 PPM/15 STEL; 9293 **ACGIH TLV Code:** M  
**ACGIH STEL:** N/P **ACGIH STEL Code:**

EPA Reporting Quantity: 100 LBS  
DOT Reporting Quantity: 100 LBS  
Ozone Depleting Chemical: N

---

**Section 3 - Hazards Identification, Including Emergency Overview**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Health Hazards Acute & Chronic:** EYES:IRRITATION. SKIN:SKIN IRRITANT. INHALATION:LUNG IRRITATION, CNS EFFECTS. INGESTION:PRACTICALLY NON-TOXIC TO INTERNAL ORGANS. HOWEVER, IF ASPIRATED INTO LUNGS IT MAY CAUSE CHEMICAL PNEUMONITIS WHICH CAN BE FATAL. CHRONIC:MIDDLE DISTILLATE HAS CAUSED SKIN CANCER WHEN REPEATEDLY APPLIED TO MICE OVER LIFETIME,KIDNEY.

**Signs & Symptoms of Overexposure:**

SKIN:IRRITATION, DRYING EFFECT. INHALATION: HEADACHE, DIZZINESS, LOSS OF APPETITE, WEAKNESS AND LOSS OF COORDINATION.

**Medical Conditions Aggravated by Exposure:**

NONE SPECIFIED BY MANUFACTURER.

**LD50 LC50 Mixture:** UNKNOWN

**Route of Entry Indicators:**

**Inhalation:** YES

**Skin:** YES

**Ingestion:** YES

**Carcinogenicity Indicators**

**NTP:** NO

**IARC:** NO

**OSHA:** NO

**Carcinogenicity Explanation:** WHOLE DIESEL ENGINE EXHAUST IS LISTED AS A PROBABLE CARCINOGEN BY IARC AND NIOSH.

---

**Section 4 - First Aid Measures**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**First Aid:**

EYES:FLUSH WITH FRESH WATER FOR 15 MINUTES. SKIN: REMOVE CONTAMINATED CLOTHING. WASH SKIN THOROUGHLY WITH SOAP AND WATER. SEE A DOCTOR IF SYMPTOMS DEVELOP. INHALATION: REMOVE TO FRESH AIR. INGESTION: GIVE WATER OR MILK TO DRINK AND GET IMMEDIATE MEDICAL ATTENTION. DO NOT MAKE PERSON VOMIT UNLESS DIRECTED TO DO SO BY MEDICAL PERSONNEL.

---

**Section 5 - Fire Fighting Measures**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Fire Fighting Procedures:**

WEAR FIRE FIGHTING PROTECTIVE EQUIPMENT AND A FULL FACED SELF CONTAINED BREATHING APPARATUS. EVACUATE AREA. COOL FIRE EXPOSED CONTAINERS WITH WATER SPRAY.

**Unusual Fire or Explosion Hazard:**

COMBUSTION OR HEAT OF FIRE MAY PRODUCE HAZARDOUS DECOMPOSITION PRODUCTS AND VAPORS. LIQUID EVAPORATES AND FORMS VAPORS WHICH CAN CATCH FIRE WITH VIOLENT BURNING

**Extinguishing Media:**

USE WATER FOG, CARBON DIOXIDE, FOAM, OR DRY CHEMICAL.

**Flash Point:** Flash Point Text: 130F,54C

**Autoignition Temperature:**

**Autoignition Temperature Text:** N/K

**Lower Limit(s):** 0.4

**Upper Limit(s):** 6

---

**Section 6 - Accidental Release Measures**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Spill Release Procedures:**

THIS MATERIAL IS CONSIDERED TO BE A WATER POLLUTANT AND RELEASES OF THIS PRODUCT SHOULD BE PREVENTED. ELIMINATE ALL OPEN FLAMES. STOP SOURCE OF THE LEAK. CONTAIN LIQUID. CLEAN UP SPILL USING APPROPRIATE TECHNIQUES SUCH AS ABSORBENT MATERIALS.

