

Figure 2
Sample supplier label

JET BLACK SPRAY PAINT
PEINTURE À VAPORISER "JET BLACK"

RISK PHRASES

- Spray may catch fire if directed at open flame
- Gives off flammable vapours when drying
- Respiratory and eye irritant
- Danger of cumulative effects

PRECAUTIONARY MEASURES

- Keep in a cool place
- Do not store with oxidizers
- Do not spray near ignition source
- Wear safety glasses for normal use
- Wear gloves if skin contact may occur
- If used in poorly ventilated area, wear respirator

FIRST AID MEASURES

- If got in eyes, flush with water for 15 minutes and call doctor immediately
- If got on skin, wash with soap and water
- If breathing difficulties develop, remove from exposure and call physician immediately

INDICATION DES RISQUES

- Les vapeurs peuvent s'enflammer si dirigées vers une flamme ouverte
- Dégage des vapeurs inflammables en séchant
- Irritant pour les yeux et les poumons
- Risque d'entraîner des effets cumulatifs

MESURES DE PRÉVENTION

- Tenir au frais
- Ne pas conserver en présence d'agents oxydants
- Ne pas vaporiser près d'une source d'ignition
- Porter un appareil de protection pour les yeux
- Porter des gants
- En cas d'utilisation dans une zone à ventilation insuffisante, utiliser un appareil respiratoire approprié

MESURES DE SECOURS D'URGENCE

- En cas de contact avec les yeux, rincer avec de l'eau pendant 15 minutes et appeler un médecin immédiatement
- En cas de contact avec la peau, laver avec de l'eau et du savon
- S'il y a apparition de problème respiratoires, retirer de la zone d'exposition et appeler un médecin immédiatement




Refer to material safety data sheet for further information
Pour plus d'information, consulter la fiche signalétique

CORPUS INFORMATION SERVICE
 1450 Don Mills Rd., Don Mills, Ont. M3C 1X7
 416/445-6641

Risk phrases: Phrases that explain the nature of the hazard and the risks involved in misusing the product, beyond the risks conveyed by the symbols

Product identifier: Identification of the material by chemical name, common name, generic name, trade name, brand name, code name or code number

Hazard symbol or symbols: Symbols that correspond to the classes and, where applicable, divisions under which the controlled product falls; the symbols immediately alert label readers to the product hazards

Reference to the MSDS: A statement to the effect that an MSDS is available, reminding label readers of the more comprehensive source of information

First aid measures: Phrases explaining the measures to be taken in case of an acute exposure

Supplier identifier: Name of the supplier of the controlled product

Precautionary measures: The essential measures to be taken when using, handling or working in the presence of a controlled product

The label shown above is a sample label only.



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	GASOLINE, UNLEADED	Code	W102E
Synonym	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)	Validated on	8/20/2001.
Manufacturer	PETRO-CANADA P.O. Box 2844 Calgary, Alberta T2P 3E3	In case of Emergency	Petro-Canada: 403-298-3000 Canutec Transportation: 613-996-8866 Poison Control Centre: Consult local telephone directory for emergency number(s).
Material Uses	Unleaded gasoline is used in spark ignition engines including motor vehicles, inboard and outboard boat engines, small engines such as chain saws and lawn mowers, and recreational vehicles.		

Section 2. Composition and Information on Ingredients

				Exposure Limits (ACGIH)		
Name	CAS#	% (W/W)	TLV-TWA(8 h)	STEL	CEILING	
1) Gasoline	8006-61-9	85-100	300 ppm (890 mg/m ³)	500 ppm (1460 mg/m ³)	Not established	
2) Methyl tert-butyl ether	1834-04-4	0-15	40 ppm (144 mg/m ³)	Not established	Not established	
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	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

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: 7.6% (NFPA).
Flash Points	Closed Cup: -50 to -38°C (-58 to -36°F), ASTM D58 Standard Test Method for Flash Point by Tag Closed Tester.	Auto-Ignition Temperature	257°C (495°F) (NFPA).
Fire Hazards in Presence of Various Substances	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.	Explosion Hazards in Presence of Various Substances	Do not cut, weld, heat, drill or pressurize empty container. Containers may explode in heat of fire. Vapours may form explosive mixtures with air.
Products of Combustion	Carbon oxides (CO, CO ₂), nitrogen oxides (NOx), polynuclear aromatic hydrocarbons, phenols, smoke and irritating vapours as products of incomplete combustion.		

GASOLINE UNLEADED

Page Number: 2

Fire Fighting Media and Instructions	NAERGES, 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, CO2, 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 1800 meters (1 mile) in all directions; also, consider initial evacuation for 1800 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.
--------------------------------------	--

Section 6. Accidental Release Measures

Material Release or Spill	NAERGES, GUIDE 128, flammable/combustible liquid (non-polar/water-immiscible). Evacuate in a downwind direction for at least 100 meters (100 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.
---------------------------	--

Section 7. Handling and Storage

Handling	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.
Storage	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.

