



**Appendix A**  
**TRIEX MINERALS CORPORATION**  
**SPILL CONTINGENCY PLAN**  
**EXPLORATION PROPERTIES**  
**NUNAVUT**

April 2005



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## **1.0 INTRODUCTION**

### **1.1 PURPOSE OF PLAN**

The purpose of this Spill Contingency Plan is to provide a plan of action for all spills of hazardous materials that may occur on any exploration property. This plan defines the responsibilities of key personnel and outlines procedures to effectively and efficiently contain and recover spills of hazardous materials.

Petroleum products and hazardous materials that will be considered in this Spill Contingency Plan include:

- diesel fuel
- hydraulic oil
- lubricating oil
- gasoline
- Jet "B" fuel
- antifreeze
- propane

### **1.2 TRIEX MINERALS CORPORATION ENVIRONMENTAL POLICY**

It is the policy of Triex Minerals Corporation to comply with all existing laws and regulations to help ensure the protection of the environment. Triex Minerals Corporation cooperates with other groups committed to protecting the environment and ensures that employees, government, and the public is informed on the procedures followed to help protect the environment.

## **2.0 SITE DESCRIPTION**

### **2.1 GENERAL SITE DESCRIPTION:**

This spill contingency plan is to be implemented at all field camps established for mineral exploration. Specifically for this application, this spill plan is to be implemented at the Kirwan Lake camp located approximately 100 km SW of Kugluktuk at approximately N 67° 18', W 116° 53'. A map showing the proposed approximate locations of the fuel caches can be found in Appendix III.

### **2.2 PETROLEUM STORAGE AND TRANSPORT**

All fuel will be stored no closer than the regulated distance from the normal high water mark of any water body.

All fuel and oil are transported to the various exploration properties by plane. MSDS Sheets for these products can be found in Appendix II.



The following is the anticipated product inventory:

- Diesel, 40 drums with a capacity of 205 litres each
- Gasoline, 1 drum with a capacity of 205 litres
- Aviation fuel, 31 drums with a capacity of 205 litres each
- Propane, 13, 100 lb tanks

### **2.3 CHEMICAL STORAGE AND TRANSPORT**

Any required chemicals are transported to site by plane. MSDS Sheets can be found in Appendix II.

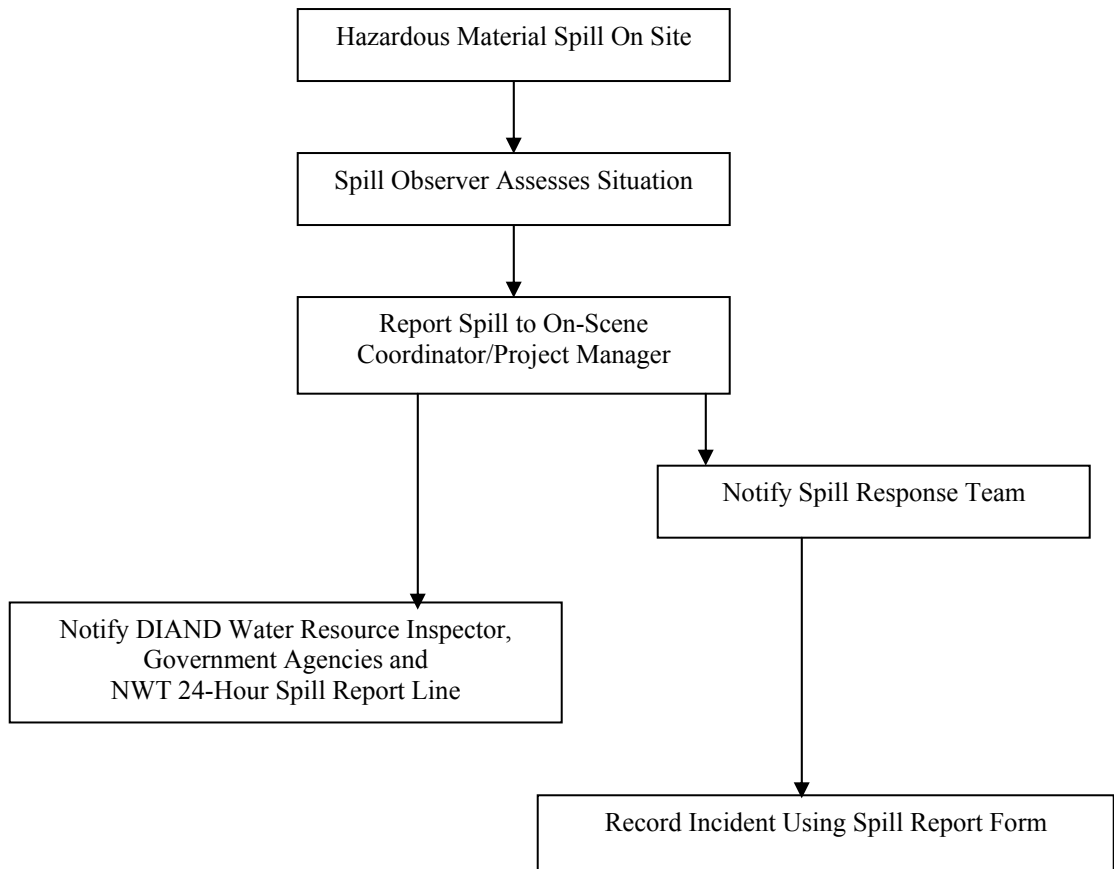
### **2.4 GREYWATER AND SEWAGE**

Greywater will be discharged into sumps or natural depressions located at the required distance from water bodies.



### **3.0 RESPONSE ORGANIZATION**

The following is a flow chart to illustrate the sequence of events in the event of a hazardous material spill occurring at any of the Triex exploration properties.





### 3.1 SPILL RESPONSE TEAM

Ross McElroy will be the On-Scene Coordinator for the Triex exploration properties. Ross McElroy will appoint and train appropriate personnel to make up the Triex Spill Response Team for the various Triex exploration properties. The key personnel that make up the Triex Spill Response Team are as follows:

On-Scene Coordinator          Ross McElroy

Site Personnel                      Will generally vary from 3 to 24 people throughout the year

Project Manager                  Ross McElroy

The responsibilities of the On-Site Coordinator are as follows:

1. Assume complete authority over the spill scene and coordinate all personnel involved.
2. Evaluate spill situation and develop overall plan of action.
3. Activate the spill contingency plan
4. **Immediately report the spill to:**
  - **NWT 24-Hour Spill Report Line (867) 920-8130**
  - **DIAND Water Resources Inspector (867) 975-4298**
  - **Environment Canada (Iqaluit) (867) 975-4644**
  - **Environment Canada (24 hr pager) (867) 920-5131**
  - **Fisheries and Oceans (Iqaluit) (867) 979-8007 (Tanya Gordanier, Habitat Impact Assessment Biologist)**
  - **Nunavut Department of Environment (Iqaluit) (867) 975-5910 (Earl Baddaloo)**
5. Obtain additional manpower, equipment, and material if not available on site for spill response.

The responsibilities of the Project Manager are as follows:

1. Provide regulatory agencies and Triex management with information regarding the status of the clean up activities.
2. Act as a spokesperson on behalf of Triex with regulatory agencies as well as the public and media.
3. Prepare and submit a report on the spill incident to regulatory agencies within 30 days of the event.



### 3.2 ADDITIONAL CONTACTS

**Table 1 – Emergency Contacts**

<b>CONTACT</b>	<b>TELEPHONE NUMBER</b>
DIAND – Land Use Inspector, Kugluktuk	(867) 982-4306
Triex – Randy C. Turner, President	(604) 988-1159 (home)
Triex – Michael Gunning, VP, Exploration	(604) 687-6644 (work)
Environment Canada	(867) 669-4700, Fax (867) 873-8185
Air Tindi	(867) 669-8212
Great Slave Helicopters	(867) 873-2081
Yellowknife Fire Department	(867) 873-2222
Kugluktuk RCMP	(867) 982-4111
Stanton Regional Hospital – Yellowknife	(867) 920-4111
Senior Geologist – Ross McElroy	(604) 687-6644
Discovery Mining Services	(867) 920-4600
Triex Office, Vancouver	(604) 687-6644

### 4.0 REPORTING PROCEDURE

The On Scene Coordinator must be notified immediately of any spill either by phone, radio, or in person.

The following is the spill reporting procedure:

- Report immediately to the 24-Hour Spill Report Line Phone (867) 920-8130, Fax (867) 873-6924  
**NWT 24-Hour Spill Report Line** (867) 920-8130  
**DIAND Water Resources Inspector** (867) 975-4298  
**Environment Canada** (24 hr pager) (867) 920-5131  
**Environment Canada** (Iqaluit) (867) 975-4644  
**Fisheries and Oceans** (Iqaluit) (867) 979-8007 (Tanya Gordanier, Habitat Impact Assessment Biologist)  
**Nunavut Department of Environment** (Iqaluit) (867) 975-5910 (Earl Baddaloo) and other regulatory agencies, and Triex management (**see Table 1 – Emergency Contacts**).
- Fill out the NWT Spill Report Form *NWT1752/0202* and fax it to (867) 873-6924. See Appendix I.



## **5.0 ACTION PLANS**

### **5.1 INITIAL ACTION**

The instructions to be followed by the first person on the spill scene are as follows:

1. Always be alert and consider your safety first.
2. If possible, identify the material that has been spilled. If you are not sure of the material, use caution and consider your safety first.
3. Assess the hazard of people in the vicinity of the spill.
4. If possible, safely try to stop the flow of material to minimize potential for environmental impacts.
5. Immediately report the spill to the On Scene Coordinator.
6. Resume any effective action to contain, mitigate, or terminate the flow of the spilled material.

**The following pages include specific instructions to be followed in the response to various types of spills including diesel fuel, hydraulic oil, lubricating oil, gasoline, aviation fuel (Jet "B"), antifreeze, and propane.**





## **5.2 SPILL RESPONSE ACTIONS**

### **DIESEL FUEL, HYDRAULIC OIL, AND LUBRICATING OIL**

Take action only if safety permits – stop the source flow if safe to do so and eliminate all ignition sources. Never smoke when dealing with these types of spills.

#### **On Land**

Build a containment berm using soil material or snow and place a plastic tarp at the foot of the berm for easy capture of the spill after all vapours have dissipated.

Remove the spill by using absorbent pads or excavating the soil, gravel or snow.

Remove spill splashed on vegetation using particulate absorbent material.

If soil, gravel, or vegetation must be removed, contact regulatory agencies for approval before commencing with the removal.

#### **On Muskeg**

Do not deploy personnel and equipment on marsh or vegetation.

Remove pooled oil with sorbent pads and/or skimmer.

Flush with low pressure water to herd oil to collection point.

Burn only in localized areas, e.g., trenches, piles or windrows.

Do not burn if root systems can be damaged (low water table).

Minimize damage caused by equipment and excavation.

#### **On Water**

Contain spill as close to release point as possible.

Use containment boom to capture spill for recovery after vapours have dissipated.

Use absorbent pads to capture small spills.

Use skimmer for larger spills.

#### **On Rivers and Streams**

Prevent entry into water, if possible, by building a berm or trench.

Intercept moving slicks in quiet areas using (sorbent) booms.

Do not use sorbent booms/pads in fast currents and turbulent water.

#### **On Ice and Snow**

Build a containment berm around spill using snow.

Remove spill using absorbent pads or particulate sorbent material.

The contaminated ice and snow must be scraped and shoveled into plastic buckets with lids, 205 litre drums, and/or polypropylene bags.

#### **Storage and Transfer**

All contaminated water, ice, snow, soil, and clean up supplies will be stored in closed, labeled containers. All containers will be stored in a well ventilated area away from incompatible materials.

#### **Disposal**

Contact Federal and Territorial regulatory agencies to identify appropriate disposal methods before disposing of contaminated material.



### **5.3 SPILL RESPONSE ACTIONS GASOLINE AND JET B AVIATION FUEL**

**Gasoline and Jet B form vapours that can ignite and explode – No Smoking!**

Take action only if safety permits – stop the source flow if safe to do so and eliminate all ignition sources. Never smoke when dealing with these types of spills.

#### **On Land**

Build a containment berm using soil material or snow and place a plastic tarp at the foot of the berm for easy capture of the spill after all vapours have dissipated.

Remove the spill by using absorbent pads or excavating the soil, gravel or snow.

Remove spill splashed on vegetation using particulate absorbent material.

If soil, gravel, or vegetation must be removed, contact regulatory agencies for approval before commencing with the removal.

#### **On Muskeg**

Do not deploy personnel and equipment on marsh or vegetation.

Remove pooled gasoline or Jet B with sorbent pads and/or skimmer.

Flush with low pressure water to herd oil to collection point.

Burn only in localized areas, e.g., trenches, piles or windrows.

Do not burn if root systems can be damaged (low water table).

Minimize damage caused by equipment and excavation.

#### **On Water**

Contain spill as close to release point as possible.

Use containment boom to capture spill for recovery after vapours have dissipated.

Use absorbent pads to capture small spills.

Use skimmer for larger spills.

#### **On Rivers and Streams**

Prevent entry into water, if possible, by building a berm or trench.

Intercept moving slicks in quiet areas using (sorbent) booms.

Do not use sorbent booms/pads in fast currents and turbulent water.

#### **On Ice and Snow**

Build a containment berm around spill using snow.

Remove spill using absorbent pads or particulate sorbent material.

The contaminated ice and snow must be scraped and shoveled into plastic buckets with lids, 205 litre drums, and/or polypropylene bags.

#### **Storage and Transfer**

All contaminated water, ice, snow, soil, and clean up supplies will be stored in closed, labeled containers. All containers will be stored in a well ventilated area away from incompatible materials.

#### **Disposal**

Contact Federal and Territorial regulatory agencies to identify appropriate disposal methods before disposing of contaminated material.



#### **5.4 SPILL RESPONSE ACTIONS ANTIFREEZE**

Take action only if safety permits – stop the source flow if safe to do so.

##### **On Land**

Build a containment berm using soil material or snow and place a plastic tarp at the foot of the berm for easy capture of the spill.

Remove the spill by using absorbent pads or excavating the soil, gravel, or snow.

Remove spill splashed on vegetation using particulate absorbent material.