---

**Section 7 - Handling and Storage**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Handling and Storage Precautions:**

**Other Precautions:**

---

**Section 8 - Exposure Controls & Personal Protection**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Respiratory Protection:**

NONE NORMALLY REQUIRED. USE NIOSH APPROVED SELF-CONTAINED BREATHING APPARATUS IF TLV IS EXCEEDED OR WHEN SPRAYING OR USING IN CONFINED SPACES.

**Ventilation:**

USE THIS MATERIAL ONLY IN WELL VENTILATED AREAS.

**Protective Gloves:**

PVC

**Eye Protection:** GOGGLES

**Other Protective Equipment:** WEAR PROTECTIVE CLOTHINGS.

**Work Hygienic Practices:** WASH HANDS THOROUGHLY AFTER HANDLING THIS PRODUCT.

**Supplemental Health & Safety Information:** NONE

---

**Section 9 - Physical & Chemical Properties**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**HCC:** F4

**NRC/State License Number:**

**Net Property Weight for Ammo:**

**Boiling Point:** Boiling Point Text: 350F,177C

**Melting/Freezing Point:** Melting/Freezing Text: N/A

**Decomposition Point:** Decomposition Text: UNKNOWN

**Vapor Pressure:** 1 Vapor Density: >1

**Percent Volatile Organic Content:**

**Specific Gravity:** 0.85-0.93

**Volatile Organic Content Pounds per Gallon:**

**pH:** N/A

**Volatile Organic Content Grams per Liter:**

**Viscosity:** 1.9 CST

**Evaporation Weight and Reference:** N/K

**Solubility in Water:** INSOLUBLE

**Appearance and Odor:** CLEAR OR LIGHT YELLOW LIQUID, AROMATIC ODOR

**Percent Volatiles by Volume:** NIL

**Corrosion Rate:** UNKNOWN

---

**Section 10 - Stability & Reactivity Data**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Stability Indicator:** YES

**Materials to Avoid:**

STRONG OXIDIZING AGENTS

**Stability Condition to Avoid:**

HIGH HEAT, OPEN FLAMES AND OTHER SOURCES OF IGNITION

**Hazardous Decomposition Products:**

TOXIC CARBON MONOXIDE AND CARBON DIOXIDE, AND SULFUR DIOXIDE.

**Hazardous Polymerization Indicator:** NO

**Conditions to Avoid Polymerization:**

NOT APPLICABLE

---

**Section 11 - Toxicological Information**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Toxicological Information:**

N/P

---

**Section 12 - Ecological Information**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Ecological Information:**

N/P

---

**Section 13 - Disposal Considerations**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Waste Disposal Methods:**

PLACE CONTAMINATED MATERIALS IN DISPOSABLE CONTAINERS AND DISPOSE OF IN A MANNER CONSISTENT WITH APPLICABLE REGULATIONS. CANTACT LOCAL ENVIRONMENTAL OR HEALTH AUTHORITIES FOR APPROVED DISPOSAL OF THIS MATERIAL.

---

**Section 14 - MSDS Transport Information**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Transport Information:**

N/P

---

**Section 15 - Regulatory Information**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**SARA Title III Information:**