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	The selection of personal protective equipment varies, depending upon conditions of use.
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.

Section 9. Physical and Chemical Properties

Physical State and Appearance	Clear liquid.	Viscosity	0.6 cSt.
Colour	Clear to slightly yellow, undyed liquid. May be dyed red for taxation purposes.	Pour Point	Not applicable.
Odour	Gasoline. MTBE has a terpene-like odour.	Softening Point	Not applicable.
Odour Threshold	Less than 1 ppm.	Dropping Point	Not applicable.
Boiling Point	25 to 226 °C (77 to 428°F) Initial boiling point by ASTM D86 Standard Test Method.	Penetration	Not applicable.
Density	0.7 kg/L @ 15°C (59°F).	Oil / Water Dist. Coefficient	Not available
Vapour Density	3 to 4 (Air = 1) (NFPA).	Ionicity (in water)	Insoluble in water.
Vapour Pressure	107 kPa @ 37.8°C (100°F)	Dispersion Properties	Not available

Continued on Next Page

Available in French

GASOLINE, UNLEADED		Page Number: 2	
Volatility	Volatile.	Solubility	Hydrocarbon components virtually insoluble in water. Soluble in alcohol, ether, chloroform, and benzene. Dissolves fats, oils and natural resins.

Section 10. Stability and Reactivity

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

Section 11. Toxicological Information

Routes of Entry	Skin contact, eye contact, inhalation, and ingestion.
Acute Lethality	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/m ³ /4h (rat). MTBE: Acute oral toxicity (LD50): 29630 mg/kg (rat). Acute dermal toxicity (LD50): >8000 mg/kg (rabbit). Acute inhalation toxicity (LC50): 23 578 ppm/4h (rat).
Chronic or Other Toxic Effects:	
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
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		

GASOLINE, UNLEADED

Page Number: 4

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. **HC8 (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 EVALUÉ POUR LE TRANSPORT EUROPÉEN **DOT (U.S.A) (Pictograms)** 

HMIS (U.S.A.)

Health Hazard	2
Physical Hazard	3
Reactivity	0
Personal Protection	H

NFPA (U.S.A.)

Health	2
Fire Hazard	3
Reactivity	0
Specific hazard	

Rating 1 Insignificant
2 Slight
3 Moderate
4 High
5 Extreme

Section 16. Other Information

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

Glossary

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
DSC - Dangerous Substances Classification and Labeling (Europe)
DSD/DPD - Dangerous Substances or Dangerous Preparations Directives (Europe)
DSL - Domestic Substances 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
HC8 - Hazardous Communication System
HMIS - Hazardous Material Information System
IARC - International Agency for Research on Cancer

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 Protection Association
NIOSH - National Institute for Occupational Safety & Health
NPLI - National Pollutant Release Inventory
NSNR - New Substances Notification Regulations (Canada)
NTP - National Toxicology Program
OSHA - Occupational Safety & 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
Tm - 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

For Copy of MSDS

Fuels & Solvents:

Western Canada, telephone: 403-296-4168; fax: 403-296-6551
Ontario & Central Canada, telephone: 1-800-668-0220; fax: 1-800-837-1223
Quebec & Eastern Canada, telephone: 514-640-8308; fax: 514-640-8335

For Product Safety Information (805) 804-4752

Prepared by Product Safety - TAR on 8/20/2001.

Data entry by Product Safety - JDN.

GASOLINE, UNLEADED

Page Number: 5

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/CSG-3.22).	Validated on	12/3/2001.
Manufacturer	PETRO-CANADA P.O. Box 2814 Calgary, Alberta T2P 3E3	In case of Emergency	Petro-Canada: 403-296-3000 Canutes Transportation: 813-998-6666 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)	Exposure Limits (ACGIH)		
			TLV-TWA(8 h)	STEL	CEILING
1) Complex mixture of petroleum hydrocarbons (C8-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	Not applicable				
Recommendation					
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, CO ₂), nitrogen oxides (NO _x), sulphur oxides (SO _x), aldehydes, ketones, smoke and irritating vapours as products of incomplete combustion.		

JET B AVIATION TURBINE FUEL

Page Number: 2

Fire Fighting
Media and
Instructions

NAERG86, 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.

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.

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.

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.

Section 6. Accidental Release Measures

Material Release
or Spill

NAERG99, 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.

Section 7. Handling and Storage

Handling

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.

Storage

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.

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

The selection of personal protective equipment varies, depending upon conditions of use.

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.