If soil, gravel, or vegetation must be removed, contact regulatory agencies for approval before commencing with the removal.

##### **On Water**

Use containment boom to capture spill.

Pump contaminated water into 206 litre drum.

##### **On Ice and Snow**

Build a containment berm around spill using snow.

Remove spill using particulate sorbent material.

The contaminated sorbent material, ice and snow must be scraped and shoveled into plastic buckets with lids, 206 litre drums, and/or polypropylene bags.

##### **Storage and Transfer**

All contaminated water, ice, snow, soil, and clean up supplies will be stored in closed, labeled containers. All containers will be stored in a well ventilated area away from incompatible materials.

##### **Disposal**

Contact Federal and Territorial regulatory agencies to identify appropriate disposal methods before disposing of contaminated material.



## **5.5 SPILL RESPONSE ACTIONS PROPANE**

Take action only if safety permits. Gases stored in cylinders can explode when ignited.  
Keep vehicles away from accident area – No Smoking!

### **On Land**

Do not attempt to contain the propane release.

### **On Water**

Do not attempt to contain the propane release.

### **On Ice and Snow**

Do not attempt to contain the propane release.

### **General**

It is not possible to contain vapours when released.

Water spray can be used to knock down vapours if there is NO chance of ignition.

Small fires can be extinguished with dry chemical or CO<sub>2</sub>.

Personnel should withdraw immediately from area unless a small leak is stopped immediately after it has been detected.

If tanks are damaged, gas should be allowed to disperse and no recovery attempt should be made.

Personnel should avoid touching release point on containers since frost forms very rapidly.

Keep away from tank ends.

### **Storage and Transfer**

It is not possible to contain vapours when released.

### **Disposal**

Contact Federal and Territorial regulatory agencies to identify appropriate disposal methods for defective equipment that resulted in the release.



## **6.0 RESOURCE INVENTORY**

### **6.1 PERSONNEL**

In addition to the On Scene Coordinator and the Project Manager (Geologist), approximately 3 to 18 people are available on site to assist in spill response and clean up activities. The amount of people on site varies from site to site and throughout the year.

### **6.2 GENERAL EQUIPMENT**

Equipment available on site to assist in responding to a hazardous materials spill includes various hand held tools including shovels. There will be five spill kits, one located at the main camp and one at each fuel cache during active exploration periods. In addition to the spill kits at least 1 empty fuel drum will be located at each fuel cache along with absorbent pads for use in the event of a damaged or leaking drum. The spill kits contain the following supplies:

- 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")
- 1 – empty fuel drum

Sorbent capacity of this spill kit is 240 litres.

See attached map for the approximate location of the fuel caches, Appendix III.

## **7.0 TRAINING**

All employees working on a Triex Minerals Corporation exploration property will be trained in the safe operation of all machinery and tools to help prevent hazardous material spills. All employees on site will also be trained for initial spill response in the event of a spill. Annual refresher exercises will be conducted to review the procedures of this Spill Contingency Plan.

A copy of this plan will be on site at camps and at the drills.




## **APPENDIX I**

### **NWT/Nunavut Spill Report Form**



# Appendix I – NWT/Nunavut Spill Report Form

		<b>NWT SPILL REPORT</b> (Oil, Gas, Hazardous Chemicals or other Materials)		24-Hour Report Line Phone: (867) 920-8130 Fax: (867) 873-6924	
<b>A</b> Report Date and time		<b>B</b> Date and time of Spill (if known)		<b>C</b> <input type="checkbox"/> Original Report <input type="checkbox"/> Update No	
<b>D</b> Location and map coordinates (if known) and direction (if moving)					
<b>E</b> Party Responsible for Spill					
<b>F</b> Product(s) spilled and estimated quantities (Provide metric volumes/weights if possible)					
<b>G</b> Cause of Spill					
<b>H</b> Is spill terminated? <input type="checkbox"/> yes <input type="checkbox"/> no		<b>I</b> If spill is continuing, give estimated rate		<b>J</b> Is further spillage possible? <input type="checkbox"/> yes <input type="checkbox"/> no	
<b>K</b> Extent of contaminated area (in sq. m if possible)					
<b>L</b> Factors affecting spill or recovery (weather conditions, terrain, snow cover, etc.)				<b>M</b> Containment (natural depression, dyke, etc.)	
<b>N</b> Action, if any, taken or proposed to contain, recover, clean up or dispose of product(s) and contaminated materials					
<b>O</b> Do you require assistance? <input type="checkbox"/> no <input type="checkbox"/> yes , describe*				<b>P</b> Possible hazards to persons, property, or environment; eg: fire, drinking water, fish or wildlife*	
<b>Q</b> Comments and/or recommendations *:				<b>FOR SPILL LINE USE ONLY</b>	
				Lead Agency	
				Spill significance	
				Lead Agency contact and time	
				Is this file now closed? <input type="checkbox"/> yes <input type="checkbox"/> no	
				(Empty row for additional spill line use only)	
Reported by:		Position, Employer, Location		Telephone No:	
Reported to:		Position, Employer, Location		Telephone No:	

\*Put additional comments on next page (Please type in the Box letter you are referring to in your comments)



## **APPENDIX II**

### **MSDS Sheets**










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## Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing	TDG (pictograms)
	<b>D-2A, D-2B</b>	  	

Section 1. Chemical Product and Company Identification			
<b>Product Name</b>	<b>ANTIFREEZE</b>	<b>Code</b>	W269
<b>Synonym</b>	Universal Antifreeze, Radiator Antifreeze, Diesel Antifreeze, Petro-Canada Antifreeze-Coolant, Petro-Canada Heavy Duty Antifreeze-Coolant, Pre-Mix Antifreeze, Petro-Canada Premium Radiator Antifreeze, Diesel Engine Coolant.	<b>Validated on</b>	7/6/2004.
<b>Manufacturer</b>	PETRO-CANADA P.O. Box 2844 Calgary, Alberta T2P 3E3	<b>In case of Emergency</b>	Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).
<b>Material Uses</b>	Used as an engine antifreeze coolant.		

Section 2. Composition and Information on Ingredients					
			Exposure Limits (ACGIH)		
Name	CAS #	% (W/W)	TLV-TWA(8 h)	STEL	CEILING
Ethylene glycol	107-21-1	≥90	Not established	Not established	100 mg/m <sup>3</sup> (aerosol)
Sodium tetraborate pentahydrate (Diesel Engine Coolant only)	12179-04-3	≤5	1 mg/m <sup>3</sup>	Not established	Not established
<b>Manufacturer Recommendation</b>	Not applicable				
<b>Other Exposure Limits</b>	Consult local, state, provincial or territory authorities for acceptable exposure limits.				

Section 3. Hazards Identification.	
<b>Potential Health Effects</b>	Contact with this product may cause eye irritation. Not expected to cause more than slight skin irritation. Inhalation of this product may cause respiratory tract irritation. Ingestion may be extremely hazardous. May cause teratogenicity/embryotoxicity. May cause damage to reproductive organs. For more information refer to Section 11 of this MSDS.

Section 4. First Aid Measures	
<b>Eye Contact</b>	IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention.
<b>Skin Contact</b>	Remove contaminated clothing - launder before reuse. Wash gently and thoroughly the contaminated skin with running water and non-abrasive soap. Seek medical attention.
<b>Inhalation</b>	Evacuate the victim to a safe area as soon as possible. If the victim is not breathing, perform artificial respiration. Allow the victim to rest in a well ventilated area. Seek medical attention.
<b>Ingestion</b>	DO NOT induce vomiting because of danger of aspirating liquid into lungs. Seek medical attention.
<b>Note to Physician</b>	Not available

Section 5. Fire-fighting Measures	
<b>Flammability</b>	May be combustible at high temperature.
<b>Flash Points</b>	Closed Cup: 116°C (241°F) (Tagliabue) Open Cup: 116°C (241°F) (Cleveland)
<b>Flammable Limits</b>	Lower: 3.2%, Upper: 15.3%
<b>Auto-Ignition Temperature</b>	413°C (775°F)

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Internet: [www.petro-canada.ca/msds](http://www.petro-canada.ca/msds)

Available in French

ANTIFREEZE		Page Number: 2	
<b>Fire Hazards in Presence of Various Substances</b>	Low fire hazard. This material must be heated before ignition will occur.	<b>Explosion Hazards in Presence of Various Substances</b>	Do not cut, weld, heat, drill or pressurize empty container.
<b>Products of Combustion</b>	Carbon oxides (CO, CO <sub>2</sub> ), smoke and irritating vapours as products of incomplete combustion.		
<b>Fire Fighting Media and Instructions</b>	NAERG96, GUIDE 171, Substances (low to moderate hazard). If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (0.5 mile) in all directions; also, consider initial evacuation for 800 meters (0.5 mile) in all directions. Shut off fuel to fire if it is possible to do so without hazard. If this is impossible, withdraw from area and let fire burn out under controlled conditions. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tank due to fire. Cool containing vessels with water spray in order to prevent pressure build-up, autoignition or explosion. <b>SMALL FIRE:</b> use DRY chemicals, foam, water spray or CO <sub>2</sub> . <b>LARGE FIRE:</b> use water spray, fog or foam. For small outdoor fires, portable fire extinguishers may be used, and self contained breathing apparatus (SCBA) may not be required. For all indoor fires and any significant outdoor fires, SCBA is required. Respiratory and eye protection are required for fire fighting personnel.		

#### Section 6. Accidental Release Measures

<b>Material Release or Spill</b>	IN THE EVENT OF A LARGE SPILL CONSIDER THE FOLLOWING CONTROL MEASURES: Consult current National Emergency Response Guide Book (NAERG) for appropriate spill measures if necessary. Extinguish all ignition sources. Stop leak if safe to do so. Dike spilled material. Use appropriate inert absorbent material to absorb spilled product. Collect used absorbent for later disposal. Ventilate area. Ensure clean-up personnel wear appropriate personal protective equipment. Avoid breathing vapours or mists of material. Avoid contact with spilled material. Avoid contaminating sewers, streams, rivers and other water courses with spilled material. Notify appropriate authorities immediately.
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#### Section 7. Handling and Storage

<b>Handling</b>	Avoid contact with any sources of ignition, flames, heat, and sparks. Avoid confined spaces and areas with poor ventilation. Avoid skin contact. Avoid eye contact. Avoid inhalation of product vapours or mists. Do not ingest this product. Wear proper personal protective equipment (See Section 8). Empty containers may contain product residue. Do not pressurize, cut, heat, or weld empty containers. Do not reuse containers without commercial cleaning and/or reconditioning. Personnel who handle this material should practice good personal hygiene during and after handling to help prevent accidental ingestion of this product. Properly dispose of contaminated leather articles including shoes that cannot be decontaminated.
<b>Storage</b>	Store in dry, cool, well-ventilated area. Store away from heat and sources of ignition. Keep container tightly closed. Store away from incompatible and reactive materials (See section 5 and 10).

#### Section 8. Exposure Controls/Personal Protection

<b>Engineering Controls</b>	For normal application, special ventilation is not necessary. If user's operations generate vapours or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety shower are close to work-station.
<b>Personal Protection - The selection of personal protective equipment varies, depending upon conditions of use.</b>	
<b>Eyes</b>	Chemical splash goggles should be worn when handling this material.
<b>Body</b>	If this material may come into contact with the body during handling and use, we recommend wearing appropriate protective clothing to prevent contact with the skin. (Contact your PPE provider for more information).
<b>Respiratory</b>	A minimum of NIOSH-approved air-purifying respirator with a organic vapour cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air-purifying respirators is limited. Use a positive-pressure, air-supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstances where air-purifying respirators may not provide adequate protection.
<b>Hands</b>	If this material may come into contact with the hands during handling and use, we recommend wearing gloves of the following material(s): Neoprene, Polyvinyl chloride (PVC). Consult your PPE provider for breakthrough times and the specific glove that is best for you based on your use patterns.
<b>Feet</b>	Wear appropriate footwear to prevent product from coming in contact with feet and skin.

ANTIFREEZE

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**Section 9. Physical and Chemical Properties**

Physical State and Appearance	Clear viscous liquid.	Viscosity	Not available
Colour	Green.	Pour Point	Not available
Odour	Odourless.	Softening Point	Not applicable.
Odour Threshold	Not available	Dropping Point	Not applicable.
Boiling Point	129 to 197°C (264 to 387°F)	Penetration	Not applicable.
Density	1.115 to 1.145 (Water = 1)	Oil / Water Dist. Coefficient	Not available
Vapour Density	2.1 (Air=1).	Ionicity (in water)	Not available
Vapour Pressure	0.06 mmHg @ 20°C (68°F).	Dispersion Properties	Not available
Volatility	0% (w/w)	Solubility	Soluble in water, methanol and diethyl ether.

**Section 10. Stability and Reactivity**

Corrosivity	Not available		
Stability	The product is stable.	Hazardous Polymerization	Will not occur under normal working conditions.
Incompatible Substances / Conditions to Avoid	Reactive with oxidizing agents, acids, alkalis, perchloric acid, phosphorus, silvered copper wires carrying DC current, aliphatic amines, isocyanates, chlorosulfonic acid and olium.	Decomposition Products	May release CO <sub>x</sub> , smoke and irritating vapours when heated to decomposition.

**Section 11. Toxicological Information**

Routes of Entry	Skin contact, eye contact, inhalation and ingestion.		
Acute Lethality	<u>Ethylene glycol (107-21-1):</u> LD50: 4700 mg/kg (oral/rat). LD50: 9530 mg/kg (dermal/rabbit).  <u>Sodium tetraborate pentahydrate (12179-04-3):</u> LD50: 3200-3500 mg/kg (oral/rat) (Boric acid). [Sodium tetraborate pentahydrate]		
Chronic or Other Toxic Effects			
Dermal Route:	Short-term exposure is expected to cause only slight irritation, if any.		
Inhalation Route:	Inhalation of this product may cause respiratory tract irritation.		
Oral Route:	Extremely dangerous in case of ingestion.		
Eye Irritation/Inflammation:	This product contains a component (at >= 1%) that can cause eye irritation. Therefore, this product is considered to be an eye irritant.		
Immunotoxicity:	Not available		
Skin Sensitization:	Contact with this product is not expected to cause skin sensitization, based upon the available data and the known hazards of the components.		
Respiratory Tract Sensitization:	Contact with this product is not expected to cause respiratory tract sensitization, based upon the available data and the known hazards of the components.		
Mutagenic:	This product is not known to contain any components at >= 0.1% that have been shown to cause mutagenicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a mutagen.		
Reproductive Toxicity:	Borates are possible reproductive toxins based upon available animal ingestion studies in several species. These studies usually involved high doses, over prolonged periods of time. A human study following occupational exposure to borate by inhalation concluded that, no adverse effects to reproduction were found in this population, under the conditions of this study.		
Teratogenicity/Embryotoxicity:	This product contains a component(s) at >= 0.1% that has been shown to cause teratogenicity and/or embryotoxicity in laboratory tests. Therefore, this product is considered to be a teratogen/embryotoxin (Ethylene glycol).		