N/P

**Federal Regulatory Information:**

N/P

**State Regulatory Information:**

N/P

---

**Section 16 - Other Information**  
**NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L**

---

**Other Information:**

N/P

**HMIS Transportation Information**

**Product Identification:** NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L

**Transportation ID Number:** 66870

**Responsible Party CAGE:** DO839

**Date MSDS Prepared:** 10/01/1990

**Date MSDS Reviewed:** 11/27/1992

**MFN:** 11/27/1992

**Submitter:** D DG

**Status Code:** C

**Container Information**

**Unit of Issue:** GL

**Container Quantity:** X

**Type of Container:** BULK

**Net Unit Weight:**

**Article without MSDS:** N

**Technical Entry NOS Shipping Number:** HYDROCARBONS(ALIPHATIC AND AROMATIC), NAPHTHALENE.

**Radioactivity:**

**Form:**

**Net Explosive Weight:**

**Coast Guard Ammunition Code:**

**Magnetism:** N/P

**AF MMAC Code:**

**DOD Exemption Number:**

**Limited Quantity Indicator:**

**Multiple Kit Number:** 0

**Kit Indicator:** N

**Kit Part Indicator:** N

**Review Indicator:** Y

**Additional Data:**

NONE

**Department of Transportation Information**

**DOT Proper Shipping Name:** GAS OIL OR DIESEL FUEL OR HEATING OIL, LIGHT

**DOT PSN Code:** GTF

**Symbols:**

**DOT PSN Modifier:**

**Hazard Class:** 3

**UN ID Number:** UN1202

**DOT Packaging Group:** III

**Label:** FLAMMABLE LIQUID

**Special Provision(s):** B1,T7,T30

**Packaging Exception:** 150

**Non Bulk Packaging:** 203

**Bulk Packaging:** 242

**Maximum Quantity in Passenger Area:** 60 L

**Maximum Quantity in Cargo Area:** 220 L

**Stow in Vessel Requirements:** A

**Requirements Water/Sp/Other:**

**IMO Detail Information**



**IMO Proper Shipping Name:** GAS OIL  
**IMO PSN Code:** HRR  
**IMO PSN Modifier:**  
**IMDG Page Number:** 3375  
**UN Number:** 1202  
**UN Hazard Class:** 3.3  
**IMO Packaging Group:** III  
**Subsidiary Risk Label:** -  
**EMS Number:** 3-07  
**Medical First Aid Guide Number:** 311

#### **IATA Detail Information**

**IATA Proper Shipping Name:** GAS OIL  
**IATA PSN Code:** MTX  
**IATA PSN Modifier:**  
**IATA UN Id Number:** 1202  
**IATA UN Class:** 3  
**Subsidiary Risk Class:**  
**UN Packaging Group:** III  
**IATA Label:** FLAMMABLE LIQUID  
**Packaging Note for Passengers:** 309  
**Maximum Quantity for Passengers:** 60L  
**Packaging Note for Cargo:** 310  
**Maximum Quantity for Cargo:** 220L  
**Exceptions:** A3

#### **AFI Detail Information**

**AFI Proper Shipping Name:** GAS OIL OR DIESEL FUEL OR HEATING OIL, LIGHT  
**AFI Symbols:**  
**AFI PSN Code:** MTX  
**AFI PSN Modifier:**  
**AFI UN Id Number:** UN1202  
**AFI Hazard Class:** 3  
**AFI Packing Group:** III  
**AFI Label:**  
**Special Provisions:** P5  
**Back Pack Reference:** A7.3

#### **HAZCOM Label Information**

**Product Identification:** NO. 2 DIESEL FUEL/FURNACE OIL/DIESEL FUEL L  
**CAGE:** DO839  
**Assigned Individual:** Y  
**Company Name:** CONOCO INC.  
**Company PO Box:** 1267  
**Company Street Address1:** N/K  
**Company Street Address2:** PONCA CITY, OK 74603 US  
**Health Emergency Telephone:** 800-441-3637  
**Label Required Indicator:** Y  
**Date Label Reviewed:** 11/27/1992  
**Status Code:** C  
**Manufacturer's Label Number:** NONE  
**Date of Label:** 11/27/1992  
**Year Procured:** 1992  
**Organization Code:** F  
**Chronic Hazard Indicator:** Y  
**Eye Protection Indicator:** YES  
**Skin Protection Indicator:** YES  
**Respiratory Protection Indicator:** YES  
**Signal Word:** WARNING