Section 9. Physical and Chemical Properties

Physical State and Appearance	Clear liquid.	Viscosity	Not available (similar to gasoline)
Colour	Clear and colourless.	Pour Point	Freezing Point: <-51°C (<-80°F) for Jet B/Jet B DI; <-58°C (<-72°F) for Jet Fuel F-40.
Odour	Gasoline like.	Softening Point	Not applicable.
Odour Threshold	Not available	Dropping Point	Not applicable.
Boiling Point	50 to 270°C (122 to 518°F)	Penetration	Not applicable.
Density	0.75 to 0.80 kg/L @ 15°C (59°F).	Oil / Water Dist. Coefficient	Not available
Vapour Density	3.5 (Air = 1)	Ionicity (in water)	Not available
Vapour Pressure	21 kPa (158 mmHg) @ 37.8°C (100°F).	Dispersion Properties	Not available
Volatility	Volatile.	Solubility	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 3

Section 10. Stability and Reactivity

Corrosivity	Not available		
Stability	The product is stable under normal handling and storage conditions.	Hazardous Polymerization	Will not occur under normal working conditions.
Incompatible Substances / Conditions to Avoid	Reactive with oxidizing agents and acids.	Decomposition Products	May release COx, NOx, SOx, aldehydes, ketones, smoke and irritating vapours when heated to decomposition.

Section 11. Toxicological Information

Routes of Entry	Skin contact, eye contact, inhalation and ingestion.
Acute Lethality	Based on toxicity of similar product. Acute oral toxicity (LD50): >20000 mg/kg (rat). Acute dermal toxicity (LD50): >5000 mg/kg (rabbit). Acute inhalation toxicity (LC50): >5000 mg/m ³ /4h (rat). Benzene Acute oral toxicity (LD50): 930 mg/kg (rat). Acute dermal toxicity (LD50): >9400 mg/kg (rabbit). Acute inhalation toxicity (LC50): 13200 ppm/4h (rat). Diethylene Glycol Monomethyl Ether Acute oral toxicity (LD50): 4140-5180 mg/kg (rat). Acute dermal toxicity (LD50): >2000 mg/kg (rabbit). Acute inhalation toxicity (LC50): >50000 mg/m ³ /4h (rat).
Chronic or Other Toxic Effects	
Dermal Route:	Skin contact can cause irritation.
Inhalation Route:	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.
Oral Route:	Aspiration into the lungs may produce potentially fatal chemical pneumonitis (fluid in the lungs), severe lung damage, or respiratory failure.
Eye Irritation/Inflammation:	Eye contact can cause irritation.
Immunotoxicity:	Not available
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:	Benzene is tumorigenic by RTECS criteria.
Reproductive Toxicity:	This product is not expected to be a reproductive hazard, based on the available data and the known hazards of the components.

**Anachemia**

100 - 2nd Ave.
Ville St. Pierre, Que
H8R 1M3

Material Safety Data Sheet

EMERGENCY NUMBERS

(USA) CHEMTREC: 1(800) 424-9300 (24hrs)

(CAN) CANUTEC: 1(613) 996-6666 (24hrs)

(USA) Anachemia: 1(514) 297-4444

(CAN) Anachemia: 1(514) 483-5711

WHMIS	Protective Clothing	TDG Road/Rail
WHMIS CLASS: E D-1A		TDG CLASS: B 8.2 PIN: UN1789 PG: II

Section I: Product Identification and Uses

Product name	HYDROCHLORIC ACID	CI#	Not available.
Chemical formula	HCl	CAS#	7647-01-0
Synonyms	Muriatic acid, Chlorohydric acid, AC-4355, AC-4355PG, AC-4355SP, AC-4355T	Code	AC-4355
Supplier	Anachemia Science 500 - 2nd Ave. Ville St. Pierre (Montreal), Que H8R 1M3	Formula weight	36.46
		Supersedes	4355-1
Material uses	For laboratory use only.		

Section II: Ingredient

Name	CAS #	%	TLV
HYDROCHLORIC ACID	7647-01-0	30-33	Ceiling 5 ppm (7 mg/m ³) ACGIH
WATER	7732-18-5	Balance	Not established

Toxicity values of the hazardous ingredients

HYDROCHLORIC ACID:

ORAL (LD50): Acute: 900 mg/kg (Rabbit).
VAPOR (LC50): Acute: 3124 ppm (Rat) (1 hour(s)), 757 ppm (Mouse) (1 hour(s)).
VAPOR (LCLo): Acute: 1300 ppm (Human) (30M).

Section III Physical Data		HYDROCHLORIC ACID	page 2/4
Physical state and appearance / Odor	Colorless fuming liquid with a pungent odor.		
pH (1% soln/water)	<1 (0.1M solution)		
Odor threshold	5-10 ppm		
Percent volatile	100% (V/V)		
Freezing point	-27°C		
Boiling point	48.5-110°C		
Specific gravity	1.17 @ 25°C		
Vapor density	1.3 (Air = 1)		
Vapor pressure	150 mm of Hg (@ 20°C)		
Water/oil dist. coeff.	Not available.		
Evaporation rate	>1		
Solubility	Miscible in water.		