Continued on Next Page

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ANTIFREEZE		Page Number: 4
Carcinogenicity (ACGIH):	ACGIH A4: not classifiable as a human carcinogen (Ethylene glycol). This product is not known to contain any chemicals at reportable quantities that are listed as Group A1, A2, or A3 carcinogens by ACGIH.	
Carcinogenicity (IARC):	This product is not known to contain any chemicals at reportable quantities that are listed as Group 1, 2A, or 2B carcinogens by IARC.	
Carcinogenicity (NTP):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by NTP.	
Carcinogenicity (IRIS):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by IRIS.	
Carcinogenicity (OSHA):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by OSHA.	
Other Considerations	The substance may be toxic to kidneys and liver. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.	

Section 12. Ecological Information			
Environmental Fate	Not available	Persistence/Bioaccumulation Potential	Not available
BOD5 and COD	Not available	Products of Biodegradation	Not available
Additional Remarks No additional remark.			

Section 13. Disposal Considerations	
Waste Disposal	Spent/ used/ waste product may meet the requirements of a hazardous waste. Consult your local or regional authorities. Ensure that waste management processes are in compliance with government requirements and local disposal regulations.

Section 14. Transport Information			
TDG Classification	Not a hazardous material for transport according to the TDG Regulations. (Canada)	Special Provisions for Transport	Not applicable.

Section 15. Regulatory Information																												
Other Regulations	All of the components of this product are on the Domestic Substances List (DSL), are considered to be on the DSL, or are exempt from the New Substance Notification (NSN) requirements.  All components of this formulation are listed on the US EPA-TSCA Inventory.  This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.  Please contact Product Safety for more information.																											
DSD/DPD (Europe)	Not evaluated.	HCS (U.S.A.)	CLASS: Target organ effects. CLASS: Irritating substance.																									
ADR (Europe) (Pictograms)	NOT EVALUATED FOR EUROPEAN TRANSPORT  NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN.	DOT (U.S.A) (Pictograms)																										
HMIS (U.S.A.)	<table><tr><td>Health Hazard</td><td>2*</td></tr><tr><td>Fire Hazard</td><td>1</td></tr><tr><td>Reactivity</td><td>0</td></tr><tr><td>Personal Protection</td><td>H</td></tr></table>	Health Hazard	2*	Fire Hazard	1	Reactivity	0	Personal Protection	H	NFPA (U.S.A.)	<table><tr><td>1</td><td>Fire Hazard</td></tr><tr><td>2</td><td>Reactivity</td></tr><tr><td>0</td><td>Specific hazard</td></tr></table>	1	Fire Hazard	2	Reactivity	0	Specific hazard	<table><tr><td>Rating</td><td>0 Insignificant</td></tr><tr><td></td><td>1 Slight</td></tr><tr><td></td><td>2 Moderate</td></tr><tr><td></td><td>3 High</td></tr><tr><td></td><td>4 Extreme</td></tr></table>	Rating	0 Insignificant		1 Slight		2 Moderate		3 High		4 Extreme
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	3 High																											
	4 Extreme																											



# Section 16. Other Information

**References** Available upon request.  
\* Marque de commerce de Petro-Canada - Trademark

## Glossary

ACGIH - American Conference of Governmental Industrial Hygienists	IRIS - Integrated Risk Information System
ADR - Agreement on Dangerous goods by Road (Europe)	LD50/LC50 - Lethal Dose/Concentration kill 50%
ASTM - American Society for Testing and Materials	LDLo/LCLo - Lowest Published Lethal Dose/Concentration
BOD5 - Biological Oxygen Demand in 5 days	NAERG'96 - North American Emergency Response Guide Book (1996)
CAN/CGA B149.2 Propane Installation Code	NFPA - National Fire Prevention Association
CAS - Chemical Abstract Services	NIOSH - National Institute for Occupational Safety & Health
CEPA - Canadian Environmental Protection Act	NPRI - National Pollutant Release Inventory
CERCLA - Comprehensive Environmental Response, Compensation and Liability Act	NSNR - New Substances Notification Regulations (Canada)
CFR - Code of Federal Regulations	NTP - National Toxicology Program
CHIP - Chemicals Hazard Information and Packaging Approved Supply List	OSHA - Occupational Safety & Health Administration
COD5 - Chemical Oxygen Demand in 5 days	PEL - Permissible Exposure Limit
CPR - Controlled Products Regulations	RCRA - Resource Conservation and Recovery Act
DOT - Department of Transport	SARA - Superfund Amendments and Reorganization Act
DSCL - Dangerous Substances Classification and Labeling (Europe)	SD - Single Dose
DSD/DPD - Dangerous Substances or Dangerous Preparations Directives (Europe)	STEL - Short Term Exposure Limit (15 minutes)
DSL - Domestic Substance List	TDG - Transportation Dangerous Goods (Canada)
EEC/EU - European Economic Community/European Union	TDLo/TCLo - Lowest Published Toxic Dose/Concentration
EINECS - European Inventory of Existing Commercial Chemical Substances	TLM - Median Tolerance Limit
EPCRA - Emergency Planning and Community Right to Know Act	TLV-TWA - Threshold Limit Value-Time Weighted Average
FDA - Food and Drug Administration	TSCA - Toxic Substances Control Act
FIFRA - Federal Insecticide, Fungicide and Rodenticide Act	USEPA - United States Environmental Protection Agency
HCS - Hazardous Communication System	USP - United States Pharmacopoeia
HMIS - Hazardous Material Information System	WHMIS - Workplace Hazardous Material Information System
IARC - International Agency for Research on Cancer	

## For Copy of MSDS

Internet: [www.petro-canada.ca/msds](http://www.petro-canada.ca/msds)

## Fuels & Solvents:

Western Canada, Ontario & Central Canada, telephone: 1-800-668-0220; fax: 1-800-837-1228

Quebec & Eastern Canada, telephone: 514-640-8308; fax: 514-640-8385

For Product Safety Information: (905) 804-4752




Prepared by Product Safety - TLM on 7/6/2004.

Data entry by Product Safety - RS.

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



## Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing	TDG (pictograms)
	B-3, D-2B		

Section 1. Chemical Product and Company Identification			
Product Name	DIESEL FUEL		Code W104, W293 SAP: 120, 121, 122, 287
Synonym	Diesel 50, Diesel 50 LS, #1 Diesel , #1 Diesel LS, Diesel LC, Seasonal Diesel, Seasonal Diesel LS, Diesel AA, Domestic Marine Diesel, International marine Diesel, Seasonal Diesel Locomotive, Domestic Marine diesel LS, diesel -20°C (LS), LSD, Low Sulphur Diesel, dyed diesel, marked diesel, coloured diesel, Naval Distillate, Ultra Low Sulphur Diesel, ULS Diesel, Mining Diesel, Mining Diesel Special, Mining Diesel Special LS, High Flash Mining Diesel, Furnace Oil, Stove Oil.		Validated on 2/6/2004.
Manufacturer	PETRO-CANADA P.O. Box 2844 Calgary, Alberta T2P 3E3		In case of Emergency Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).
Material Uses	Diesel fuels are distillate fuels suitable for use in high and medium speed internal combustion engines of the compression ignition type. Mining Diesel has a higher flash point requirement, for safe use in underground mines.		

Section 2. Composition and Information on Ingredients					
			Exposure Limits (ACGIH)		
Name	CAS #	% (V/V)	TLV-TWA(8 h)	STEL	CEILING
1) Diesel oil.	68334-30-5	>99.9	100 mg/m <sup>3</sup> (as total hydrocarbons) *	Not established	Not established
2) Proprietary additives.	Not available	<0.1	Not established	Not established	Not established
Aromatic content is 50% maximum (benzene: nil). Sulphur content is 0.0-50%.					
Manufacturer Recommendation	* Avoid prolonged or repeated skin contact to diesel fuels which can lead to dermal irritation and may be associated with an increased risk of skin cancer.				
Other Exposure Limits	Consult local, state, provincial or territory authorities for acceptable exposure limits.				

Section 3. Hazards Identification.	
Potential Health Effects	Combustible liquid. Exercise caution when handling this material. Contact with this product may cause skin and eye irritation. Prolonged or repeated contact may cause skin irritation, defatting, drying and dermatitis. Inhalation of this product may cause respiratory tract irritation and Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death. Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract. For more information refer to Section 11 of this MSDS.

Section 4. First Aid Measures	
Eye Contact	IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention.
Skin Contact	Remove contaminated clothing - launder before reuse. Wash gently and thoroughly the contaminated skin with running water and non-abrasive soap. Seek medical attention.
Inhalation	Evacuate the victim to a safe area as soon as possible. If the victim is not breathing, perform artificial respiration. Allow the victim to rest in a well ventilated area. Seek medical attention.
Ingestion	DO NOT induce vomiting because of danger of aspirating liquid into lungs. Seek medical attention.
Note to Physician	Not available

DIESEL FUEL

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Section 5. Fire-fighting Measures

Flammability	Class II - combustible liquid (NFPA).	Flammable Limits	LOWER: 0.7%, UPPER: 6% (NFPA)
Flash Points	Diesel Fuel: Closed Cup: >40°C (>104°F) Marine Diesel Fuel: Closed Cup: >60°C (>140°F) Mining Diesel: Closed Cup: 52°C (126°F)	Auto-Ignition Temperature	225°C (437°F)
Fire Hazards in Presence of Various Substances	Flammable in presence of open flames, sparks, or heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. This product can accumulate static charge and ignite. May accumulate in confined spaces.	Explosion Hazards in Presence of Various Substances	Containers may explode in heat of fire. Do not cut, weld, heat, drill or pressurize empty container. Vapour explosion hazard indoors, outdoors or in sewers. Runoff to sewer may create fire or explosion hazard.
Products of Combustion	Carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO <sub>x</sub> ), sulphur oxides (SO <sub>x</sub> ), sulphur compounds (H <sub>2</sub> S), water vapour (H <sub>2</sub> O), smoke and irritating vapours as products of incomplete combustion. See Section 11 (Other Considerations) for information regarding the toxicity of the combustion products.		
Fire Fighting Media and Instructions	<p>NAERG96, GUIDE 128, Flammable liquids (Non-polar/Water-immiscible). CAUTION: This product has a moderate flash point above 40°C: Use of water spray when fighting fire may be inefficient.</p> <p>If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions.</p> <p>SMALL FIRES: Dry chemical, CO<sub>2</sub>, water spray or regular foam. LARGE FIRES: Water spray, fog or regular foam. Do not use straight streams. Move containers from fire area if you can do it without risk. Fires Involving Tanks or Car/Trailer Loads: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.</p> <p>Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting devices or any discolouration of tank. ALWAYS stay away from the ends of tanks. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible withdraw from area and let fire burn. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.</p>		

Section 6. Accidental Release Measures

Material Release or Spill	Consult current National Emergency Response Guide Book (NAERG) for appropriate spill measures if necessary. IN THE EVENT OF A LARGE SPILL CONSIDER THE FOLLOWING CONTROL MEASURES: Extinguish all ignition sources. Stop leak if safe to do so. Ventilate area. Dike spilled material. Use appropriate inert absorbent material to absorb spilled product. Collect used absorbent for later disposal. Avoid contact with spilled material. Avoid breathing vapours or mists of material. Avoid contaminating sewers, streams, rivers and other water courses with spilled material. Evacuate non-essential personnel. Ensure clean-up personnel wear appropriate personal protective equipment. Ground and bond all equipment used to clean up the spilled material, as it may be a static accumulator. Notify appropriate authorities immediately.
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Section 7. Handling and Storage

Handling	COMBUSTIBLE MATERIAL. Handle with care. Avoid contact with any sources of ignition, flames, heat, and sparks. Avoid skin contact. Avoid eye contact. Avoid inhalation of product vapours or mists. Empty containers may contain product residue. Do not pressurize, cut, heat, or weld empty containers. Do not reuse containers without commercial cleaning and/or reconditioning. Personnel who handle this material should practice good personal hygiene during and after handling to help prevent accidental ingestion of this product. Properly dispose of contaminated leather articles including shoes that cannot be decontaminated. Avoid confined spaces and areas with poor ventilation. Ensure all equipment is grounded/bonded. Wear proper personal protective equipment (See Section 8).
Storage	Store away from heat and sources of ignition. Store in dry, cool, well-ventilated area. Store away from incompatible and reactive materials (See section 5 and 10). Ensure the storage containers are grounded/bonded.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	For normal application, special ventilation is not necessary. If user's operations generate vapours or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety shower are close to work-station.
Personal Protection -	<i>The selection of personal protective equipment varies, depending upon conditions of use.</i>
Eyes	Eye protection (i.e., safety glasses, safety goggles and/or face shield) should be determined based on conditions of use. If product is used in an application where splashing may occur, the use of safety goggles and/or a face shield should be considered.
Body	Wear appropriate clothing to prevent skin contact. As a minimum long sleeves and trousers should be worn.
Respiratory	Where concentrations in air may exceed the occupational exposure limits given in Section 2 (and those applicable to your area) and where engineering, work practices or other means of exposure reduction are not adequate, NIOSH approved respirators may be necessary to prevent overexposure by inhalation.
Hands	Wear appropriate chemically protective gloves. When handling hot product ensure gloves are heat resistant and insulated.
Feet	Wear appropriate footwear to prevent product from coming in contact with feet and skin.

