PETRO-CANADA

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	File # W219
Synonym	Jet B, Jet B DI, International Jet B, International Jet B DI, Jet Fuel JP-4, Jet Fuel F-40; Turbine Fuel, Aviation, Wide Cut Type (CAN/CGSB-3.22).	Validated on	3/3/1999.
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)	Exposure Limits (ACGIH) TLV-TWA(8 h)	STEL	CEILING
1) Complex mixture of aliphatic and aromatic hydrocarbons (C6-C14).	64741-41-9	>99	300 ppm (gasoline)	500 ppm (gasoline)	Not established
2) Proprietary additives.	Not applicable	<0.2	Not established	Not established	Not established

Manufacturer Recommendation	Petro-Canada recommends a working guideline no greater than 1 ppm (3.2 mg/m³) of benzene for 8 hours time weighted average when handling product which may contain benzene; 300 ppm for 8 hours time weighted average and 500 ppm for short term exposure limit when handling Jet B. Consult local authorities for acceptable exposure limits.
Other Exposure Limits	Consult local, state, provincial or territory authorities for acceptable exposure limits.

Section 3: Hazards Identification

Potential Health Effects	Inhalation of vapours or mist may cause irritation of nose and throat; headache, nausea, vomiting, dizziness, fatigue, light-headedness, reduced coordination and unconciousness; central nervous system depressant; kidney and liver damage from long-term exposure. May be narcotic in high concentrations. Skin contact may cause drying, cracking, defatting, or inflammation of skin. Prolonged or repeated contact with skin may cause dermatitis. Eye contact may cause irritation, but no permanent damage. Overexposure due to ingestion is unlikely for adults since taste and smell limit the amount swallowed. Harmful or fatal if swallowed. For more information, refer to Section 11.

Section 4. First Aid Measures

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.
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.
Ingestion	Gastric decontamination to prevent absorption is important following a substantial recent ingestion. Is most effective if initiated within 30 minutes. DO NOT induce vomiting without supervision of medical personnel, because of danger of aspirating liquid into lungs. Seek immediate medical attention.
Note to Physician	Aspiration into lungs may cause chemical pneumonitis. Monitor for respiratory distress. If cough or difficulty in breathing develops, evaluate for respiratory tract irritation, bronchitis, or pneumonitis. Monitor blood gases to assure adequate ventilation. If vital signs become abnormal or symptoms develop obtain a chest x-ray. Prevent further absorption by administer charcoal slurry, aqueous or mixed with saline cathartic or sorbitol. The FDA suggested 2-10 ml of diluent/30 g of charcoal. Usual charcoal dose is 30 to 100 g in adults, 15 to 30 g in children and 1 to 2 g/kg in infants.

Section 5. Fire-fighting Measures

Flammability	Flammable liquid (NFPA).	Flammable Limits	Lower: 1.3%; Upper: 7.1% (NFPA).
Flash Points	Closed Cup: -25°C (-13°F). Tag, ASTM D56.	Auto-Ignition Temperature	240°C (464°F)

Fire Hazards in Presence of Various Substances	Easily ignites under almost all normal temperature conditions. Extremely flammable in presence of open flames, sparks, shocks, heat, oxidizing materials. Vapours are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks), and may travel considerable distance to sources of ignition and flash back.	Explosion Hazards in Presence of Various Substances	Excessive heat. Do not cut, weld, heat, or drill empty container. Containers may explode in heat of fire. Runoff to sewer may create fire or explosion hazard.
Products of Combustion	Carbon oxides (CO, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), sulphur compounds (H2S), smoke and irritating fumes as products of incomplete combustion.		
Fire Fighting Media and Instructions	NAERG96, GUIDE 128, Flammable/combustible liquid (non-polar/water-immiscible). CAUTION: This product has a 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 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.		