Section IV Fire and Explosion Data	
Flash point	Not applicable.
Flammable limits	Not applicable.
Auto-ignition temperature	Not available.

Section III Physical Data		HYDROCHLORIC ACID	Page 2/4
Physical state and appearance / Odor	Colorless fuming liquid with a pungent odor.		
pH (1% soln/water)	<1 (0.1M solution)		
Odor threshold	5-10 ppm		
Percent volatile	100% (V/V)		
Freezing point	-27°C		
Boiling point	48.5-110°C		
Specific gravity	1.17 (@ 25°C)		
Vapor density	1.3 (Air = 1)		
Vapor pressure	150 mm of Hg (@ 20°C)		
Water/oil dist. coeff.	Not available.		
Evaporation rate	>1		
Solubility	Miscible in water.		

Section IV Fire and Explosion Data	
Flash point	Not applicable.
Flammable limits	Not applicable.
Auto-ignition temperature	Not available.
Fire degradation products	Hydrogen chloride gas.
Fire extinguishing procedures	Use extinguishing media suitable for surrounding materials. Wear adequate personal protection to prevent contact with material or its combustion products. Self contained breathing apparatus with a full facepiece operated in a pressure demand or other positive pressure mode. Cool containing vessels with flooding quantities of water until well after fire is out. DO NOT get water inside container.
Fire and Explosion Hazards	Flammable/explosive hydrogen gas may be formed upon contact of this product with metals. Emits toxic fumes under fire conditions.

Section V Toxicological Properties	
Routes of entry	Inhalation and ingestion. Eye contact. Skin contact.
Effects of Acute Exposure	Harmful by ingestion, inhalation or skin absorption. Corrosive.
Eye	Vapors, liquids and mists are extremely corrosive to the eyes. Brief contact of the vapors will be severely irritating. Brief contact of the liquid or mist will severely damage the eyes and prolonged contact may cause permanent eye injury which may be followed by blindness.
Skin	Causes severe burns. Severe pain and brownish or yellow stains; usually penetrates the full thickness of the skin. Lesser exposures may cause dermatitis and photosensitization.
Inhalation	Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Inhalation may be fatal as a result of spasm, inflammation and edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Symptoms of exposure may include burning sensation, coughing, laryngitis, dyspnea, headache, nausea, and vomiting. Can cause lung damage.
Ingestion	Burns in mouth, pharynx and gastrointestinal tract. Weakness from falling blood pressure, nausea, vomiting, dysphagia, abdominal pain, cardiovascular collapse, convulsions, coma and death possible. Asphyxia may occur from edema of the glottis.

Section 08: Preventive Measures**HYDROCHLORIC ACID**

Page 4/4

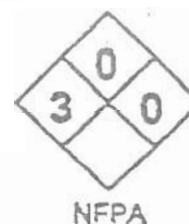
Protective Clothing in case of spill and leak	Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves. Full suit.
Spill and leak	Evacuate and ventilate the area. Cover with soda ash or lime. This will release carbon dioxide, so use caution. Place in a suitable container and mark for disposal. Wash spill site after material pick up is complete. DO NOT empty into drains. DO NOT touch spilled material.
Waste disposal	According to all applicable regulations.
Storage and Handling	Store in a cool place away from heated areas, sparks, and flame. Store in a well ventilated area. Store away from incompatible materials. Do not add any other material to the container. Do not wash down the drain. Do not breathe gas/fumes/vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. Keep away from direct sunlight or strong incandescent light. Keep container tightly closed and dry. Manipulate under an adequate fume hood. May corrode metallic surfaces. Wear suitable protective clothing. Take off immediately all contaminated clothing. Protect from moisture. Do not use pressure to dispense. Empty containers may contain a hazardous residue. Handle and open container with care. Do not get in eyes, on skin, or on clothing. Wash well after use. In accordance with good storage and handling practices. Do not allow smoking and food consumption while handling.

Section 09: Protective Measures

Protective clothing	Face shield and splash goggles. Impervious gloves (neoprene), apron, coveralls, and/or other resistant protective clothing as required for workplace conditions to prevent contact with hydrochloric acid solutions. Sufficient to protect skin. Means required if handled in closed ventilation system. Where required (leak, spill, open handling or liquid) use a NIOSH-approved chemical cartridge respirator for gas below 50 ppm. For gas above 50 ppm or mist, use NIOSH approved self-contained breathing apparatus or air-supplied respirator, both with full facepieces. Have available and use as appropriate: suits, aprons, and boots. Do not wear contact lenses.
Engineering controls	Use only in a chemical fume hood to keep airborne levels below recommended exposure limits. Make eye bath and emergency shower available.