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DIESEL FUEL

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**Section 9. Physical and Chemical Properties**

<b>Physical State and Appearance</b>	Bright oily liquid.	<b>Viscosity</b>	1.3 - 4.1 cSt @ 40°C (104°F)
<b>Colour</b>	Clear to yellow / brown (may be dyed for taxation purposes).	<b>Pour Point</b>	Variable, -50°C to 0°C (-58°F to -32°F)
<b>Odour</b>	Petroleum oil like.	<b>Softening Point</b>	Not applicable.
<b>Odour Threshold</b>	Not available	<b>Dropping Point</b>	Not applicable.
<b>Boiling Point</b>	150 - 371°C (302-700°F)	<b>Penetration</b>	Not applicable.
<b>Density</b>	0.80 - 0.85 kg/L @ 15°C (59°F)	<b>Oil / Water Dist. Coefficient</b>	Not available
<b>Vapour Density</b>	4.5 (Air = 1)	<b>Ionicity (in water)</b>	Not applicable.
<b>Vapour Pressure</b>	Not available	<b>Dispersion Properties</b>	Not available
<b>Volatility</b>	Semivolatile to volatile.	<b>Solubility</b>	Insoluble in cold water, soluble in non-polar hydrocarbon solvents.

**Section 10. Stability and Reactivity**

<b>Corrosivity</b>	Not available		
<b>Stability</b>	The product is stable under normal handling and storage conditions.	<b>Hazardous Polymerization</b>	Will not occur under normal working conditions.
<b>Incompatible Substances / Conditions to Avoid</b>	Reactive with oxidizing agents and acids.	<b>Decomposition Products</b>	May release CO <sub>x</sub> , NO <sub>x</sub> , SO <sub>x</sub> , H <sub>2</sub> S, H <sub>2</sub> O, smoke and irritating vapours when heated to decomposition.

**Section 11. Toxicological Information**

<b>Routes of Entry</b>	Skin contact, eye contact, inhalation, and ingestion.		
<b>Acute Lethality</b>	Acute oral toxicity (LD <sub>50</sub> ): 7500 mg/kg (rat).		
<b>Chronic or Other Toxic Effects</b>			
Dermal Route:	This product contains a component (at >= 1%) that can cause skin irritation. Therefore, this product is considered to be a skin irritant. Prolonged or repeated contact may defat and dry skin, and cause dermatitis. (See Other Considerations)		
Inhalation Route:	Inhalation of this product may cause respiratory tract irritation. Inhalation of this product may cause Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death.		
Oral Route:	Ingestion of this product may cause gastro-intestinal irritation. Aspiration of this product may result in severe irritation or burns to the respiratory tract. Ingestion of this product may cause Central Nervous System (CNS) Depression, symptoms of which may include; weakness, dizziness, slurred speech, drowsiness, unconsciousness and in cases of severe overexposure; coma and death.		
Eye Irritation/Inflammation:	This product contains a component (at >= 1%) that can cause eye irritation. Therefore, this product is considered to be an eye irritant.		
Immunotoxicity:	Not available		
Skin Sensitization:	Contact with this product is not expected to cause skin sensitization, based upon the available data and the known hazards of the components.		
Respiratory Tract Sensitization:	Contact with this product is not expected to cause respiratory tract sensitization, based upon the available data and the known hazards of the components.		
Mutagenic:	This product is not known to contain any components at >= 0.1% that have been shown to cause mutagenicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a mutagen.		
Reproductive Toxicity:	This product is not known to contain any components at >= 0.1% that have been shown to cause reproductive toxicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a reproductive toxin.		
Teratogenicity/Embryotoxicity:	This product is not known to contain any components at >= 0.1% that have been shown to cause teratogenicity and/or embryotoxicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a teratogen/embryotoxin.		
Carcinogenicity (ACGIH):	ACGIH A3: animal carcinogen. [Diesel oil] (See Other Considerations)		
Carcinogenicity (IARC):	This product is not known to contain any chemicals at reportable quantities that are listed as Group 1, 2A, or 2B carcinogens by IARC.		
Carcinogenicity (NTP):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by NTP.		
Carcinogenicity (IRIS):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by IRIS.		

Continued on Next Page

Internet: [www.petro-canada.ca/msds](http://www.petro-canada.ca/msds)

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DIESEL FUEL		Page Number: 4
Carcinogenicity (OSHA):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by OSHA.	
Other Considerations	Avoid prolonged or repeated skin contact to diesel fuels which can lead to dermal irritation and may be associated with an increased risk of skin cancer.  Diesel engine exhaust particulate is probably carcinogenic to humans (IARC Group 2A).	

Section 12. Ecological Information			
Environmental Fate	Not available	Persistence/Bioaccumulation Potential	Not available
BOD5 and COD	Not available	Products of Biodegradation	Not available
Additional Remarks	No additional remark.		

Section 13. Disposal Considerations	
Waste Disposal	Spent/ used/ waste product may meet the requirements of a hazardous waste. Consult your local or regional authorities. Ensure that waste management processes are in compliance with government requirements and local disposal regulations.

Section 14. Transport Information			
TDG Classification	DIESEL FUEL, 3, UN1202, PGIII (CL-TDG)	Special Provisions for Transport	See Transportation of Dangerous Goods Regulations.

Section 15. Regulatory Information											
Other Regulations		<p>This product is acceptable for use under the provisions of WHMIS-CPR. All components of this formulation are listed on the CEPA-DSL (Domestic Substances List).</p> <p>All components of this formulation are listed on the US EPA-TSCA Inventory.</p> <p>All components of this product are on the European Inventory of Existing Commercial Chemical Substances (EINECS).</p> <p>This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.</p> <p>Please contact Product Safety for more information.</p>									
DSD/DPD (Europe)		Not evaluated.	<div><div>HCS (U.S.A.)</div><div>CLASS: Irritating substance. CLASS: Target organ effects. CLASS: Combustible liquid having a flash point between 37.8°C (100°F) and 93.3°C (200°F).</div></div>								
ADR (Europe) (Pictograms)		<div><div>NOT EVALUATED FOR EUROPEAN TRANSPORT</div><div>NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN</div></div>	<div><div>DOT (U.S.A.) (Pictograms)</div><div></div></div>								
HMIS (U.S.A.)		<table><tr><td>Health Hazard</td><td>(2)</td></tr><tr><td>Fire Hazard</td><td>(2)</td></tr><tr><td>Reactivity</td><td>(0)</td></tr><tr><td>Personal Protection</td><td>(H)</td></tr></table>	Health Hazard	(2)	Fire Hazard	(2)	Reactivity	(0)	Personal Protection	(H)	<div><div><div><div>NFPA (U.S.A.)</div><div>Health</div><div></div><div>Fire Hazard Reactivity Specific hazard</div></div><div>Rating</div><div>0 Insignificant 1 Slight 2 Moderate 3 High 4 Extreme</div></div></div>
Health Hazard	(2)										
Fire Hazard	(2)										
Reactivity	(0)										
Personal Protection	(H)										








Section 16. Other Information	
References	Available upon request. * Marque de commerce de Petro-Canada - Trademark
Glossary	<div>           ACGIH - American Conference of Governmental Industrial Hygienists            ADR - Agreement on Dangerous goods by Road (Europe)            ASTM - American Society for Testing and Materials (            BOD5 - Biological Oxygen Demand in 5 days            CAN/CGA B149.2 Propane Installation Code            CAS - Chemical Abstract Services            CEPA - Canadian Environmental Protection Act            CERCLA - Comprehensive Environmental Response, Compensation and Liability Act            CFR - Code of Federal Regulations            CHIP - Chemicals Hazard Information and Packaging Approved Supply List            COD5 - Chemical Oxygen Demand in 5 days            CPR - Controlled Products Regulations            DOT - Department of Transport            DSCL - Dangerous Substances Classification and Labeling (Europe)         </div> <div>           IRIS - Integrated Risk Information System            LD50/LC50 - Lethal Dose/Concentration kill 50%            LDLo/LCLO - Lowest Published Lethal Dose/Concentration            NAERG'96 - North American Emergency Response Guide Book (1996)            NFPA - National Fire Prevention Association            NIOSH - National Institute for Occupational Safety &amp; Health            NPRI - National Pollutant Release Inventory            NSNR - New Substances Notification Regulations (Canada)            NTP - National Toxicology Program            OSHA - Occupational Safety &amp; Health Administration            PEL - Permissible Exposure Limit            RCRA - Resource Conservation and Recovery Act            SARA - Superfund Amendments and Reorganization Act            SD - Single Dose            STEL - Short Term Exposure Limit (15 minutes)         </div>
Continued on Next Page      Internet: <a href="http://www.petro-canada.ca/msds">www.petro-canada.ca/msds</a> Available in French	



DIESEL FUEL		Page Number: 5
DSD/DPD - Dangerous Substances or Dangerous Preparations Directives (Europe) DSL - Domestic Substance List EEC/EU - European Economic Community/European Union EINECS - European Inventory of Existing Commercial Chemical Substances EPCRA - Emergency Planning and Community Right to Know Act FDA - Food and Drug Administration FIFRA - Federal Insecticide, Fungicide and Rodenticide Act HCS - Hazardous Communication System HMIS - Hazardous Material Information System IARC - International Agency for Research on Cancer		TDG - Transportation Dangerous Goods (Canada) TDLo/TCLo - Lowest Published Toxic Dose/Concentration TLM - Median Tolerance Limit TLV-TWA - Threshold Limit Value-Time Weighted Average TSCA - Toxic Substances Control Act USEPA - United States Environmental Protection Agency USP - United States Pharmacopoeia WHMIS - Workplace Hazardous Material Information System
<b>For Copy of MSDS</b> Internet: <a href="http://www.petro-canada.ca/msds">www.petro-canada.ca/msds</a>  Western Canada, Ontario & Central Canada, telephone: 1-800-668-0220; fax: 1-800-837-1228 Quebec & Eastern Canada, telephone: 514-640-8308; fax: 514-640-8385  <b>For Product Safety Information: (905) 804-4752</b>		<b>Prepared by Product Safety - JDW on 2/6/2004.</b>  Data entry by Product Safety - JDW.
<i>To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.</i>		



## Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing	TDG (pictograms)
 	B-2, D-2A, D-2B	   	

Section 1. Chemical Product and Company Identification			
<b>Product Name</b>	<b>GASOLINE, UNLEADED</b>	<b>Code</b>	W102E
<b>Synonym</b>	Regular, Unleaded Gasoline (US Grade), Mid-Grade, Plus, Super, WinterGas, SummerGas, Supreme, SuperClean WinterGas, RegularClean, PlusClean, Premium, marked or dyed gasoline, Super Premium (94 RO)	<b>Validated on</b>	6/9/2004.
<b>Manufacturer</b>	PETRO-CANADA P.O. Box 2844 Calgary, Alberta T2P 3E3	<b>In case of Emergency</b>	Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).
<b>Material Uses</b>	Unleaded gasoline is used in spark ignition engines including motor vehicles, inboard and outboard boat engines, small engines such as chain saws and lawn mowers, and recreational vehicles.		

Section 2. Composition and Information on Ingredients					
			Exposure Limits (ACGIH)		
Name	CAS #	% (V/V)	TLV-TWA(8 h)	STEL	CEILING
Gasoline	8006-61-9	85-100	300 ppm (890 mg/m <sup>3</sup> )	500 ppm (1480 mg/m <sup>3</sup> )	Not established
Methyl tert-butyl ether	1634-04-4	0-15	40 ppm (144mg/m <sup>3</sup> )	Not established	Not established
Note: Petro-Canada does not use MTBE in the manufacturing of its gasoline, however MTBE can be introduced from time to time through the use of external gasoline blendstocks.					
<b>Manufacturer Recommendation</b>	Not applicable				
<b>Other Exposure Limits</b>	Consult local, state, provincial or territory authorities for acceptable exposure limits.				

Section 3. Hazards Identification.	
<b>Potential Health Effects</b>	Possible cancer hazard. Inhalation of vapours can be irritating to respiratory tract and cause CNS depression with symptoms of nausea, headaches, vomiting, dizziness, fatigue, light-headedness, reduced coordination, unconsciousness and possibly death. Skin and eye contact can cause irritation. Toxic if ingested. For more information, refer to Section 11.

Section 4. First Aid Measures	
<b>Eye Contact</b>	IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention if irritation persists.
<b>Skin Contact</b>	Remove contaminated clothing - launder before reuse. Wash gently and thoroughly the contaminated skin with running water and non-abrasive soap. Seek medical attention.
<b>Inhalation</b>	Evacuate the victim to a safe area as soon as possible. If the victim is not breathing, perform artificial respiration. Allow the victim to rest in a well ventilated area. Seek medical attention.
<b>Ingestion</b>	DO NOT induce vomiting because of danger of aspirating liquid into lungs. Seek medical attention.
<b>Note to Physician</b>	Not available