Section 6. Accidental Release Measures

Material Release or Spill	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. Remove the leaking container to an open area and allow it to bleeds off into the atmosphere. 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 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 sources of ignition. In case of insufficient ventilation, wear suitable respiratory equipment. HANDLE AS EXTREMELY FLAMMABLE LIQUID. Electrically ground/bond during the pumping or transfer to avoid static accumulation. DO NOT USE AS CLEANING FLUID OR SIPHON BY MOUTH. Precautions should be taken to minimize skin contact and inhalation. High standards of personal hygiene are necessary. Wash hands after handling and before eating. Launder work clothes frequently. Discard saturated leather goods.
Storage	Combustible materials should be stored away from extreme heat and away from strong oxidizing agents. Store in tightly closed containers in cool, dry, isolated and well-ventilated area. Ground all equipments containing material.

Section 8: Exposure Controls/Personal Protection

Engineering Controls	For normal outdoor application, special ventilation is not necessary. For indoor or confined spaces provide explosion-proof local exhaust ventilation, or other engineer controls, to keep airborne concentration below the allowable threshold limit value. 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	Face shield or chemical splash goggles in case of splashing.
Body	Wear long sleeved clothing to minimize skin contact.
Respiratory	When exposure is likely to exceed recommended exposure limit (see section 2), use NIOSH approved respiratory equipment. Respirator should be selected based on the form and concentration of contaminant in air (refer to NIOSH Pocket Guide for Chemical Hazard for respirator selection). In order to determine the concentration of the contaminant, air sampling is RECOMMENDED AND SHOULD BE PERFORMED BY A HEALTH & SAFETY SPECIALIST (AS PER THE NIOSH Manual of analytical Methods for method of measurement). If air sampling is not practical and concentration is unknown, use positive pressure self-contained breathing apparatus (SCBA). Contact appropriate HEALTH & SAFETY personnel or supplier for assistance.
Hands	For casual contact, polyvinyl alcohol (PVA) gloves are suitable. For direct contact for more than 2 hours, nitrile or viton gloves are recommended.
Feet	Safety boots or shoes.

Section 9. Physical and Chemical Properties

Physical State and Appearance	Clear liquid.	Viscosity	Not available.
Colour	Clear and colorless.	Pour Point	Freezing Point: <-51°C (<-60°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 measurable. The product is more soluble in oil.
Vapour Density	3.5 (Air = 1)	Ionicity (in water)	Insoluble in water.
Vapour Pressure	21 kPa (158 mm/kg) @ 37.8°C (100°F).	Dispersion Properties	Not dispersed in cold water, or hot water.
Volatility	Volatile.	Solubility	Insoluble in cold water, soluble in non-polar hydrocarbon solvents.

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	Can react with strong organic oxidizing agents.	Decomposition Products	Releases of COx, NOx, SOx, H2S, smoke and irritating fumes when heated to decomposition.

Section 11. Toxicological Information

Routes of Entry	Skin contact, eye contact, inhalation and ingestion.
Acute Lethality	Based on toxicity of gasoline, acute oral toxicity (LD50): 18750 mg/kg (rat).
Chronic or Other Toxic Effects	
Dermal Route:	Prolonged or repeated contact can defat the skin, cause irritation, and lead to the development of dermatitis. Prolonged skin contact has same effects as inhalation. Injures blood-forming tissue on contact.
Inhalation Route:	Exposure to light hydrocarbons has been associated in animal studies with effects to the central nervous system, peripheral nervous system, liver, and kidneys. The significance of these animal models to predict similar human response is uncertain. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood forming system (particularly bone marrow), and serious blood disorders, such as aplastic anemia and leukemia.
Oral Route:	Aspiration of liquid drops into the lungs may produce potentially fatal chemical pneumonitis (fluid in the lungs), severe lung damage, or respiratory failure.
Eye Irritation/Inflammation:	May irritate the eyes.
Immunotoxicity:	Benzene—Hematologic and immunochemical investigations carried out in 270 workers with chronic exposure to benzene demonstrated changes of the nucleogram and of the area of lymphocyte nucleoli and disorders of the humoral immune response revealed by radial immunodiffusion.
Skin Sensitization:	No studies were found.
Respiratory Tract Sensitization:	No studies were found.
Mutagenic:	Benzene is tumorigenic by RTECS criteria.
Reproductive Toxicity:	Based on the available animal data for benzene, Dose: 150 ppm (rat/inhalation/24h/7-14 days of pregnancy) — abnormal development of the musculoskeletal system.
Teratogenicity/Embryotoxicity:	Based on the available animal data, benzene: pose a developmental or teratogenicity risk to rats.
Carcinogenicity (ACGIH):	ACGIH A1: confirmed human carcinogen, based on toxicity of benzene.
Carcinogenicity (IARC):	IARC Group 1: carcinogenic to Humans, based on toxicity of benzene.
Carcinogenicity (NTP):	NTP Group 1: known to be a carcinogen, based on toxicity of benzene.
Carcinogenicity (IRIS):	No studies were found.
Carcinogenicity (OSHA):	OSHA Group X: carcinogen defined with no further categorization, based on toxicity of benzene.
Other Considerations	Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood forming system (particularly bone marrow), and serious blood disorders, such as aplastic anemia and leukemia. The epidemiologic literature on benzene and leukemia supports the inference that benzene causes acute myelocytic leukemia.