**Health Hazard:** Slight  
**Contact Hazard:** Slight  
**Fire Hazard:** Moderate  
**Reactivity Hazard:** None



# Shell Canada Limited

## Material Safety Data Sheet

Effective Date: 2002-08-14

Supersedes: 2001-01-08

Class B2 Flammable  
LiquidClass D2A Other Toxic  
Effects - Carcinogen

### 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **REGULAR UNLEADED GASOLINE**  
SYNONYMS: Automotive Fuel  
Petrol  
PRODUCT USE: Fuel  
MSDS Number: 211-001

**MANUFACTURER**

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

**TELEPHONE NUMBERS****Shell Emergency Number**

1-800-661-7378

**CANUTEC 24 HOUR EMERGENCY NUMBER**

613-996-6666

For general information:

1-800-661-1600

For MSDS information:

403-691-3982

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

403-691-2220

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.

\*An asterisk in the product name designates a trade-mark(s) of Shell Canada Limited, used under license by Shell Canada Products.

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	% Range	WHMIS Controlled
Gasoline, Natural	8006-61-9	80 - 100	Yes
Benzene	71-43-2	<1.5	Yes

See Section 8 for Occupational Exposure Guidelines.

### 3. HAZARDS IDENTIFICATION

**Physical Description:** Liquid Clear Typical Gasoline Odour

**Routes of Exposure:** Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.

**Hazards:**

Flammable Liquid.  
May cause cancer.  
Vapours are moderately irritating to the eyes.  
Ingestion may result in vomiting. Avoid aspiration of vomitus into lungs as small quantities may result in aspiration pneumonitis.  
May be absorbed by skin contact. Prolonged immersion in liquid may lead to chemical burns.  
Vapours are moderately irritating to the respiratory passages. The liquid when accidentally aspirated into the lungs can cause a severe inflammation of the lung.  
Excessive exposure to benzene may cause leukemia in man.

**Handling:**

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

For further information on health effects, see Section 11.

**4. FIRST AID**

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

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

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

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

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

**5. FIRE FIGHTING MEASURES**

**Extinguishing Media:** Dry Chemical  
Carbon Dioxide  
Foam  
Water Fog

- Firefighting Instructions:** Extremely flammable. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Vapours may travel along ground and flashback along vapour trail may occur. Product will float and can be reignited on surface of water. Do not use water except as a fog. Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure buildup which could result in container rupture. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus.
- Hazardous Combustion Products:** Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

## 6. ACCIDENTAL RELEASE MEASURES

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

## 7. HANDLING AND STORAGE

- Handling:** Extremely flammable. Fixed equipment as well as transfer containers and equipment should be grounded to prevent accumulation of static charge. Avoid all direct contact with this material. Avoid prolonged or repeated inhalation of vapours. Vapours may accumulate and travel to distant ignition sources and flashback. Do not cut, drill, grind, weld or perform similar operations on or near containers. Do not use as a cleaning solvent. Never siphon by mouth. Empty containers are hazardous, may contain flammable/explosive dusts, residues or vapours. Launder contaminated clothing prior to reuse. Wash with soap and water prior to eating, drinking, smoking, applying cosmetics or using toilet facilities.
- Storage:** Store in a cool, dry, well ventilated area, away from heat and ignition sources. Protect against physical damage to containers.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING INFORMATION, WHILE APPROPRIATE FOR THIS PRODUCT, IS GENERAL IN NATURE. THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT WILL VARY DEPENDING ON THE CONDITIONS OF USE.

### OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):

Gasoline: 300 ppm (STEL: 500 ppm)

Benzene (skin) : 0.5 ppm (STEL: 2.5 ppm)

Skin Notation: The occupational exposure limit is based on the fact that skin and/or eye is a major route of exposure through absorption.

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

**PERSONAL PROTECTIVE EQUIPMENT:**

**Eye Protection:** Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes. Provide an eyewash station in the area.

**Skin Protection:** Impervious gloves should be worn at all times when handling this product. PVC or nitrile rubber gloves are recommended. In confined spaces or where the risk of skin exposure is much higher, impervious clothing should be worn. Safety showers should be available for emergency use.