GASOLINE, UNLEADED		Page Number: 2	
<b>Section 5. Fire-fighting Measures</b>			
<b>Flammability</b>	Flammable liquid (NFPA).	<b>Flammable Limits</b>	Lower: 1.3%; Upper: 7.6% (NFPA).
<b>Flash Points</b>	Closed Cup: -50 to -38°C (-58 to -36°F); ASTM D56 Standard Test Method for Flash Point by Tag Closed Tester.	<b>Auto-Ignition Temperature</b>	257°C (495°F) (NFPA).
<b>Fire Hazards in Presence of Various Substances</b>	Extremely flammable in presence of open flames, sparks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. Rapid escape of vapour may generate static charge causing ignition.	<b>Explosion Hazards in Presence of Various Substances</b>	Do not cut, weld, heat, drill or pressurize empty container. Containers may explode in heat of fire. Vapours may form explosive mixtures with air.
<b>Products of Combustion</b>	Carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO <sub>x</sub> ), polynuclear aromatic hydrocarbons, phenols, smoke and irritating vapours as products of incomplete combustion.		
<b>Fire Fighting Media and Instructions</b>	NAERG96, GUIDE 128, flammable/combustible liquid (non-polar/water-immiscible). CAUTION: This product has a very low flash point, use of water spray when fighting fire may be inefficient. SMALL FIRE: Use DRY chemicals, CO <sub>2</sub> , water spray or foam. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. If tank, rail car or tank truck is involved in a fire, ISOLATE for 1600 meters (1 mile) in all directions; also, consider initial evacuation for 1600 meters (1 mile) in all directions. DO NOT extinguish a leaking gas flame unless leak can be stopped. Shut off fuel to fire if it is possible to do so without hazard. If this is impossible, withdraw from area and let fire burn out under controlled conditions. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tank due to fire. Cool containing vessels with water spray in order to prevent pressure build-up, autoignition or explosion. Avoid flushing spilled material into sewers, streams or other bodies of water. Self-contained breathing apparatus (SCBA) will be required if approaching the fire from downwind, or to enter enclosed areas or buildings.		
<b>Section 6. Accidental Release Measures</b>			
<b>Material Release or Spill</b>	NAERG96, GUIDE 128, flammable/combustible liquid (non-polar/water-immiscible). Evacuate in a downwind direction for at least 300 meters (1000 feet). ELIMINATE ALL IGNITION SOURCES. Ventilate closed spaces before entering. By forced ventilation, maintain concentration of vapour below the range of explosive mixture. Avoid contact, fully-encapsulating, vapour-protective clothing should be worn for spills and leaks with no fire. Stop leak if without risk. Use vapour suppressing foam or water spray to reduce vapours; it may reduce vapour, but it may not prevent ignition in closed spaces; isolate area until vapour has dispersed. Contain spill. Absorb with inert absorbents such as dry clay, or diatomaceous earth, or recover using electrically grounded explosion-proof pumps. Avoid inhaling dust of diatomaceous earth for it may contain silica (very fine particle size), making this a potential respiratory hazard. Place used absorbent in closed metal containers for later disposal or burn absorbent in a suitable combustion chamber. DO NOT FLUSH TO SEWERS, STREAMS OR OTHER BODIES OF WATER. Check with applicable jurisdiction for specific disposal requirements of spilled material and empty containers. Notify the appropriate authorities immediately.		
<b>Section 7. Handling and Storage</b>			
<b>Handling</b>	Keep away from heat, spark and other sources of ignition. Empty container may contain flammable/explosive residues or vapours. DO NOT reuse empty containers without commercial cleaning or reconditioning. Ground/bond line and equipment during pumping or transfer to avoid accumulation of static charge. DO NOT USE AS CLEANING FLUID OR SIPHON BY MOUTH. Wear proper protective equipment. Avoid inhalation and contact with skin or eyes. Practice good personal hygiene. Wash hands after handling and before eating. Launder work clothes frequently. Discard saturated leather goods.		
<b>Storage</b>	Store in cool, dry, isolated, well-ventilated area, and away from direct sunlight, sources of ignition and incompatibles. Flammable materials should be stored in a separate safety storage cabinet or room. Ground all equipment containing material.		
<b>Section 8. Exposure Controls/Personal Protection</b>			
<b>Engineering Controls</b>	For normal application, special ventilation is not necessary. If user's operations generate vapours or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety shower are close to work-station.		
<b>Personal Protection - The selection of personal protective equipment varies, depending upon conditions of use.</b>			
<b>Eyes</b>	Eye protection (i.e., safety glasses, safety goggles and/or face shield) should be determined based on conditions of use. If product is used in an application where splashing may occur, the use of safety goggles and/or a face shield should be considered.		
<b>Body</b>	Wear appropriate clothing to prevent skin contact. As a minimum long sleeves and trousers should be worn.		
Continued on Next Page		Internet: <a href="http://www.petro-canada.ca/msds">www.petro-canada.ca/msds</a>	
		Available in French	



GASOLINE, UNLEADED		Page Number: 3
<b>Respiratory</b>	Where concentrations in air may exceed the occupational exposure limits given in Section 2 (and those applicable to your area) and where engineering, work practices or other means of exposure reduction are not adequate, NIOSH approved respirators may be necessary to prevent overexposure by inhalation.	
<b>Hands</b>	Wear appropriate chemically protective gloves. When handling hot product ensure gloves are heat resistant and insulated.	
<b>Feet</b>	Wear appropriate footwear to prevent product from coming in contact with feet and skin.	

Section 9. Physical and Chemical Properties			
<b>Physical State and Appearance</b>	Clear liquid.	<b>Viscosity</b>	Not available
<b>Colour</b>	Clear to slightly yellow, undyed liquid. May be dyed red for taxation purposes.	<b>Pour Point</b>	Not applicable.
<b>Odour</b>	Gasoline. MTBE has a terpene-like odour.	<b>Softening Point</b>	Not applicable.
<b>Odour Threshold</b>	Less than 1 ppm.	<b>Dropping Point</b>	Not applicable.
<b>Boiling Point</b>	25 to 220°C (77 to 428°F) Initial boiling point by ASTM D86 Standard Test Method.	<b>Penetration</b>	Not applicable.
<b>Density</b>	0.7 kg/L @ 15°C (59°F).	<b>Oil / Water Dist. Coefficient</b>	Not available
<b>Vapour Density</b>	3 to 4 (Air = 1) (NFPA).	<b>Ionicity (in water)</b>	Insoluble in water.
<b>Vapour Pressure</b>	<107 kPa @ 37.8°C (100°F)	<b>Dispersion Properties</b>	Not available
<b>Volatility</b>	Volatile.	<b>Solubility</b>	Hydrocarbon components virtually insoluble in water. Soluble in alcohol, ether, chloroform, and benzene. Dissolves fats, oils and natural resins.

Section 10. Stability and Reactivity			
<b>Corrosivity</b>	Non corrosive.		
<b>Stability</b>	The product is stable under normal handling and storage conditions.	<b>Hazardous Polymerization</b>	Will not occur under normal working conditions.
<b>Incompatible Substances / Conditions to Avoid</b>	Reactive with oxidizing agents, acids.	<b>Decomposition Products</b>	May release COx, NOx, phenols, polynuclear aromatic hydrocarbons, smoke and irritating vapours when heated to decomposition.



Section 11. Toxicological Information	
<b>Routes of Entry</b>	Skin contact, eye contact, inhalation, and ingestion.
<b>Acute Lethality</b>	Gasoline: Acute oral toxicity (LD50): 13 600 mg/kg (rat). Acute dermal toxicity (LD50): >5000 mg/kg (rabbit). Acute inhalation toxicity (LC50): >300 000 mg/m³/4h (rat).  MTBE: Acute oral toxicity (LD50): 29630 mg/kg (rat). Acute dermal toxicity (LD50): >6800 mg/kg (rabbit). Acute inhalation toxicity (LC50): 23 576 ppm/4h (rat).
<b>Chronic or Other Toxic Effects</b>	
Dermal Route:	This product can cause skin irritation. Prolonged or repeated contact with skin may cause dermatitis.
Inhalation Route:	Inhalation of vapours can be irritating to respiratory tract and cause CNS depression with symptoms of nausea, headaches, vomiting, dizziness, fatigue, light-headedness, reduced coordination, unconsciousness and possibly death.
Oral Route:	Swallowing or vomiting of the liquid may result in aspiration into the lungs. Can cause CNS depression. (See Inhalation Route for symptoms).
Eye Irritation/Inflammation:	Can cause irritation to the eyes.
Immunotoxicity:	Not available
Continued on Next Page	
Internet: <a href="http://www.petro-canada.ca/msds">www.petro-canada.ca/msds</a>	
Available in French	

GASOLINE, UNLEADED		Page Number: 4
Skin Sensitization:	This product is not expected to be a skin sensitizer, based on the available data and the known hazards of the components.	
Respiratory Tract Sensitization:	This product is not expected to be a respiratory tract sensitizer, based on the available data and the known hazards of the components.	
Mutagenic:	This product is not considered to be a mutagen, based on the available data and the known hazards of the components.	
Reproductive Toxicity:	This product is not considered to be a reproductive hazard, based on the available data and the known hazards of the components.	
Teratogenicity/Embryotoxicity:	This product is not considered to be a teratogen or an embryotoxin, based on the available data and the known hazards of the components.	
Carcinogenicity (ACGIH):	ACGIH A3: animal carcinogen. [Gasoline, MTBE]	
Carcinogenicity (IARC):	IARC Group 2B: possibly carcinogenic to humans. [Gasoline]	
Carcinogenicity (NTP):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by NTP.	
Carcinogenicity (IRIS):	Not available	
Carcinogenicity (OSHA):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by OSHA.	
Other Considerations	Unleaded gasoline caused kidney effects in male rats and liver effects in female mice.	

Section 12. Ecological Information			
Environmental Fate	Not available	Persistence/Bioaccumulation Potential	Not available
BOD5 and COD	Not available	Products of Biodegradation	Not available
Additional Remarks	Not available		

Section 13. Disposal Considerations	
Waste Disposal	Preferred waste management priorities are: (1) recycle or reprocess; (2) incineration with energy recovery; (3) disposal at licensed waste disposal facility. Ensure that disposal or reprocessing is in compliance with government requirements and local disposal regulations. Consult your local or regional authorities.

Section 14. Transport Information	
TDG Classification	GASOLINE, 3, UN1203, PGII (CL-TDG)
Special Provisions for Transport	See Transportation of Dangerous Goods Regulations.

Section 15. Regulatory Information					
Other Regulations	CEPA: This product is acceptable for use under the provisions of WHMIS-CPR. All components of this formulation are listed on the CEPA-DSL (Domestic Substances List). EPA: All components of this formulation are listed on the US EPA-TSCA Inventory.  This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR. Please contact Product Safety for more information.				
DSD/DPD (Europe)	Not evaluated.	HCS (U.S.A.)	CLASS: Contains material which may cause cancer. CLASS: Flammable liquid having a flash point lower than 37.8°C (100°F). CLASS: Irritating substance. CLASS: Target organ effects.		
ADR (Europe) (Pictograms)	NOT EVALUATED FOR EUROPEAN TRANSPORT NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN	DOT (U.S.A) (Pictograms)			
HMIS (U.S.A.)	Health Hazard (2*) Fire Hazard (4) Reactivity (0)	NFPA (U.S.A.) Health 2, Fire Hazard 4, Reactivity 0		Rating	0 Insignificant 1 Slight 2 Moderate
Continued on Next Page      Internet: <a href="http://www.petro-canada.ca/msds">www.petro-canada.ca/msds</a> Available in French					



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Personal Protection (H)		Specific hazard	3 High 4 Extreme

### Section 16. Other Information

**References** Available upon request.  
\* Marque de commerce de Petro-Canada - Trademark

#### Glossary

ACGIH - American Conference of Governmental Industrial Hygienists	IRIS - Integrated Risk Information System
ADR - Agreement on Dangerous goods by Road (Europe)	LD50/LC50 - Lethal Dose/Concentration kill 50%
ASTM - American Society for Testing and Materials	LDLo/LCLo - Lowest Published Lethal Dose/Concentration
BOD5 - Biological Oxygen Demand in 5 days	NAERG'96 - North American Emergency Response Guide Book (1996)
CAN/CGA B149.2 Propane Installation Code	NFPA - National Fire Prevention Association
CAS - Chemical Abstract Services	NIOSH - National Institute for Occupational Safety & Health
CEPA - Canadian Environmental Protection Act	NPRI - National Pollutant Release Inventory
CERCLA - Comprehensive Environmental Response, Compensation and Liability Act	NSNR - New Substances Notification Regulations (Canada)
CFR - Code of Federal Regulations	NTP - National Toxicology Program
CHIP - Chemicals Hazard Information and Packaging Approved Supply List	OSHA - Occupational Safety & Health Administration
COD5 - Chemical Oxygen Demand in 5 days	PEL - Permissible Exposure Limit
CPR - Controlled Products Regulations	RCRA - Resource Conservation and Recovery Act
DOT - Department of Transport	SARA - Superfund Amendments and Reorganization Act
DSCL - Dangerous Substances Classification and Labeling (Europe)	SD - Single Dose
DSD/DPD - Dangerous Substances or Dangerous Preparations Directives (Europe)	STEL - Short Term Exposure Limit (15 minutes)
DSL - Domestic Substance List	TDG - Transportation Dangerous Goods (Canada)
EEC/EU - European Economic Community/European Union	TDLo/TCLo - Lowest Published Toxic Dose/Concentration
EINECS - European Inventory of Existing Commercial Chemical Substances	Tlm - Median Tolerance Limit
EPCRA - Emergency Planning and Community Right to Know Act	TLV-TWA - Threshold Limit Value-Time Weighted Average
FDA - Food and Drug Administration	TSCA - Toxic Substances Control Act
FIFRA - Federal Insecticide, Fungicide and Rodenticide Act	USEPA - United States Environmental Protection Agency
HCS - Hazardous Communication System	USP - United States Pharmacopoeia
HMIS - Hazardous Material Information System	WHMIS - Workplace Hazardous Material Information System
IARC - International Agency for Research on Cancer	

#### For Copy of MSDS

##### Fuels & Solvents:

Western Canada, telephone: 403-296-4158; fax: 403-296-6551  
Ontario & Central Canada, telephone: 1-800-668-0220; fax: 1-800-837-1228  
Quebec & Eastern Canada, telephone: 514-640-8308; fax: 514-640-8385

For Product Safety Information: (905) 804-4752

Prepared by Product Safety - JDW on 6/9/2004.








Data entry by Product Safety - RS.

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





## Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing	TDG (pictograms)
 	B-2, D-2A, D-2B	   	

Section 1. Chemical Product and Company Identification			
Product Name	JET B AVIATION TURBINE FUEL		Code W219 SAP: 150, 151, 152
Synonym	Jet B; Jet B DI; JP-4; Jet F-40; NATO F-40; Turbine Fuel, Aviation, Wide Cut Type (CAN/CGSB-3.22).		Validated on 12/3/2001.
Manufacturer	PETRO-CANADA P.O. Box 2844 Calgary, Alberta T2P 3E3		In case of Emergency Petro-Canada: 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).
Material Uses	Used as aviation turbine fuel. May contain a fuel system icing inhibitor.		