Section 12. Ecological Information

Environmental Fate	Volatilizes and disperses rapidly. Volatilation is expected to be the dominant fate process. Biodegrade under both aerobic and anaerobic conditions.	Persistance/ Bioaccumulation Potential	Floats on water. May be dangerous to aquatic life in high concentrations.
BOD5 and COD	Not available.	Products of Biodegradation	Not available.
Additional Remarks	If released to soil, fuel oil will strongly adsorb. It may biodegrade in water and soil or volatilize from water (half-life of 4.4 to 4.8 hrs from a model river) and moist soil surfaces, but adsorption may attenuate the rate of these processes.		

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	Shipping Name: Fuel, aviation, turbine engine; UN 1863; Class: 3; Packing Group: II; Label required: Flammable liquid.	Special Provisions for Transport	No additional remark.

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 DSL. This product may contain trace benzene, a carcinogen, which is listed on NPRI. USEPA: All components of this formulation are listed on TSCA Inventory. This product may contain trace benzene, a carcinogen, which is required to be listed under OSHA hazard communication standard, 29 CFR 1910.1200 (U.S.). Listed on New Jersey Environmental Hazardous Substance List. Benzene is listed on EPCRA or SARA Title III, Section 302/304/311/312 (40 CFR 355/370) for Extremely Hazardous Substances. Benzene is listed on EPCRA or SARA Title III, Section 313 (40 CFR 372) for Toxic Chemicals. Benzene is listed on CERCLA Hazardous Substances (RQ Chemicals)(40 CFR 302.4). Benzene is listed on RCRA (40 CFR 261.33) for Hazardous Waste. 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.		
DSD/DPD (Europe)	5- Heating may cause an explosion. 12- Extremely flammable. 18- In use, may form flammable/explosive vapor-air mixture. 36/37/38- Irritating to eyes, respiratory system and skin. 40- Possible risks of irreversible effects.	HCS (U.S.A.)	HCS CLASS: Flammable liquid having a flash point lower than 37.8°C (100°F). HCS CLASS: Irritating substance. HCS CLASS: Toxic.
ADR (Europe) (Pictograms)		DOT (U.S.A) (Pictograms)	

HMIS (U.S.A.)

Health Hazard	1
Fire Hazard	3
Reactivity	0
Personal Protection	h

NFPA (U.S.A.)

Rating
0 Insignificant
1 Slight
2 Moderate
3 High
4 Extreme

Section 16. Other Information

References	Available upon request.

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
DSCL - 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
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 & Health
NPRI - 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
TLm - Median Tolerance Limit
TLV-TWA - Threshold Limit Value-Time Weighted Average

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JET B AVIATION TURBINE FUEL	Page Number: 5
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	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 Western Canada, telephone: 403-296-7694; fax: 403-296-3763 Ontario & Central Canada, telephone: 1-800-668-0220; fax: 1-800-837-1228 Quebec & Eastern Canada, telephone: 514-640-8396; fax: 514-640-8373	Prepared by Product Safety - TLR on 3/9/1999. Date entry by Product Safety - TLR.
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.	

Superior Propane Inc. MATERIAL SAFETY DATA SHEET Attn Rod.