Section 10: Other Information

Special Precautions or comments Corrosive: Toxic! Causes severe burns! Do not breathe vapor. Avoid all contact with the product. Avoid prolonged or repeated exposure. Use only in a chemical fume hood. Handle and open container with care.
RTECS NO: MW4025000.

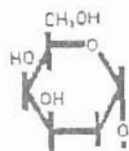


Prepared by MSDS Department/ Département de F.S.

Validated 3/9/94.

Telephone# (514) 489-5711

While the company believes the data set forth herein are accurate as of the date hereof, the company makes no warranty with respect thereto and expressly disclaims all liability for reliance thereon. Such data are offered solely for your consideration, investigation and verification.



Poly-Drill Drilling Systems

1824 - 104 Avenue, S.W.
Calgary, Alberta, Canada
T2W-OA8
(403) 259-5112 FAX (403) 255-7185

MATERIAL SAFETY DATA SHEET/FICHE SIGNALÉTIQUE

Section 1—PRODUCT IDENTIFICATION

PRODUCT TRADE NAME(S): Poly Drill O.B.X.
TDG Classification: Non dangerous goods

WHMIS CLASSIFICATION: Non-regulated

SECTION 2—COMPOSITION

A liquid polymer: Evaluation of the ingredient(s) has found no ingredient(s) hazardous as per WHMIS regulations.

SECTION 3—PHYSICAL DATA

Boiling Point: Not available

Solubility in Water: disperses in water(forms viscous, slippery solution).

Density (g/ml): Not available

Appearance and Odor: Brown. Odor slight.

Specific Gravity: 0.9 g/cm³

pH: 3.8 (1% concentration)

Physical State: Liquid

SECTION 4—FIRE AND EXPLOSION DATA

Flash Point (method used): (PMCC) greater than 100 C.

Conditions of flammability: Very low risk.

Hazardous combustion products: None known.

Upper and Lower flammable limits: Not available.

Extinguishing media: Carbon dioxide, dry chemicals, foam, in preference to water spray

SECTION 5—REACTIVITY

Chemical stability: Stable under normal conditions.

Hazardous Polymerization: Will not occur.

Incompatible substances: Avoid strong oxidants such as liquid chlorine, concentrated oxygen, sodium or calcium hypochloride.

Hazardous decomposition products: None known

SECTION 6—HEALTH HAZARD DATA

TOXICITY RATING: Practically non-harmful.

Routes of Exposure and Effects:

SKIN: Slight irritant: prolonged contact may cause skin irritation or dermatitis in some individuals

EYE: No effects of exposure expected with the exception of possible irritation.

INHALATION: Due to low volatility of mineral distillates a small inhalation hazard exists.

INGESTION: can cause nausea, vomiting, cramps, diarrhea

Chronic exposure limits: None

Sensitization of product: Not suspected to be a sensitizer.

Teratogenicity: Not available.

Mutagenicity: Not available.

Carcinogenicity: None of the components of this product are listed as carcinogens by IARC and ACGIH

SECTION 7—EMERGENCY AND FIRST AID PROCEDURES

SKIN: Wash exposed area with soap and water. If irritation or abnormalities persist, call a physician.
EYE: Immediately flush eyes with water for 15 minutes, if irritation or abnormalities persist, call a physician.
INHALATION: Remove to fresh air. If breathing becomes difficult, give oxygen and call a physician.
INGESTION: Do not induce vomiting; Call a physician immediately.

SECTION 8—HANDLING AND USE PRECTIONS

Storage requirements: keep container closed when not in use. Store in a cool dry location away from oxidizing and reducing agents.
Waste Disposal: product should be disposed of in accordance with applicable local, Provincial and Federal regulations.
Steps must be taken if product is released or spilled: clean spill areas thoroughly to avoid hazardous slippery conditions.

SECTION 9—INDUSTRIAL HYGIENE CONTROL MEASURES

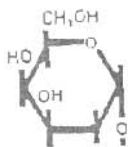
Respiratory Protection: None normally required.
Ventilation: If mist and/or vapors are present, use air purifying respirator or self-contained breathing apparatus, but this is rarely required.
Eye Protection: Safety glasses, if personally preferred
Gloves: Generally not necessary. Personal preference.