Section 2. Composition and Information on Ingredients					
Name	CAS #	% (V/V)	TLV-TWA(8 h)	STEL	CEILING
1) Complex mixture of petroleum hydrocarbons (C6-C14).	64741-41-9	>99	Not established	Not established	Not established
2) Benzene	71-43-2	<0.5	0.5 ppm	2.5 ppm	Not established
3) Fuel System Icing Inhibitor (FSII) (if added*): Diethylene Glycol Monomethyl Ether	111-77-3	<0.15	Not established	Not established	Not established
4) Anti-static, antioxidant and metal deactivator additives.	Not applicable	<0.1	Not applicable	Not applicable	Not applicable
* Please note that Jet B DI, JP-4, Jet F-40 and NATO F-40 all contain Fuel System Icing Inhibitor (FSII).					
Manufacturer Recommendation	Not applicable				
Other Exposure Limits	Consult local, state, provincial or territory authorities for acceptable exposure limits.				

Section 3. Hazards Identification	
Potential Health Effects	Skin and eye contact can cause irritation. Inhalation of vapours can cause irritation of the respiratory tract and CNS depression with symptoms of nausea, headaches, vomiting, dizziness, fatigue, light-headedness, reduced coordination, unconsciousness and possibly death. Aspiration into the lungs may produce potentially fatal chemical pneumonitis (fluid in the lungs), severe lung damage, or respiratory failure. This product contains a cancer causing agent. For more information, refer to Section 11.

Section 4. First Aid Measures	
Eye Contact	IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention.
Skin Contact	Remove contaminated clothing - launder before reuse. Wash gently and thoroughly the contaminated skin with running water and non-abrasive soap. Seek medical attention.
Inhalation	Evacuate the victim to a safe area as soon as possible. If the victim is not breathing, perform artificial respiration. Allow the victim to rest in a well ventilated area. Seek medical attention.
Ingestion	DO NOT induce vomiting because of danger of aspirating liquid into lungs. Seek medical attention.
Note to Physician	Not available

Section 5. Fire-fighting Measures			
Flammability	Flammable liquid (NFPA).	Flammable Limits	LOWER: 1.3% UPPER: 8% (NFPA)
Flash Points	CLOSED CUP: -31°C (-24°F) (NFPA)	Auto-ignition Temperature	240°C (464°F) (NFPA)
Fire Hazards in Presence of Various Substances	Flammable in presence of open flames, sparks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. This product can accumulate static charge and ignite. May accumulate in confined spaces.	Explosion Hazards in Presence of Various Substances	Do not cut, weld, heat, drill or pressurize empty container. Containers may explode in heat of fire.
Products of Combustion	Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), aldehydes, ketones, smoke and irritating vapours as products of incomplete combustion.		

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Available in French



JET B AVIATION TURBINE FUEL		Page Number: 2
<b>Fire Fighting Media and Instructions</b>	<p>NAERG96, GUIDE 128, Flammable liquids (Non-polar/Water-immiscible). CAUTION: This product has a very low flash point: Use of water spray when fighting fire may be inefficient.</p> <p>If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions.</p> <p>SMALL FIRES: Dry chemical, CO2, water spray or regular foam. LARGE FIRES: Water spray, fog or regular foam. Do not use straight streams. Move containers from fire area if you can do it without risk. Fires Involving Tanks or Car/Trailer Loads: Fight fire from maximum distance or use unmanned hose holders or monitor nozzles.</p> <p>Cool containers with flooding quantities of water until well after fire is out. Withdraw immediately in case of rising sound from venting devices or any discolouration of tank. ALWAYS stay away from the ends of tanks. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible withdraw from area and let fire burn. Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.</p>	

Section 6. Accidental Release Measures	
<b>Material Release or Spill</b>	<p>NAERG96, GUIDE 128, Flammable Liquids (Non-polar/ Water-immiscible). ELIMINATE ALL IGNITION SOURCES. Avoid contact. Stop leak if without risk. Contain spill. Absorb with inert absorbents, dry clay, or diatomaceous earth. Avoid inhaling dust of diatomaceous earth for it may contain silica in very fine particle size, making this a potential respiratory hazard. Place used absorbent in closed metal containers for later disposal or burn absorbent in a suitable combustion chamber. DO NOT FLUSH TO SEWERS, STREAMS OR OTHER BODIES OF WATER. Check with applicable jurisdiction for specific disposal requirements of spilled material and empty containers. Notify the appropriate authorities immediately.</p>

Section 7. Handling and Storage	
<b>Handling</b>	<p>Keep away from heat. Keep away from sources of ignition. Empty containers pose a fire risk. DO NOT reuse empty containers without commercial cleaning or reconditioning. Ground/bond line and equipment during pumping or transfer to avoid accumulation of static charge. DO NOT ingest. Do not breathe gas/vapour/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately. Avoid contact with skin and eyes. Practice good personal hygiene. Wash hands after handling and before eating. Launder work clothes frequently. Discard saturated leather goods.</p>
<b>Storage</b>	<p>Store in tightly closed containers in cool, dry, isolated, well-ventilated area, and away from incompatibles. Ground all equipment containing material. Keep away from direct sunlight.</p>

Section 8. Exposure Controls/Personal Protection	
<b>Engineering Controls</b>	<p>For normal application, special ventilation is not necessary. If user's operations generate vapours or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety shower are close to work-station.</p>
<b>Personal Protection</b>	<p><i>The selection of personal protective equipment varies, depending upon conditions of use.</i></p> <p><b>Eyes</b> Eye protection (i.e., safety glasses, safety goggles and/or face shield) should be determined based on conditions of use. If product is used in an application where splashing may occur, the use of safety goggles and/or a face shield should be considered.</p> <p><b>Body</b> Wear appropriate clothing to prevent skin contact. As a minimum long sleeves and trousers should be worn.</p> <p><b>Respiratory</b> Where concentrations in air may exceed the occupational exposure limits given in Section 2 (and those applicable to your area) and where engineering, work practices or other means of exposure reduction are not adequate, NIOSH approved respirators may be necessary to prevent overexposure by inhalation.</p> <p><b>Hands</b> Wear appropriate chemically protective gloves. When handling hot product ensure gloves are heat resistant and insulated.</p> <p><b>Feet</b> Wear appropriate footwear to prevent product from coming in contact with feet and skin.</p>

Section 9. Physical and Chemical Properties			
<b>Physical State and Appearance</b>	Clear liquid.	<b>Viscosity</b>	Not available (similar to gasoline)
<b>Colour</b>	Clear and colourless.	<b>Pour Point</b>	Freezing Point: <-51°C (<-60°F) for Jet B/Jet B D; <-58°C (<-72°F) for Jet Fuel F-40.
<b>Odour</b>	Gasoline like.	<b>Softening Point</b>	Not applicable.
<b>Odour Threshold</b>	Not available	<b>Dropping Point</b>	Not applicable.
<b>Boiling Point</b>	50 to 270°C (122 to 518°F)	<b>Penetration</b>	Not applicable.
<b>Density</b>	0.75 to 0.80 kg/L @ 15°C (59°F).	<b>Oil / Water Dist. Coefficient</b>	Not available
<b>Vapour Density</b>	3.5 (Air = 1)	<b>Ionicity (in water)</b>	Not available
<b>Vapour Pressure</b>	21 kPa (158 mmHg) @ 37.8°C (100°F).	<b>Dispersion Properties</b>	Not available
<b>Volatility</b>	Volatile.	<b>Solubility</b>	Insoluble in water. Partially miscible in some alcohols. Miscible in other petroleum solvents.
Continued on Next Page		Available in French	






JET B AVIATION TURBINE FUEL		Page Number: 4													
<b>Section 13. Disposal Considerations</b>															
<b>Waste Disposal</b>	Preferred waste management priorities are: (1) recycle or reprocess; (2) incineration with energy recovery; (3) disposal at licensed waste disposal facility. Ensure that disposal or reprocessing is in compliance with government requirements and local disposal regulations. Consult your local or regional authorities.														
<b>Section 14. Transport Information</b>															
<b>TDG Classification</b>	Currently: Fuel, aviation, turbine engine, 3, UN1863, PGII As of August 15, 2002: FUEL, AVIATION, TURBINE ENGINE, 3, UN1863, PGII	<b>Special Provisions for Transport</b>	Not applicable.												
<b>Section 15. Regulatory Information</b>															
<b>Other Regulations</b>	<p>This product is acceptable for use under the provisions of WHMIS-CPR. All components of this formulation are listed on the CEPA-DSL (Domestic Substances List).</p> <p>All components of this formulation are listed on the US EPA-TSCA Inventory.</p> <p>All components of this product are on the European Inventory of Existing Commercial Chemical Substances (EINECS).</p> <p>This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.</p> <p>Please contact Product Safety for more information.</p>														
<b>DSD/DPD (Europe)</b>	Not evaluated.	<b>HCS (U.S.A.)</b>	CLASS: Contains material which may cause cancer. CLASS: Flammable liquid having a flash point lower than 37.8°C (100°F). CLASS: Toxic. CLASS: Irritating substance. CLASS: Target organ effects.												
<b>ADR (Europe) (Pictograms)</b>	NOT EVALUATED FOR EUROPEAN TRANSPORT  NON EVALUÉ POUR LE TRANSPORT EUROPÉEN	<b>DOT (U.S.A) (Pictograms)</b>													
<b>HMIS (U.S.A.)</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Health Hazard</td> <td style="text-align: center; padding: 2px;">2</td> </tr> <tr> <td style="padding: 2px;">Fire Hazard</td> <td style="text-align: center; padding: 2px;">3</td> </tr> <tr> <td style="padding: 2px;">Reactivity</td> <td style="text-align: center; padding: 2px;">0</td> </tr> <tr> <td style="padding: 2px;">Personal Protection</td> <td style="text-align: center; padding: 2px;">H</td> </tr> </table>	Health Hazard	2	Fire Hazard	3	Reactivity	0	Personal Protection	H	<b>NFPA (U.S.A.)</b>	<table style="width: 100%;"> <tr> <td style="width: 20%; text-align: center; padding: 2px;">Health</td> <td style="width: 20%; text-align: center; padding: 2px;"> </td> <td style="width: 20%; padding: 2px;">           Fire Hazard            Reactivity            Specific hazard         </td> <td style="width: 40%; padding: 2px;">           Rating            0 Insignificant            1 Slight            2 Moderate            3 High            4 Extreme         </td> </tr> </table>	Health		Fire Hazard Reactivity Specific hazard	Rating 0 Insignificant 1 Slight 2 Moderate 3 High 4 Extreme
Health Hazard	2														
Fire Hazard	3														
Reactivity	0														
Personal Protection	H														
Health		Fire Hazard Reactivity Specific hazard	Rating 0 Insignificant 1 Slight 2 Moderate 3 High 4 Extreme												
<b>Section 16. Other Information</b>															
<b>References</b>	Available upon request. * Marque de commerce de Petro-Canada - Trademark														
<b>Glossary</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;">           ACGIH - American Conference of Governmental Industrial Hygienists            ADR - Agreement on Dangerous goods by Road (Europe)            ASTM - American Society for Testing and Materials            BOD5 - Biological Oxygen Demand in 5 days            CAN/CGA B149.2 - Propane Installation Code            CAS - Chemical Abstract Services            CEPA - Canadian Environmental Protection Act            CERCLA - Comprehensive Environmental Response, Compensation and Liability Act            CFR - Code of Federal Regulations            CHIP - Chemicals Hazard Information and Packaging Approved Supply List            COD5 - Chemical Oxygen Demand in 5 days            CPR - Controlled Products Regulations            DOT - Department of Transport            DSEL - Dangerous Substances Classification and Labeling (Europe)            DSD/DPD - Dangerous Substances or Dangerous Preparations Directives (Europe)            DSL - Domestic Substance List            EEC/EU - European Economic Community/European Union            EINECS - European Inventory of Existing Commercial Chemical Substances            EPCRA - Emergency Planning and Community Right to Know Act            FDA - Food and Drug Administration            FIFRA - Federal Insecticide, Fungicide and Rodenticide Act            HCS - Hazardous Communication System            HMIS - Hazardous Material Information System            IARC - International Agency for Research on Cancer         </div> <div style="width: 48%;">           IRIS - Integrated Risk Information System            LD50/LC50 - Lethal Dose/Concentration kill 50%            LDLo/LCLo - Lowest Published Lethal Dose/Concentration            NAERG'96 - North American Emergency Response Guide Book (1996)            NFPA - National Fire Prevention Association            NIOSH - National Institute for Occupational Safety &amp; Health            NPRI - National Pollutant Release Inventory            NSNR - New Substances Notification Regulations (Canada)            NTP - National Toxicology Program            OSHA - Occupational Safety &amp; Health Administration            PEL - Permissible Exposure Limit            RCRA - Resource Conservation and Recovery Act            SARA - Superfund Amendments and Reorganization Act            SD - Single Dose            STEL - Short Term Exposure Limit (15 minutes)            TDG - Transportation Dangerous Goods (Canada)            TDLo/TCLo - Lowest Published Toxic Dose/Concentration            TLM - Median Tolerance Limit            TLV-TWA - Threshold Limit Value-Time Weighted Average            TSCA - Toxic Substances Control Act            USEPA - United States Environmental Protection Agency            USP - United States Pharmacopoeia            WHMIS - Workplace Hazardous Material Information System         </div> </div>															
<b>For Copy of MSDS</b>	Prepared by Product Safety - TAR on 12/3/2001.														
Continued on Next Page		Available in French													



JET B AVIATION TURBINE FUEL		Page Number: 5
Western Canada, telephone: 403-296-4158; fax: 403-296-6551 Ontario & Central Canada, telephone: 1-800-668-0220; fax: 1-800-837-1228 Quebec & Eastern Canada, telephone: 514-640-8308; fax: 514-640-8385  For Product Safety Information: (905) 804-4752		Data entry by Product Safety - JDW.
<i>To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.</i>		