SECTION 1 – PRODUCT INFORMATION

Product Name: Propane
Trade Name: LPG (Liquified Petroleum Gas), LP-Gas
Chemical Formula: C_3H_8

WHMIS CLASSIFICATION
Class A - Compressed Gas
Class B, Division 1 - Flammable Gas

Supplier: Superior Propane Inc.
1111 - 49th Avenue N.E.
Calgary, AB T2E 8V2
Business: (403) 730-7500
Local Market
Emergency Number: _____ (Non Medical)

Application and Use: 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.

SECTION 2 – HAZARDOUS INGREDIENTS

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

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).
Note: 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.

SECTION 3 – CHEMICAL AND PHYSICAL DATA

Form: Liquid and vapour while stored under pressure.
Boiling Point: -42°C @ 1 atm.
Freezing Point: -188°C
Evaporation Rate: Rapid (Gas at normal ambient conditions).
Vapour Pressure: 1435 kPa (maximum) @ 37.8°C
Vapour Density: 1.52 (Air = 1)
Coefficient of Water/Oil Distribution: Not available.
pH: Not available.

Solubility in water: Slight, 6.1% by volume @ 17.8°C
Specific Gravity: 0.51 (water = 1)
Appearance/Odour: 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.*
Odour Threshold: 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.

SECTION 4 – FIRE OR EXPLOSION HAZARD

Flash Point: -103.4°C
Method: Closed cup.
Flammable Limits: Lower 2.4%, Upper 9.5%
Auto Ignition Temperature: 432°C
Products Evolved Due To Heat Or Combustion: Carbon monoxide can be produced when primary air and secondary air are deficient while combustion is taking place.
Fire and Explosive Hazards: Explosive air-vapour mixtures may form if allowed to leak to atmosphere.
Sensitivity To Impact: No.
Sensitivity To Static Discharge: Yes.

Fire Extinguishing Precautions: 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.
Special Fire Fighting Equipment: Protective clothing, hose monitors, fog nozzles, self-contained breathing apparatus.

SECTION 5 – REACTIVITY DATA

Stability: Stable.
Conditions To Avoid: Keep separate from oxidizing agents. Gas explodes spontaneously when mixed with chloride dioxide.
Incompatibility: Remove sources of ignition and observe distance requirements for storage tanks from combustible material, drains and openings to building.

Hazardous Decomposition Products: Deficient primary and secondary air can produce carbon monoxide.
Hazardous Polymerization: Will not occur.

Att: Doug

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 of 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.

PETRO-CANADA

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 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.	Validated on	3/2/2001.
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	Diesel fuels are distillate fuels suitable for use in high and medium speed internal combustion engines of the compression ignition type.		

Section 2. Composition and Information on Ingredients

Name	CAS #	% (V/V)	Exposure Limits (ACGIH) TLV-TWA(8 h)	STEL	CEILING
1) Diesel oil. 2) Proprietary additives. 3) Aromatic content is 50% maximum (benzene: nil). 4) * Notice of Intended Change (2000): 100 mg/m³, skin, A3.	68334-30-5 Not available	>99.9 <0.1	Not established* Not established	Not established Not established	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	Eye contact may cause mild eye irritation. Skin contact can cause moderate to severe irritation and produce drying, cracking, or defatting dermatitis. Inhalation of vapours can cause CNS depression with symptoms of nausea, headaches, vomiting, dizziness, fatigue, light-headedness, reduced coordination, unconsciousness and possibly death. Inhalation can also cause irritation of nose and throat. Aspiration of liquid drops into the lungs may produce potentially fatal chemical pneumonitis (fluid in the lungs), severe lung damage, or respiratory failure. 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	Class II - combustible liquid (NFPA).	Flammable Limits	LOWER: 0.7%, UPPER: 6%
Flash Points	Diesel Fuel: Closed Cup: >40°C (>104°F) Marine Diesel Fuel: Closed Cup: >60°C (>140°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, CO2), nitrogen oxides (NOx), sulphur oxides (SOx), sulphur compounds (H2S), water vapour (H2O), smoke and irritating vapours as products of incomplete combustion.		

Continued on Next Page

Fire Fighting Media and Instructions	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. 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	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.

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.