**Respiratory Protection:** If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator. Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges. For high airborne concentrations, use a NIOSH-approved supplied-air respirator, either self-contained or airline breathing apparatus, operated in positive pressure mode.

**9. PHYSICAL DATA**

<b>Physical State:</b>	Liquid
<b>Appearance:</b>	Clear
<b>Odour:</b>	Typical Gasoline Odour
<b>Odour Threshold:</b>	<0.25 ppm
<b>Freezing/Pour Point:</b>	Not available
<b>Boiling Point:</b>	35 - 220 degrees C
<b>Density:</b>	720 - 730 kg/m <sup>3</sup> @ 15 degrees C
<b>Vapour Density (Air = 1):</b>	3.5
<b>Vapour Pressure (absolute):</b>	Not available
<b>pH:</b>	Not applicable
<b>Flash Point:</b>	Method Tag Closed Cup -30 degrees C
<b>Lower Explosion Limit:</b>	1.4 % (vol.)
<b>Upper Explosion Limit:</b>	7.6 % (vol.)
<b>Autoignition Temperature:</b>	280 degrees C
<b>Viscosity:</b>	<1 cSt @ 38 degrees C
<b>Evaporation Rate (n-BuAc = 1):</b>	Not available
<b>Partition Coefficient (K<sub>OW</sub>):</b>	200
<b>Water Solubility:</b>	Insoluble
<b>Other Solvents:</b>	Hydrocarbon Solvents

**10. STABILITY AND REACTIVITY**

<b>Chemically Stable:</b>	Yes
<b>Hazardous Polymerization:</b>	No
<b>Sensitive to Mechanical Impact:</b>	No
<b>Sensitive to Static Discharge:</b>	Yes
<b>Incompatible Materials:</b>	Avoid strong oxidizing agents.

**Conditions of Reactivity:**

Avoid excessive heat, formation of vapours or mists.

**11. TOXICOLOGICAL INFORMATION****Ingredient (or Product if not specified)      Toxicological Data**

Gasoline, Natural

LD50 Oral Rat = 18800 mg/kg

LD50 Dermal Rabbit &gt;8000 mg/kg

Benzene

LD50 Oral Rat = 930 - 5600 mg/kg

LC50 Inhalation Rat = 13700 ppm for 4 hours

**Routes of Exposure:** Exposure may occur via inhalation, ingestion, skin absorption and skin or eye contact.

**Irritancy:** Based on testing with similar materials, this product is not expected to be a primary skin irritant after exposure of short duration, would not be a skin sensitizer and would not be irritating to the eye.

**Chronic Effects:** Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis. Prolonged exposure to high vapour concentration can cause headache, dizziness, nausea, blurred vision and central nervous system depression. Prolonged and repeated exposure may cause serious injury to blood forming organs, resulting in anemia and similar conditions.

**Carcinogenicity and Mutagenicity:** According to the International Agency for Research on Cancer (IARC) this product is considered to be possibly carcinogenic to humans. Epidemiological studies indicate that long term inhalation of benzene vapour can cause leukaemia in man. Benzene has also produced chromosomal aberrations in peripheral blood lymphocytes.

**12. ECOLOGICAL INFORMATION****Environmental Effects:**

Do not allow product or runoff from fire control to enter storm or sanitary sewers, lakes, rivers, streams, or public waterways. Block off drains and ditches. Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident. Spill area must be cleaned and restored to original condition or to the satisfaction of authorities. May be harmful to aquatic life. Fish Toxicity: 5 to 40 ppm | 96 hr TLm | Rainbow Trout | Freshwater

**Biodegradability:**

Not readily biodegradable. Potential for bioaccumulation. Rapid volatilization.

**13. DISPOSAL CONSIDERATIONS**

Waste management priorities (depending on volumes and concentration of waste) are: 1. recycle (reprocess), 2. energy recovery (cement kilns, thermal power generation), 3. incineration, 4. disposal at a licenced waste disposal facility. Do not attempt to combust waste on-site. Incinerate at a licenced waste disposal site with approval of environmental authority.