<div>  <b>MATERIAL SAFETY DATA SHEET</b> </div>																					
<b>SECTION 1 – PRODUCT INFORMATION</b>																					
<b>Product Name:</b> Propane <b>Trade Name:</b> LPG (Liquified Petroleum Gas), LP-Gas <b>Chemical Formula:</b> C <sub>3</sub> H <sub>8</sub> <b>WHMIS CLASSIFICATION</b> Class A - Compressed Gas Class B, Division 1 - Flammable Gas	<b>Supplier:</b> Superior Propane Inc. 1111 - 49th Avenue N.E. Calgary, AB T2E 8V2 <b>Business:</b> (403) 730-7500 <b>Local Market</b> <b>Emergency Number:</b> _____ (Non Medical)																				
<b>Application and Use:</b> Propane is commonly used as a fuel for heating, cooking, automobiles, forklift trucks, crop drying and welding and cutting operations. Propane is used in industry as a refrigerant, solvent and as a chemical feedstock.																					
<b>SECTION 2 – HAZARDOUS INGREDIENTS</b>																					
<table border="1"> <thead> <tr> <th>COMPONENTS</th> <th>CAS NO.</th> <th>% Volume (v/v)</th> <th>LD50</th> </tr> </thead> <tbody> <tr> <td>Propane</td> <td>74 -98-6</td> <td>90% - 99%</td> <td>Not Applicable</td> </tr> <tr> <td>Propylene</td> <td>115 -07-1</td> <td>0% - 5%</td> <td>Not Applicable</td> </tr> <tr> <td>Ethane</td> <td>74 -84-0</td> <td>0% - 5%</td> <td>Not Applicable</td> </tr> <tr> <td>Butane and heavier hydro carbons</td> <td>106 -97-8</td> <td>0% - 2.5%</td> <td>Not Applicable</td> </tr> </tbody> </table>	COMPONENTS	CAS NO.	% Volume (v/v)	LD50	Propane	74 -98-6	90% - 99%	Not Applicable	Propylene	115 -07-1	0% - 5%	Not Applicable	Ethane	74 -84-0	0% - 5%	Not Applicable	Butane and heavier hydro carbons	106 -97-8	0% - 2.5%	Not Applicable	
COMPONENTS	CAS NO.	% Volume (v/v)	LD50																		
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Ethane	74 -84-0	0% - 5%	Not Applicable																		
Butane and heavier hydro carbons	106 -97-8	0% - 2.5%	Not Applicable																		
Occupational Exposure Limit: Based upon animal test data, the acute toxicity of this product is expected to be inhalation: 4 hour LC50 = 280,000 ppm (Rat). <b>Note:</b> Composition is typical for HD-5 Propane per The Canadian General Standard Board CGSB 3.14 National Standard of Canada. Exact composition will vary from shipment to shipment.																					
<b>SECTION 3 – CHEMICAL AND PHYSICAL DATA</b>																					
<b>Form:</b> Liquid and vapour while stored under pressure. <b>Boiling Point:</b> -42°C @ 1 atm. <b>Freezing Point:</b> -188°C <b>Evaporation Rate:</b> Rapid (Gas at normal ambient conditions). <b>Vapour Pressure:</b> 1435 kPa (maximum) @ 37.8°C <b>Vapour Density:</b> 1.52 (Air = 1) <b>Coefficient of Water/Oil Distribution:</b> Not available. <b>pH:</b> Not available.	<b>Solubility in water:</b> Slight, 6.1% by volume @ 17.8°C <b>Specific Gravity:</b> 0.51 (water = 1) <b>Appearance/Odour:</b> Colourless liquid and vapour while stored under pressure. Colourless and odourless gas in natural state at any concentration. Commercial propane has an odourant added, ethyl mercaptan, which has an odour similar to boiling cabbage.* <b>Odour Threshold:</b> 4800 ppm																				
* With proper handling, transportation and storage, adding a chemical odourant such as eth-merc has proven to be a very effective warning device, but all odourants have certain limitations. The effectiveness of the odourant may be diminished by a person's sense of smell, by competing odours and by oxidation which may cause a potentially dangerous situation.																					
<b>SECTION 4 – FIRE OR EXPLOSION HAZARD</b>																					
<b>Flash Point:</b> -103.4°C <b>Method:</b> Closed cup. <b>Flammable Limits:</b> Lower 2.4%, Upper 9.5% <b>Auto Ignition Temperature:</b> 432°C <b>Products Evolved Due To Heat Or Combustion:</b> Carbon monoxide can be produced when primary air and secondary air are deficient while combustion is taking place. <b>Fire and Explosive Hazards:</b> Explosive air-vapour mixtures may form if allowed to leak to atmosphere. <b>Sensitivity To Impact:</b> No. <b>Sensitivity To Static Discharge:</b> Yes.	<b>Fire Extinguishing Precautions:</b> Use water spray to cool exposed cylinders or tanks. Do not extinguish fire unless the source of the escaping gas that is fueling the fire can be turned off. Fire can be extinguished with carbon dioxide and/or dry chemical (BC). Container metal shells require cooling with water to prevent flame impingement and the weakening of metal. If sufficient water is not available to protect the container shell from weakening, the area will be required to be evacuated. If gas has not ignited, liquid or vapour may be dispersed by water spray or flooding. <b>Special Fire Fighting Equipment:</b> Protective clothing, hose monitors, fog nozzles, self-contained breathing apparatus.																				
<b>SECTION 5 – REACTIVITY DATA</b>																					
<b>Stability:</b> Stable. <b>Conditions To Avoid:</b> Keep separate from oxidizing agents. Gas explodes spontaneously when mixed with chloride dioxide. <b>Incompatibility:</b> Remove sources of ignition and observe distance requirements for storage tanks from combustible material, drains and openings to building.	<b>Hazardous Decomposition Products:</b> Deficient primary and secondary air can produce carbon monoxide. <b>Hazardous Polymerization:</b> Will not occur.																				



## SECTION 6 – TOXICOLOGICAL PROPERTIES OF MATERIAL

### ROUTES OF ENTRY:

**Inhalation:** Simple asphyxiant. No effect at concentrations of 10,000 ppm (peak exposures). Higher concentrations may cause central nervous system disorder and/or damage. Lack of oxygen may cause dizziness, loss of coordination, weakness, fatigue, euphoria, mental confusion, blurred vision, convulsions, breathing failure, coma and death. Breathing high vapour concentrations (saturated vapours) for a few minutes may be fatal. Saturated vapours may be encountered in confined spaces and/or under conditions of poor ventilation. Avoid breathing vapours or mist.

**Skin and Eye Contact:** Exposure to vapourizing liquid may cause frostbite (cold burns) and permanent eye damage.

**Ingestion:** Not considered to be a hazard.

**Acute Exposure:** The acute toxicity of this product is expected to be inhalation: 4 hour LC50=280,000ppm (Rat).

**Chronic Exposure:** There are no reported effects from long term low level exposure.

**Sensitization to Product:** Skin–unknown, Respiratory–unknown.

**Occupational Exposure Limits:** American Conference of Governmental Industrial Hygienists (ACGIH) lists as a simple asphyxiant. ACGIH TLV: 1000 ppm.

**Carcinogenicity, Reproductive Toxicity, Teratogenicity, Mutagenicity:** No effects reported.

## SECTION 7 – PREVENTIVE MEASURES

**Eyes:** Safety glasses, are recommended when transferring product.

**Skin:** Insulated gloves required if contact with liquid or liquid cooled equipment is expected. Wear gloves and long sleeves when transferring product.

**Inhalation:** Where concentration in air would reduce the oxygen level below 18% air or exceed occupational exposure limits in section 6, self-contained breathing apparatus is required.

**Ventilation:** Explosion proof ventilation equipment required in confined spaces.

## SECTION 8 – EMERGENCY AND FIRST AID PROCEDURES

### FIRST AID:

**Eyes:** Should eye contact with liquid occur, flush eyes with lukewarm water for 15 minutes. Obtain immediate medical care.

**Skin:** In case of "Cold Burn" from contact with liquid, immediately place affected area in lukewarm water and keep at this temperature until circulation returns. If fingers or hands are frostbitten, have the victim hold his hand next to his body such as under the armpit. Obtain immediate medical care.

**Ingestion:** None considered necessary.

**Inhalation:** Remove person to fresh air. If breathing is difficult or has stopped, administer artificial respiration. Obtain immediate medical care.

### SPILL OR LEAK:

Eliminate leak if possible.

Eliminate source of ignition.

Ensure cylinder is upright.

Disperse vapours with hose streams using fog nozzles. Monitor low areas as propane is heavier than air and can settle into low areas. Remain upwind of leak. Keep people away. Prevent vapour and/or liquid from entering into sewers, basements or confined areas.

## SECTION 9 – TRANSPORTATION, HANDLING AND STORAGE

– Transport and store cylinders and tanks secured in an upright position in a ventilated space away from ignition sources (so the pressure relief valve is in contact with the vapour space of the cylinder or tank).

– Cylinders that are not in use must have the valves in the closed position and be equipped with a protective cap or guard.

– Do not store with oxidizing agents, oxygen, or chlorine cylinders.

– Empty cylinders and tanks may contain product residue. Do not pressurize, cut, heat or weld empty containers.

– Transport, handle and store according to applicable federal and provincial codes and regulations.

### Transportation of Dangerous Goods (TDG)

– TDG Classification: Flammable Gas 2.1

– TDG Shipping Name: Liquified Petroleum Gas (Propane)

– TDG Special Provisions: 56, 90, 102

– PIN Number: UN1075




## SECTION 10 – PREPARATION

Superior Propane Inc., Regulations & Safety Department. (403) 730-7500 Date prepared: November 2001.  
Supersedes: September 1999.

The information contained herein is believed to be accurate. It is provided independently of any sale of the product. It is not intended to constitute performance information concerning the product. No express warranty, implied warranty of merchantability or fitness for a particular purpose is made with respect to the product information contained herein.



## Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing	TDG (pictograms)
	<b>Not controlled</b>		

Section 1. Chemical Product and Company Identification			
Product Name	PETRO-CANADA SUPREME 5W-30, 10W-30, 10W-40, 20W-50 MOTOR OIL		Code 410-344, MOSP53 410-341, MOSP13 410-342, MOSP14 410-343, MOSP25
Synonym	Not available.		Validated on 8/31/2004.
Manufacturer	PETRO-CANADA P.O. Box 2844 Calgary, Alberta T2P 3E3		<u>In case of</u> Petro-Canada: <u>Emergency</u> 403-296-3000 Canutec Transportation: 613-996-6666 Poison Control Centre: Consult local telephone directory for emergency number(s).
Material Uses	Supreme is designed for the lubrication of all gasoline, propane and CNG engines where the manufacturer recommends the use of API SM quality oils. SAE 5W-30 and 10W-30 grades also meet the requirements of ILSAC GF-4.		

Section 2. Composition and Information on Ingredients					
			Exposure Limits (ACGIH)		
Name	CAS #	% (W/W)	TLV-TWA(8 h)	STEL	CEILING
Mixture of severely hydrotreated and hydrocracked base oil (petroleum) and other proprietary, non-hazardous additives.	Mixture	100	5 mg/m <sup>3</sup> (oil mist)	10 mg/m <sup>3</sup> (oil mist)	Not established
<b>Manufacturer Recommendation</b>	Not applicable				
<b>Other Exposure Limits</b>	Consult local, state, provincial or territory authorities for acceptable exposure limits.				

Section 3. Hazards Identification.	
<b>Potential Health Effects</b>	Prolonged or repeated contact may cause skin irritation, defatting, drying and dermatitis. Not expected to cause more than slight skin or eye irritation. With its relatively low vapour pressure, this product is not expected to be inhaled in any appreciable quantity at ambient conditions. If heated to high temperatures or subjected to mechanical actions which produce vapours or mists, inhalation may cause respiratory tract irritation. Ingestion may produce a laxative effect. For more information refer to Section 11 of this MSDS.

Section 4. First Aid Measures	
<b>Eye Contact</b>	IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Seek medical attention.
<b>Skin Contact</b>	Remove contaminated clothing - launder before reuse. Wash gently and thoroughly the contaminated skin with running water and non-abrasive soap. Seek medical attention.
<b>Inhalation</b>	Evacuate the victim to a safe area as soon as possible. If the victim is not breathing, perform artificial respiration. Allow the victim to rest in a well ventilated area. Seek medical attention.
<b>Ingestion</b>	DO NOT induce vomiting because of danger of aspirating liquid into lungs. Seek medical attention.
<b>Note to Physician</b>	Not available

Section 5. Fire-fighting Measures			
<b>Flammability</b>	May be combustible at high temperature.	<b>Flammable Limits</b>	Not available.
<b>Flash Points</b>	OPEN CUP: 223°C (433.4°F) (Cleveland)	<b>Auto-Ignition Temperature</b>	Not available
<b>Fire Hazards in Presence of Various Substances</b>	Low fire hazard. This material must be heated before ignition will occur.	<b>Explosion Hazards in Presence of Various Substances</b>	Do not cut, weld, heat, drill or pressurize empty container. Containers may explode in heat of fire.

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PETRO-CANADA SUPREME 5W-30, 10W-30, 10W-40, 20W-50 MOTOR OIL		Page Number: 2
<b>Products of Combustion</b>	Carbon oxides (CO, CO <sub>2</sub> ), nitrogen oxides (NO <sub>x</sub> ), sulphur oxides (SO <sub>x</sub> ), calcium oxides (CaO <sub>x</sub> ), phosphorus compounds (PO <sub>x</sub> ), zinc oxides, boron oxides and molybdenum, smoke and irritating vapours as products of incomplete combustion.	
<b>Fire Fighting Media and Instructions</b>	NAERG96, GUIDE 171, Substances (low to moderate hazard). If tank, rail car or tank truck is involved in a fire, ISOLATE for 800 meters (0.5 mile) in all directions; also, consider initial evacuation for 800 meters (0.5 mile) in all directions. Shut off fuel to fire if it is possible to do so without hazard. If this is impossible, withdraw from area and let fire burn out under controlled conditions. Withdraw immediately in case of rising sound from venting safety device or any discolouration of tank due to fire. Cool containing vessels with water spray in order to prevent pressure build-up, autoignition or explosion. SMALL FIRE: use DRY chemicals, foam, water spray or CO <sub>2</sub> . LARGE FIRE: use water spray, fog or foam. For small outdoor fires, portable fire extinguishers may be used, and self contained breathing apparatus (SCBA) may not be required. For all indoor fires and any significant outdoor fires, SCBA is required. Respiratory and eye protection are required for fire fighting personnel.	

Section 6. Accidental Release Measures	
<b>Material Release or Spill</b>	Consult current National Emergency Response Guide Book (NAERG) for appropriate spill measures if necessary. Extinguish all ignition sources. Stop leak if safe to do so. Dike spilled material. Use appropriate inert absorbent material to absorb spilled product. Collect used absorbent for later disposal. Avoid contact with spilled material. Avoid contaminating sewers, streams, rivers and other water courses with spilled material. Notify appropriate authorities immediately.