SECTION 10—TOXICOLOGICAL PROPERTIES

Environmental Effects: Not known to be harmful to aquatic life at low concentrations.
Freshwater aquatic toxicity rating: 96 hour LC50 Rainbow Trout = 160 mg/L
96 hour LC50 Salmon = 160 mg/L

SECTION 11—DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping Name: Drilling Mud
Hazard Class: Not hazardous
Hazardous Substances: None
Cautionary Labeling: None required



Poly-Drill Drilling Systems

1824 - 104 Avenue, S.W.
Calgary, Alberta, Canada
T2W-OA8
(403) 259-5112 FAX (403) 255-7185

MATERIAL SAFETY DATA SHEET/FICHE SIGNALÉTIQUE

Section 1—PRODUCT IDENTIFICATION

PRODUCT TRADE NAME(S): Poly Drill 133X/1330

PRODUCT DESCRIPTION: Latex
polyelectrolyte

SECTION 2—COMPOSITION

A liquid polymer: Evaluation of the ingredient(s) has found no ingredient(s) hazardous as per WHMIS regulations.

SECTION 3—PHYSICAL DATA

Boiling Point: Not available
Solubility in Water: Solubility limited by solution viscosity.
Density (g/ml): 1.08 at 25° C
Appearance and Odor: Blue. Odor slight.

Specific Gravity (@ 25 Deg.C.): 1.09
pH: 8.1 (1.0% solution)
Physical State: Liquid

SECTION 4—FIRE AND EXPLOSION DATA

Flash Point (method used): (PMCC) >100 C
Conditions of flammability: Intense heat, open flame.
Hazardous combustion products: Products of incomplete hydrocarbon combustion.
Upper and Lower flammable limits: Not available
Extinguishing media: Use water spray, foam, dry chemical, or carbon dioxide.

SECTION 5—REACTIVITY

Chemical stability: Stable under normal conditions.
Hazardous Polymerization: Will not occur
Incompatible substances: Avoid strong oxidizing and reducing agents.
Hazardous decomposition products: Carbon monoxide, carbon dioxide, and products of incomplete hydrocarbon combustion.

SECTION 6—HEALTH HAZARD DATA

TOXICITY RATING: Practically non-harmful.

Routes of Exposure and Effects:

SKIN: Slight irritant: prolonged contact may cause skin irritation or dermatitis in some individuals

EYE: No effects of exposure expected with the exception of possible irritation.

INHALATION: If misted, no effects of exposure are expected.

Exposure limits: TLV-TWA: Mineral oil, mist 5 mg/m³

Carcinogenicity: None of the components of this product are listed as carcinogens by IARC and ACGIH

Sensitization of product: Not suspected to be a sensitizer.

Teratogenicity: Not available.

Mutagenicity: Not available.

SECTION 7—EMERGENCY AND FIRST AID PROCEDURES

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

EYE: Immediately flush eyes with water for 15 minutes, if irritation or abnormalities persist, call a physician.

INHALATION: Remove to fresh air. If breathing becomes difficult, give oxygen and call a physician.

INGESTION: Do not induce vomiting. Call a physician immediately.

SECTION 8—HANDLING AND USE PRECTIONS

Storage requirements: keep container closed when no in use. Store in a cool dry location away from oxidizing and reducing agents.

Waste Disposal: product should be disposed of in accordance with applicable local, Provincial and Federal regulations.

Steps must be taken if product is released or spilled: clean spill areas thoroughly to avoid hazardous slippery conditions.

SECTION 9—INDUSTRIAL HYGIENE CONTROL MEASURES

Respiratory Protection: None normally required.

Ventilation: If mist and/or vapors are present, use air purifying respirator or self-contained breathing apparatus, but this is rarely required.

Eye Protection: Safety glasses, if personally preferred

Gloves: Generally not necessary. Personal preference.

SECTION 10—TOXICOLOGICAL PROPERTIES

Environmental Effects: Not known to be harmful to aquatic life at low concentrations.

Freshwater aquatic toxicity rating: 96 hour LC50 Rainbow Trout = 160 mg/L

96 hour LC50 Salmon = 160 mg/L

SECTION 11—DEPARTMENT OF TRANSPORTATION INFORMATION

Shipping Name: Drilling Mud

Hazard Class: Not hazardous

Hazardous Substances: None

Cautionary Labeling: None required



Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing
	Not controlled	

Product Name		DRILL ROD HEAVY GREASE	Code	650-255 File #W218
Supplier		Petro-Canada P.O. Box 2844 Calgary, Alberta T2P 3E3	DSL	On the DSL
			Print Date: 03/11/97.	
Synonym		None	<u>In case of Emergency</u> Petro-Canada Emergency Number: (403) 285-3000 Canutec Transportation Emergency: (613) 996-6666 Poison Control Centre Numbers: Consult local telephone directory for emergency number(s).	
Chemical Name		Not applicable.		
Chemical Family		Petroleum hydrocarbons		
Chemical Formula		Not applicable.		
Manufacturer		PETRO-CANADA P.O. Box 2844, Petro-Canada Centre Calgary, Alberta T2P 3E3	Material Uses	This product is a multi-purpose grease with a wide range of automotive and industrial lubricant applications.