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	Bright oily liquid.	Viscosity	1.3-4.1 cSt @ 40°C (104°F)
Colour	Clear to yellow / brown. Low sulphur diesel fuels (<0.05 wt % sulphur) are colourless to light yellow (and may be dyed red for taxation purposes). Regular sulphur diesel fuels (0.05-0.50 % sulphur) may be colourless to yellow / brown and are usually dyed red for taxation purposes.	Pour Point	Variable, 0°C to -50°C (32°F to -58°F)
Odour	Petroleum oil like.	Softening Point	Not applicable.
Odour Threshold	Not available	Dropping Point	Not applicable.
Boiling Point	150-371°C (302-700°F)	Penetration	Not applicable.
Density	0.85 kg/L @ 15°C (Water = 1).	Oil / Water Dist. Coefficient	Not available
Vapour Density	4.5 (Air = 1)	Ionicity (in water)	Not applicable.

Vapour Pressure	1.0 kPa @ 20°C (7.5 mmHg @ 68°F).	Dispersion Properties	Not available
Volatility	<0.1 (Butyl acetate = 1), less than gasoline.	Solubility	Insoluble in cold water, soluble in non-polar hydrocarbon solvents.

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, H2S, H2O, smoke and irritating vapours when heated to decomposition.

Section 11. Toxicological Information

Routes of Entry	Skin contact, eye contact, inhalation, and ingestion.
Acute Lethality	Acute oral toxicity (LD50): 7500 mg/kg (rat).
Chronic or Other Toxic Effects	
Dermal Route:	Skin contact may cause moderate to severe irritation. Repeated exposure would produce drying and cracking or defatting dermatitis.
Inhalation Route:	Inhalation of vapours can cause CNS depression with symptoms of nausea, headaches, vomiting, dizziness, fatigue, light-headedness, reduced coordination, unconciousness and possibly death. Inhalation can also cause irritation of nose and throat.
Oral Route:	Aspiration of liquid drops into the lungs may produce potentially fatal chemical pneumonitis (fluid in the lungs), severe lung damage, or respiratory failure.
Eye Irritation/Inflammation:	Eye contact may cause mild irritation, but no permanent damage.
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 expected to be a mutagen, based on the available data and the known hazards of the components.
Reproductive Toxicity:	This product is not expected to be a reproductive hazard, based on the available data and the known hazards of the components.
Teratogenicity/Embryotoxicity:	This product is not expected to be a teratogen or an embryotoxin, based on the available data and the known hazards of the components.
Carcinogenicity (ACGIH):	ACGIH Notice of Intended Changed (2000): proposed A3: animal carcinogen. [Diesel oil]
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):	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	No additional remark.

Section 12. Ecological Information

Environmental Fate	Not available	Persistance/ Bioaccumulation Potential	Not available
BOD5 and COD	Not available	Products of Biodegradation	Not available
Additional Remarks	No additional remark.		

Continued on next page

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

Diesel Fuel
UN1202
3
III

Special Provisions for Transport

Not applicable.

Section 15. Regulatory Information

Other Regulations

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.

DSD/DPD (Europe)

Not evaluated.

HCS (U.S.A.)

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).

ADR (Europe) (Pictograms)

NOT EVALUATED FOR EUROPEAN TRANSPORT

NON EVALUE POUR LE TRANSPORT EUROPEEN

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

HMIS (U.S.A.)

Health Hazard	2
Fire Hazard	2
Reactivity	0
Personal Protection	H

NFPA (U.S.A.)

Rating
0 Insignificant
1 Slight
2 Moderate
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
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 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
IRIS - Integrated Risk Information System
LD50/LC50 - Lethal Dose/Concentration kill 50%
LDLo/LCLo - Lowest Published Lethal Dose/Concentration
NAERG96 - North American Emergency Response Guide Book (1996)
NFPA - National Fire Prevention Association
NIOSH - National Institute for Occupational Safety & Health
NPRI - 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
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

For Copy of MSDS
Fuels & Solvents:
Western Canada, telephone: 403-296-4158; fax: 403-296-8551
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 - TAR on 3/2/2001.

Data entry by Product Safety - ADW.

Continued on Next Page

DIESEL FUEL

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.