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

UN Number

UN1203

Proper Shipping Name	GASOLINE
Hazard Class	Class 3 Flammable Liquids
Packing Group	PG II
Additional Information	Marine Pollutant
Shipping Description	GASOLINE Class 3 UN1203 PG II Marine Pollutant

## 15. REGULATORY INFORMATION

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

<b>WHMIS Class:</b>	Class B2 Flammable Liquid Class D2A Other Toxic Effects - Carcinogen
<b>DSL/NDL Status:</b>	This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.
<b>Other Regulatory Status:</b>	No Canadian federal standards.

## 16. ADDITIONAL INFORMATION

### LABEL STATEMENTS

<b>Hazard Statement :</b>	Flammable Liquid. May cause cancer.
<b>Handling Statement:</b>	Eliminate all ignition sources. Wear suitable gloves and eye protection. Bond and ground transfer containers and equipment to avoid static accumulation. Avoid prolonged exposure to vapours. Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.
<b>First Aid Statement :</b>	Wash contaminated skin with soap and water. Flush eyes with water. If overcome by vapours remove to fresh air. Do not induce vomiting. Obtain medical attention.
<b>Revisions:</b>	This MSDS has been reviewed and updated. Changes have been made to: Section 1 Section 2 Section 14



**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.

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**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.

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**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

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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	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

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## 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

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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:

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.

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**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:



# Shell Canada Limited

## Material Safety Data Sheet

Effective Date: 2002-08-14

Supersedes: 2001-01-08

Class A Compressed  
GasClass B1 Flammable  
GasClass B2 Flammable  
Liquid

### 1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: **PROPANE**  
SYNONYMS: Dimethylmethane  
PRODUCT USE: Fuel  
MSDS Number: 251-300

**MANUFACTURER**

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

**TELEPHONE NUMBERS****Shell Emergency Number**

1-800-661-7378

**CANUTEC 24 HOUR EMERGENCY NUMBER**

613-996-6666

For general information:

1-800-661-1600

For MSDS information:

403-691-3982

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

403-691-2220

This MSDS was prepared by the Toxicology and Product Stewardship Section of Shell Canada Limited.

\*An asterisk in the product name designates a trade-mark(s) of Shell Canada Limited, used under license by Shell Canada Products.

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Component Name	CAS Number	% Range	WHMIS Controlled
Propane	74-98-6	>90	Yes
Propylene	115-07-1	<5	Yes
Hydrocarbons, C4 and up	68476-44-8	<2.5	Yes

See Section 8 for Occupational Exposure Guidelines.

### 3. HAZARDS IDENTIFICATION

**Physical Description:** Liquefied Compressed Gas    Colourless    Mercaptan Odor.

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

**Hazards:**

Compressed Gas.

Flammable Gas.

Flammable Liquid.

The gas is an asphyxiant and may also have a mild narcotic effect.

Direct contact with liquefied gas can result in burns to skin and eyes.

Exposure to rapidly expanding gas may cause frost burns to the eyes. As a gas, is non-irritating to the eyes.

Exposure to rapidly expanding gas may cause frost burns to the skin. As a gas, is non-irritating to the skin.

At very high concentrations this product can have an anesthetic (drowsiness, weakness) and asphyxiant effect. As a gas, is non-irritating to the throat. While there is no evidence that exposure to industrially acceptable levels of hydrocarbons have produced cardiac effects in humans, animal studies have shown that inhalation of high vapour levels of low molecular weight hydrocarbons has produced cardiac sensitization. Such sensitization may cause fatal changes in heart rhythms.

**Handling:**

Eliminate all ignition sources.

Wear insulated gloves to avoid freezing burns from liquid.

Wear an approved respirator to prevent overexposure.

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

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

For further information on health effects, see Section 11.