Exposure Limits (ACGIH)					
Name	CAS #	TLV-TWA(8 h)	STEL	CEILING	% (V/V)
Mixture of hydrotreated neutral base oil and additives.	Not applicable	5 mg/m ³ (oil mist)	Not applicable	Not applicable	100

Potential Acute Health Effects	May irritate the eyes. Non irritating to skin but for prolonged use, protective gloves are recommended. This product has a low vapour pressure and is not expected to present an inhalation exposure at ambient conditions. Upon heating to high temperatures, or mechanical actions which may produce vapours, mists or fumes, inhalation of this product may cause irritation of the breathing passages. Low toxicity on ingestion; has laxative effect and rapidly eliminated. For more information, refer to Section 11.
Potential Chronic Health Effects	Prolonged or repeated contact with this product may cause skin irritation or inflammation, characterized by dermatitis, and oil acne. For more information, refer to Section 11.

Eye Contact	Check for and remove any contact lenses. IMMEDIATELY flush eyes with running water for at least 15 minutes, keeping eyelids open. Do not use an eye ointment. Seek medical attention if irritation persists.
Skin Contact	Remove contaminated clothing - launder before reuse. Wash gently and thoroughly the contaminated skin with running water and non-abrasive soap. Get medical attention if redness or irritation occurs. High pressure grease gun is capable of injecting grease through the skin. Grease gun injuries require immediate physician assessment.
Inhalation	Evacuate the victim to a safe area as soon as possible. If the victim is not breathing, perform mouth-to-mouth resuscitation. Administer oxygen if available. Allow the victim to rest in a well ventilated area. Seek medical attention.
Hazardous Inhalation	No additional information.
Ingestion	DO NOT induce vomiting because of danger of aspirating liquid into lungs. Has laxative effect - rapidly eliminated. Physician assessment advised.
Hazardous Ingestion	No additional information.

DRILL ROD HEAVY GREASE

Page Number: 2

Section 2: Hazard Identification

The Product Is:	Class III-B - combustible (NFPA).
Auto-Ignition Temperature	316°C (600.8°F)
Flash Points	OPEN CUP: 252°C (485.6°F) (Cleveland, ASTM D92)
Flammable Limits	Not available.
Products of Combustion	Carbon oxides (CO, CO ₂), nitrogen oxides (NO _x), smoke and irritating fumes as products of incomplete combustion.
Fire Hazards in Presence of Various Substances	Low fire hazard. This material must be heated before ignition will occur.
Explosion Hazards in Presence of Various Substances	Do not cut, weld, heat, or drill empty containers.
Fire Fighting Media and Instructions	Cool containing vessels with water spray in order to prevent pressure build-up, autoignition or explosion. Shut off fuel to fire if it is possible to do so without hazard. SMALL FIRE: Use DRY chemicals, foam, or CO ₂ . LARGE FIRE: Use water spray, fog or foam. WATER OR FOAM MAY CAUSE FROTHING. Avoid flushing spilled material into sewers, streams or other bodies of water. 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.
Special Remarks on Fire Hazards	No additional remark
Special Remarks on Explosion Hazards	No additional remark

Section 3: Spill or Release Handling

Small Spill	Avoid contact. Contain spill. Use appropriate tools to put the spilled materials in a container for reclaiming or disposal. Check with applicable jurisdictions for specific disposal requirements of material and empty containers. DO NOT FLUSH TO SEWER.
Large Spill	No additional remark.

Section 4: Handling and Storage

Handling	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.
Storage	Store in tightly closed containers in cool, dry, isolated and well-ventilated area.

Section 5: Exposure Controls and Personal Protection

Engineering Controls	For normal application, special ventilation is not necessary. If user's operations generate fume 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	Wear safety glasses, safety shoes or boots. Wear long sleeved clothing to minimize skin contact. For casual contact, use natural rubber and PVC(polyvinyl chloride). For direct contact for more than 2 hours, NEOPRENE or NITRILE gloves are recommended. Respirator normally not necessary. If mist generated by heating, spraying, etc. wear an organic vapour respirator with a mist filter. All respirators must be NIOSH certified.
Personal Protection in Case of a Large Spill	No additional remarks
Exposure Limits	8-hour TLV-TWA of 5 mg/m ³ recommended by Petro-Canada based on ACGIH TLV for oil mists. Consult local authorities for acceptable exposure limits.