Section 7. Handling and Storage	
<b>Handling</b>	Avoid contact with any sources of ignition, flames, heat, and sparks. Avoid skin contact. Avoid eye contact. Avoid inhalation of product vapours or mists. Empty containers may contain product residue. Do not pressurize, cut, heat, or weld empty containers. Do not reuse containers without commercial cleaning and/or reconditioning. Personnel who handle this material should practice good personal hygiene during and after handling to help prevent accidental ingestion of this product. Properly dispose of contaminated leather articles including shoes that cannot be decontaminated.
<b>Storage</b>	Store away from incompatible and reactive materials (See section 5 and 10). Keep container tightly closed. Store in dry, cool, well-ventilated area.

Section 8. Exposure Controls/Personal Protection	
<b>Engineering Controls</b>	For normal application, special ventilation is not necessary. If user's operations generate vapours or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety shower are close to work-station.
<b>Personal Protection - The selection of personal protective equipment varies, depending upon conditions of use.</b>	
<b>Eyes</b>	Eye protection (i.e., safety glasses, safety goggles and/or face shield) should be determined based on conditions of use. If product is used in an application where splashing may occur, the use of safety goggles and/or a face shield should be considered.
<b>Body</b>	Wear appropriate clothing to prevent skin contact. As a minimum long sleeves and trousers should be worn.
<b>Respiratory</b>	Where concentrations in air may exceed the occupational exposure limits given in Section 2 (and those applicable to your area) and where engineering, work practices or other means of exposure reduction are not adequate, NIOSH approved respirators may be necessary to prevent overexposure by inhalation.
<b>Hands</b>	Wear appropriate chemically protective gloves. When handling hot product ensure gloves are heat resistant and insulated.
<b>Feet</b>	Wear appropriate footwear to prevent product from coming in contact with feet and skin.

Section 9. Physical and Chemical Properties			
<b>Physical State and Appearance</b>	Viscous liquid.	<b>Viscosity</b>	5W-30: 62.3 cSt @ 40°C (104°F), 10.6 cSt @ 100°C (212°F). VI=160 10W-30: 67.4 cSt @ 40°C (104°F), 10.5 cSt @ 100°C (212°F). VI=143 10W-40: 97.2 cSt @ 40°C (104°F), 14.1 cSt @ 100°C (212°F). VI=143 20W-50: 170 cSt @ 40°C (104°F), 19.0 cSt @ 100°C (212°F). VI=127
<b>Colour</b>	Light amber.	<b>Pour Point</b>	5W-30: -36°C (-33°F) 10W-30: -36°C (-33°F) 10W-40: -30°C (-22°F) 20W-50: -24°C (-11°F)
<b>Odour</b>	Mild petroleum oil like.	<b>Softening Point</b>	Not applicable.
<b>Odour Threshold</b>	Not available.	<b>Dropping Point</b>	Not applicable.
<b>Boiling Point</b>	Not available.	<b>Penetration</b>	Not applicable.

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PETRO-CANADA SUPREME 5W-30, 10W-30, 10W-40, 20W-50 MOTOR OIL		Page Number: 3	
<b>Density</b>	0.8566 - 0.8775 kg/L @ 15°C (59°F).	<b>Oil / Water Dist. Coefficient</b>	Not available.
<b>Vapour Density</b>	Not available.	<b>Ionicity (in water)</b>	Not available
<b>Vapour Pressure</b>	Negligible at ambient temperature and pressure.	<b>Dispersion Properties</b>	Not available
<b>Volatility</b>	Non-volatile	<b>Solubility</b>	Insoluble in water.

Section 10. Stability and Reactivity			
<b>Corrosivity</b>	Copper corrosion, 3h, 121°C (ASTM D0130): 1a		
<b>Stability</b>	The product is stable under normal handling and storage conditions.	<b>Hazardous Polymerization</b>	Will not occur under normal working conditions.
<b>Incompatible Substances / Conditions to Avoid</b>	Reactive with oxidizing agents and acids.	<b>Decomposition Products</b>	May release COx, H2S, methacrylate monomers, alkyl mercaptans, smoke and irritating vapours when heated to decomposition.

Section 11. Toxicological Information	
<b>Routes of Entry</b>	Skin contact, eye contact, inhalation, and ingestion.
<b>Acute Lethality</b>	Acute toxicity information is not available for the product as a whole, therefore, data for some of the ingredients is provided below: Acute oral toxicity (LD50): >5000 mg/kg (rat). Acute dermal toxicity (LD50): >2000 mg/kg (rabbit). Acute inhalation toxicity (LC50): >2500 mg/m <sup>3</sup> /4h (rat).
<b>Chronic or Other Toxic Effects</b>	
Dermal Route:	Prolonged or repeated contact may defat and dry skin, and cause dermatitis. Short-term exposure is expected to cause only slight irritation, if any.
Inhalation Route:	With its relatively low vapour pressure, this product is not expected to be inhaled in any appreciable quantity at ambient conditions. If heated to high temperatures or subjected to mechanical actions which produce vapours or mists, inhalation may cause respiratory tract irritation.
Oral Route:	Ingestion of this product may lead to aspiration of the liquid, especially if vomiting occurs. This may result in chemical pneumonitis (inflammation of the lungs) and/or pulmonary edema (an accumulation of fluid in the lungs). May produce a laxative effect.
Eye Irritation/Inflammation:	Short-term exposure is expected to cause only slight irritation, if any.
Immunotoxicity:	Not available.
Skin Sensitization:	Contact with this product is not expected to cause skin sensitization, based upon the available data and the known hazards of the components.
Respiratory Tract Sensitization:	Contact with this product is not expected to cause respiratory tract sensitization, based upon the available data and the known hazards of the components.
Mutagenic:	This product is not known to contain any components at >= 0.1% that have been shown to cause mutagenicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a mutagen.
Reproductive Toxicity:	This product is not known to contain any components at >= 0.1% that have been shown to cause reproductive toxicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a reproductive toxin.
Teratogenicity/Embryotoxicity:	This product is not known to contain any components at >= 0.1% that have been shown to cause teratogenicity and/or embryotoxicity. Therefore, based upon the available data and the known hazards of the components, this product is not expected to be a teratogen/embryotoxin.
Carcinogenicity (ACGIH):	This product is not known to contain any chemicals at reportable quantities that are listed as Group A1 or A2 carcinogens by ACGIH.
Carcinogenicity (IARC):	This product is not known to contain any chemicals at reportable quantities that are listed as Group 1, 2A, or 2B carcinogens by IARC.
Carcinogenicity (NTP):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by NTP.
Carcinogenicity (IRIS):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by IRIS.
Carcinogenicity (OSHA):	This product is not known to contain any chemicals at reportable quantities that are listed as carcinogens by OSHA.
<b>Other Considerations</b>	No additional remark.



PETRO-CANADA SUPREME 5W-30, 10W-30, 10W-40, 20W-50 MOTOR OIL		Page Number: 4															
<b>Section 12. Ecological Information</b>																	
<b>Environmental Fate</b>	Not available	<b>Persistence/Bioaccumulation Potential</b>	Not available														
<b>BOD5 and COD</b>	Not available.	<b>Products of Biodegradation</b>	Not available.														
<b>Additional Remarks</b>	No additional remark.																
<b>Section 13. Disposal Considerations</b>																	
<b>Waste Disposal</b>	Spent/ used/ waste product may meet the requirements of a hazardous waste. Consult your local or regional authorities. Ensure that waste management processes are in compliance with government requirements and local disposal regulations.																
<b>Section 14. Transport Information</b>																	
<b>TDG Classification</b>	Not a hazardous material for transport according to the TDG Regulations. (Canada)	<b>Special Provisions for Transport</b>	Not applicable.														
<b>Section 15. Regulatory Information</b>																	
<b>Other Regulations</b>	This product is acceptable for use under the provisions of WHMIS-CPR. All components of this formulation are listed on the CEPA-DSL (Domestic Substances List).  All components of this formulation are listed on the US EPA-TSCA Inventory.  All components of this product are on the European Inventory of Existing Commercial Chemical Substances (EINECS).  This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.  Please contact Product Safety for more information.																
<b>DSD/DPD (Europe)</b>	Not evaluated.	<b>HCS (U.S.A)</b>	Does not meet the definitions of a health or physical hazard according to the OSHA - Hazard Communication Standard. (United States)														
<b>ADR (Europe) (Pictograms)</b>	NOT EVALUATED FOR EUROPEAN TRANSPORT NON ÉVALUÉ POUR LE TRANSPORT EUROPÉEN.	<b>DOT (U.S.A) (Pictograms)</b>															
<b>HMIS (U.S.A.)</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Health Hazard</td> <td style="text-align: center; padding: 2px;">1</td> </tr> <tr> <td style="padding: 2px;">Fire Hazard</td> <td style="text-align: center; padding: 2px;">1</td> </tr> <tr> <td style="padding: 2px;">Reactivity</td> <td style="text-align: center; padding: 2px;">0</td> </tr> <tr> <td style="padding: 2px;">Personal Protection</td> <td style="text-align: center; padding: 2px;">B</td> </tr> </table>	Health Hazard	1	Fire Hazard	1	Reactivity	0	Personal Protection	B	<b>NFPA (U.S.A.)</b>	<table style="display: inline-table; vertical-align: middle;"> <tr> <td style="text-align: center; padding: 5px;">1</td> <td style="padding: 5px;">Fire Hazard</td> </tr> <tr> <td style="text-align: center; padding: 5px;">1</td> <td style="padding: 5px;">Health</td> </tr> <tr> <td style="text-align: center; padding: 5px;">0</td> <td style="padding: 5px;">Reactivity</td> </tr> </table> <div style="display: inline-block; vertical-align: middle; margin-left: 10px;"> <b>Rating</b>          0 Insignificant          1 Slight          2 Moderate          3 High          4 Extreme       </div>	1	Fire Hazard	1	Health	0	Reactivity
Health Hazard	1																
Fire Hazard	1																
Reactivity	0																
Personal Protection	B																
1	Fire Hazard																
1	Health																
0	Reactivity																
<b>Section 16. Other Information</b>																	
<b>References</b>	Available upon request. * Marque de commerce de Petro-Canada - Trademark																
<b>Glossary</b> <div style="display: flex; flex-wrap: wrap;"> <div style="width: 50%;">           ACGIH - American Conference of Governmental Industrial Hygienists            ADR - Agreement on Dangerous goods by Road (Europe)            ASTM - American Society for Testing and Materials            BOD5 - Biological Oxygen Demand in 5 days            CAN/CGA B149.2 - Propane Installation Code            CAS - Chemical Abstract Services            CEPA - Canadian Environmental Protection Act            CERCLA - Comprehensive Environmental Response, Compensation and Liability Act            CFR - Code of Federal Regulations            CHIP - Chemicals Hazard Information and Packaging Approved Supply List            COD5 - Chemical Oxygen Demand in 5 days            CPR - Controlled Products Regulations            DOT - Department of Transport            DSCL - Dangerous Substances Classification and Labeling (Europe)            DSD/DPD - Dangerous Substances or Dangerous Preparations         </div> <div style="width: 50%;">           IRIS - Integrated Risk Information System            LD50/LC50 - Lethal Dose/Concentration kill 50%            LDLo/LCLo - Lowest Published Lethal Dose/Concentration            NAERG'96 - North American Emergency Response Guide Book (1996)            NFPA - National Fire Prevention Association            NIOSH - National Institute for Occupational Safety &amp; Health            NPRI - National Pollutant Release Inventory            NSNR - New Substances Notification Regulations (Canada)            NTP - National Toxicology Program            OSHA - Occupational Safety &amp; Health Administration            PEL - Permissible Exposure Limit            RCRA - Resource Conservation and Recovery Act            SARA - Superfund Amendments and Reorganization Act            SD - Single Dose            STEL - Short Term Exposure Limit (15 minutes)            TDG - Transportation Dangerous Goods (Canada)            TDLo/TCLo - Lowest Published Toxic Dose/Concentration         </div> </div>																	
Continued on Next Page		Internet: <a href="http://www.petro-canada.ca/msds">www.petro-canada.ca/msds</a>															
		Available in French															



PETRO-CANADA SUPREME 5W-30, 10W-30, 10W-40, 20W-50 MOTOR OIL		Page Number: 5
Directives (Europe) DSL - Domestic Substance List EEC/EU - European Economic Community/European Union EINECS - European Inventory of Existing Commercial Chemical Substances EPCRA - Emergency Planning and Community Right to Know Act FDA - Food and Drug Administration FIFRA - Federal Insecticide, Fungicide and Rodenticide Act HCS - Hazard Communication Standard HMIS - Hazardous Material Information System IARC - International Agency for Research on Cancer		TLM - Median Tolerance Limit TLV-TWA - Threshold Limit Value-Time Weighted Average TSCA - Toxic Substances Control Act USEPA - United States Environmental Protection Agency USP - United States Pharmacopoeia WHMIS - Workplace Hazardous Material Information System
<b>For Copy of MSDS</b> The Canadian Controlled Products Regulations (CPR) (Under the Hazardous Products Act, part of the WHMIS legislation) only apply to WHMIS Controlled (i.e., hazardous) products. Therefore, the CPR and the 3-year update rule specified therein do not apply to WHMIS Non-Controlled products. Although this is true, customarily Petro-Canada reviews and updates Non-Controlled product MSDS if a customer requests such an update. These Non-Controlled product updates are given a lower priority than Controlled products but are handled as soon as practicable. If you would like to verify if the MSDS you have is the most current, or you require any further information, please contact:  Internet: <a href="http://www.petro-canada.ca">www.petro-canada.ca</a>  <b>Lubricants:</b> Western Canada, telephone: 1-800-661-1199; fax: (780) 464-9564 Ontario & Central Canada, telephone: 1-800-268-5850 and (905) 822-4222; fax: 1-800-201-6285 Quebec & Eastern Canada, telephone: 1-800-576-1686; fax: 800-201-6285  <b>For Product Safety Information: (905) 804-4752</b>		Prepared by Product Safety - TLM on 8/31/2004.  Data entry by Product Safety - RS.
<i>To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.</i>		



## **APPENDIX III**

### **Map of Fuel Cache Locations**