**4. FIRST AID**

<b>Eyes:</b>	Flush eyes with water for at least 15 minutes while holding eyelids open. If frostbite or burn occurs, get medical attention.
<b>Skin:</b>	If victim has received cold burns, treat by immersing in lukewarm water (32 to 43 deg C) for 30-45 minutes. Remove contaminated clothing unless stuck to a burn area in which case cut around it. Obtain medical attention as soon as possible after first aid has been initiated and completed.
<b>Ingestion:</b>	Not applicable.
<b>Inhalation:</b>	Remove victim from further exposure and restore breathing, if required. Obtain medical attention.
<b>Notes to Physician:</b>	Inhalation of product may have a narcotic effect. Assess central nervous system and cardio-respiratory status.

**5. FIRE FIGHTING MEASURES**

<b>Extinguishing Media:</b>	Carbon Dioxide Dry Chemical Water Fog
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**Firefighting Instructions:** Extremely flammable. Vapour forms a flammable/explosive mixture with air between upper and lower flammable limits. Evacuate hazard area. Vapours may travel along ground and flashback along vapour trail may occur. Containers exposed to intense heat may rupture. Allow gas to burn if flow cannot be shut off safely. Use water fog to disperse vapours. Containers exposed to intense heat from fires should be cooled with water to prevent vapour pressure buildup which could result in container rupture. Container areas exposed to direct flame contact should be cooled with large quantities of water as needed to prevent weakening of container structure. Always stay away from ends of containers due to explosive potential. Fight fire from maximum distance. Do not enter confined fire space without adequate protective clothing and an approved positive pressure self-contained breathing apparatus. Shut off source of gas.

**Hazardous Combustion Products:** Carbon dioxide, carbon monoxide and unidentified organic compounds may be formed upon combustion.

## 6. ACCIDENTAL RELEASE MEASURES

Issue warning "Flammable". Evacuate personnel not equipped with protective clothing and NIOSH approved respiratory protection. Isolate hazard area and restrict access. Avoid direct contact with material. Stop leak only if safe to do so. Eliminate all ignition sources. Handling equipment must be grounded. Use water fog to knock down vapours; contain runoff.

## 7. HANDLING AND STORAGE

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

**Storage:** Store cylinders upright, secured in position with cylinder valve cap on. Store in a cool, dry, well ventilated area, away from heat and ignition sources. Protect against physical damage to containers.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

THE FOLLOWING INFORMATION, WHILE APPROPRIATE FOR THIS PRODUCT, IS GENERAL IN NATURE. THE SELECTION OF PERSONAL PROTECTIVE EQUIPMENT WILL VARY DEPENDING ON THE CONDITIONS OF USE.

**OCCUPATIONAL EXPOSURE LIMITS (Current ACGIH TLV/TWA unless otherwise noted):**

Propane: 2500 ppm



**Mechanical Ventilation:** Use explosion-proof ventilation as required to control vapour concentrations. Make up air should always be supplied to balance air exhausted (either generally or locally). For personnel entry into confined spaces (i.e. bulk storage tanks) a proper confined space entry procedure must be followed including ventilation and testing of tank atmosphere.

**PERSONAL PROTECTIVE EQUIPMENT:**

**Eye Protection:** Chemical safety goggles should be worn. Provide an eyewash station in the area.  
**Skin Protection:** Due to cryogenic properties of liquid product wear insulated gloves suitable for low temperatures, and coveralls. Safety showers should be available for emergency use.  
**Respiratory Protection:** Use a NIOSH-approved chemical cartridge respirator with organic vapour cartridges or use a NIOSH-approved supplied-air respirator. For high airborne concentrations, use a NIOSH-approved supplied-air respirator, either self-contained or airline breathing apparatus, operated in positive pressure mode.