DRILL ROD HEAVY GREASE

Page Number: 3

Physical State and Appearance	Paste of long fibred texture.	Odor	Mild grease like.
Dropping Point	>195°C (>383°F).	Taste	Not available.
Penetration (@ 25°C)	245 (unworked), 220-250 (60 strokes).	Color	Greenish brown.
Boiling Point	260°C (500°F)		
Melting Point	Not available.		
Specific Gravity	0.89 kg/L @ 15°C (Water = 1).		
Vapor Pressure	0.0010 kPa @ 20°C (0.0075 mmHg @ 68°F).		
Vapor Density	Not available.		
Volatility	Semivolatile.		
Odor Threshold	Not available.		
Oil / Water Dist. Coeff.	Not available.		
Viscosity (@ 40 °C)	148-163 cSt.		
Solubility	Insoluble in cold water, Soluble in non-polar hydrocarbon solvents.		

Stability	The product is stable under normal conditions of storage.		
Instability Temperature	Not available.		
Conditions to Avoid	Avoid excessive heat.		
Incompatibility with Various Substances	Highly reactive with oxidizing agents.	Decomposition products:	COx, NOx, oxides of barium, smoke on combustion.
Corrosivity	Not applicable		
Special Remarks on Reactivity	Peroxides, chlorine, strong acids, etc.		
Special Remarks on Corrosivity	No additional remark.		

Routes of Entry	Skin contact, eye contact, Inhalation, and ingestion.		
Toxicity to Animals	Acute oral toxicity (LD50): 5000 mg/kg (rat).		
Chronic Effects on Humans	Prolonged or repeated contact with this product may cause skin irritation or inflammation, characterized by dermatitis, and oil acne. For more information, refer to Section 11.		
Other Toxic Effects on Humans	May irritate the eyes. Non irritating to skin but for prolonged use, protective gloves are recommended. This product has a low vapour pressure and is not expected to present an inhalation exposure at ambient conditions. Upon heating to high temperatures, or mechanical actions which may produce vapours, mists or fumes, inhalation of this product may cause irritation of the breathing passages. Low toxicity on ingestion; has laxative effect and rapidly eliminated. For more information, refer to Section 11.		
Special Remarks on Toxicity to Animals	Based on toxicity of severely hydrotreated paraffinic oil only. Severely hydrotreated base oils are negative when tested by the modified Ames test. Propane-deasphalted residual oils are also negative in the sister chromatid exchange in Chinese hamster ovary cells and in the mouse lymphoma forward mutation assay.		
Special Remarks on Chronic Effects on Humans	Based on toxicity of hydrotreated paraffinic based oils only. Hydrotreated based oils give negative results when tested for: (a) in vitro cytogenetic assay measuring sister chromatid exchange frequencies in Chinese hamster ovary cells; (b) determination of the mutagenic activity towards Salmonella Typhimurium TA 98 using the Modified Ames Assay.		
Special Remarks on Other Toxic Effects on Humans	No additional remark.		

DRILL ROD HEAVY GREASE

Page Number: 4

Section 1: Hazardous Properties	
Ecotoxicity	No studies were found.
BOD5 and COD	No studies were found.
Products of Biodegradation	No studies were found.
Toxicity of the Products of Biodegradation	No studies were found.
Special Remarks on the Products of Biodegradation	No additional remark.

Section 2: Waste Management	
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.

Section 3: Transport Information	
TDG Classification	Not controlled under TDG (Canada)
Special Provisions for Transport	No additional remark.

Section 4: Regulatory Information	
Other Regulations	All components of this formulation are listed in the Domestic Substances List (DSL-Canadian) and in the Toxic Substances Control Act Inventory (TSCA-U.S.). This product is not known to contain any of the carcinogens required to be listed under OSHA hazard communication standard, 29 CFR 1910.1200 (U.S.). Not listed in EPCRA or SARA Title III, Section 313, Toxic Chemicals (40 CFR 355). Not listed in CERCLA (40 CFR 302.40). Please note that the chemical identity of some or all of the ingredients that may be listed herein is confidential business information and is being withheld as permitted by 29 CFR 1910.1200 and various State Right to Know Laws.

Other Classifications	WHMIS (Canada)	Not controlled
	DSD/DPD (EEC)	Not classified under the Dangerous Substances or Dangerous Preparations Directives.

WHMIS (Canada) (Pictograms)	
--------------------------------	---

HMIS (U.S.A.)	Health Hazard	(0)
	Fire Hazard	(1)
	Reactivity	(0)
	Personal Protection	(d)
NFPA (U.S.A.)		

DSD/DPD (Europe) (Pictograms)	
----------------------------------	---

TDG (Canada) (pictograms)	
------------------------------	---

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

DRILL ROD HEAVY GREASE

Page Number: 5

Protective Clothing
(Pictograms)

Section 10: Other Information

References Available upon request.

Other Special
Considerations No additional remark.

Prepared by May on 07/05/96.

Data entry by May Chau.

Print Date: 03/12/97.

Information Contact Petro-Canada
Product Safety Coordinator
(403) 296-4410

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.