**9. PHYSICAL DATA**

<b>Physical State:</b>	Liquefied Compressed Gas
<b>Appearance:</b>	Colourless
<b>Odour:</b>	Mercaptan Odor.
<b>Odour Threshold:</b>	Not available
<b>Freezing/Pour Point:</b>	<-188 degrees C
<b>Boiling Point:</b>	-42 degrees C
<b>Density:</b>	Not available
<b>Vapour Density (Air = 1):</b>	1.5
<b>Vapour Pressure (absolute):</b>	>400 mm Hg @ -56 degrees C
<b>pH:</b>	Not applicable
<b>Flash Point:</b>	Method Tag Closed Cup -104 degrees C
<b>Lower Explosion Limit:</b>	2.1 % (vol.)
<b>Upper Explosion Limit:</b>	9.5 % (vol.)
<b>Autoignition Temperature:</b>	432 degrees C
<b>Viscosity:</b>	Not applicable
<b>Evaporation Rate (n-BuAc = 1):</b>	Not available
<b>Partition Coefficient (K<sub>OW</sub>):</b>	229
<b>Water Solubility:</b>	Slight
<b>Other Solvents:</b>	Alcohol, Ether
<b>Molecular Weight:</b>	44.1 grams
<b>Formula:</b>	CH <sub>3</sub> CH <sub>2</sub> CH <sub>3</sub>

**10. STABILITY AND REACTIVITY**

<b>Chemically Stable:</b>	Yes
<b>Hazardous Polymerization:</b>	No
<b>Sensitive to Mechanical Impact:</b>	No
<b>Sensitive to Static Discharge:</b>	Yes
<b>Incompatible Materials:</b>	Avoid strong oxidizing agents.
<b>Conditions of Reactivity:</b>	Avoid excessive heat, open flames and all ignition sources. May explode if ignited in an enclosed area.

**11. TOXICOLOGICAL INFORMATION**

**Ingredient (or Product if not specified)    Toxicological Data**

Propane  
Propylene  
Hydrocarbons, C4 and up

**Routes of Exposure:** Exposure will most likely occur through skin contact or inhalation.  
**Irritancy:** No irritation effects with the gas have been reported but in liquid form contact with skin or eyes may result in freezing burns.

**12. ECOLOGICAL INFORMATION**

**Environmental Effects:** Provincial regulations require and federal regulations may require that environmental and/or other agencies be notified of a spill incident.  
**Biodegradability:** Not available. Rapid volatilization.

**13. DISPOSAL CONSIDERATIONS**

Incinerate at a licenced waste disposal site with approval of environmental authority.

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

UN Number	UN1075
Proper Shipping Name	LIQUEFIED PETROLEUM GAS, NOT ODORIZED
Hazard Class	Class 2.1 Flammable Gases
Shipping Description	LIQUEFIED PETROLEUM GAS, NOT ODORIZED Class 2.1 UN1075

**15. REGULATORY INFORMATION**

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

**WHMIS Class:** Class A Compressed Gas  
Class B1 Flammable Gas  
Class B2 Flammable Liquid  
**DSL/NDL Status:** This product, or all components, are listed on the Domestic Substances List, as required under the Canadian Environmental Protection Act. This product and/or all components are listed on the U.S. EPA TSCA Inventory.  
**Other Regulatory Status:** No Canadian federal standards.

**16. ADDITIONAL INFORMATION**

**LABEL STATEMENTS**

- Hazard Statement :** Compressed Gas.  
Flammable Gas.  
Flammable Liquid.  
The gas is an asphyxiant and may also have a mild narcotic effect.  
Direct contact with liquefied gas can result in burns to skin and eyes.
- Handling Statement:** Eliminate all ignition sources.  
Wear insulated gloves to avoid freezing burns from liquid.  
Wear an approved respirator to prevent overexposure.  
Bond and ground transfer containers and equipment to avoid static accumulation.  
Empty containers are hazardous, may contain flammable / explosive dusts, liquid residue or vapours. Keep away from sparks and open flames.
- First Aid Statement :** If overcome by vapours remove to fresh air.  
Treat freezing burns by immersing in lukewarm water.  
Obtain medical attention.
- Revisions:** This MSDS has been reviewed and updated.  
Changes have been made to:  
Section 11  
Section 14