AGWAY ENERGY PRODUCTS Material Safety Data Sheet

Agway Petroleum Corporation, PO Box 4852, Syracuse, NY 13221

DATE ISSUED: 2/1/96

TABLE OF CONTENTS

I. IDENTIFICATION AND EMERGENCY INFORMATION

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PRODUCT NAME	CAS NUMBER
GASOLINE (ALL GRADES)	86290-81-5

OTHER NAMES

Regular/Plus/Premium Unleaded (Conventional, Oxygenated and Reformulated)

FORMULA

Petroleum Distillate Mixture - 100% - See Section II, Below

PRODUCT APPEARANCE AND ODOR

Light Yellow or Clear Liquid, Gasoline Odor

CLASSIFICATION

Flammable Liquid & Vapor: UN1203 Packing Group: II

DOT Hazard Class: 3

DISTRIBUTOR

Agway Petroleum Corporation

PO Box 4852

Syracuse, NY 13221

PRODUCT INFORMATION

315-449-6363

EMERGENCY PHONE NUMBER

Chemtrec: 800-424-9300

II. SUMMARY OF HAZARDS Back To Table Of Contents

COMPONENTS	CAS NUMBER	CONCENTRATION
Petroleum Distillate Mixture	8002-05-09	89-98%
Benzene	71-43-2	0.1-5%
Ethyl Benzene	100-41-4	0-5%
Toluene	108-88-3	0-25%
1,2,4 Trimethyl Benzene	95-63-6	0-5%
Xylene	1330-20-7	0-25%
Methyl Tertiary Butyl Ether	1634-04-4	0-15%

HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS)

Health 2 0 - Minimal 3 - Serious

Flammability 3 1 - Slight 4 - Severe

Reactivity 0 2 - Moderate

OCCUPATIONAL EXPOSURE LIMITS*

	OSHAL PEL	ACGIH TLV	OSHA STEL
Petroleum Distillate Mixture	300 ppm	300 ppm	500 ppm
Benzene	1 ppm	10 ppm	---
Ethyl Benzene	100 ppm	100 ppm	125 ppm
1,2,4 Trimethyl Benzene	25 ppm	25 ppm	---
Xylene	100 ppm	100 ppm	150 ppm

Methyl Tertiary Butyl Ether	n/a	n/a	---

* 8-Hour Time Weighted Average Unless Otherwise Specified.

III. EMERGENCY FIRST AID PROCEDURES

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INHALATION

Remove affected person from source of exposure. If not breathing, ensure clear airway and institute cardiopulmonary resuscitation (CPR). If breathing is difficult, administer oxygen if available. Get medical attention.

EYE CONTACT

Flush immediately with large amounts of water. Eyelids should be held away from the eyeball to ensure thorough rinsing. Get medical attention if irritation persists.

SKIN

Remove contaminated clothing immediately. Wash area of contact throughly with soap and water. Get medical attention if irritation persists. High pressure skin injections are SERIOUS MEDICAL EMERGENCIES. Get immediate medical attention.

INGESTION

DO NOT INDUCE VOMITING BECAUSE OF DANGER OF ASPIRATING LIQUIDS INTO LUNGS. Get immediate medical attention. If spontaneous vomiting occurs, monitor for breathing difficulty.

IV. FIRE AND EXPLOSION

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FLASH POINT	AUTOIGNITION TEMPERATURE
-45 F	650 F

FLAMMABLE LIMITS IN AIR (% BY VOL.)

Lower: 1.4

Upper: 7.6

BASIC FIREFIGHTING PROCEDURES

Use dry chemical, foam or carbon dioxide to extinguish fire. Water may be ineffective as an extinguishing medium, but may be used to cool fire-exposed containers, structures and to protect personnel. If leak or spill has not ignited, ventilate area and use water spray to disperse gas or vapor and to protect personnel attempting to stop leak. Use water to flush spills away from sources of ignition. DO NOT FLUSH DOWN PUBLIC SEWERS OR OTHER DRAINAGE SYSTEMS. Exposed firefighters should wear MSHA/NIOSH approved self-contained breathing apparatus with full face mask and full protective equipment.

FIRE AND EXPLOSION HAZARDS

Dangerous when exposed to heat or flame. Runoff to sewer may cause fire or explosion hazard. Containers may explode in heat of fire. Irritating or toxic substances may be emitted upon thermal decomposition.
SPECIAL FIRE HAZARDS Vapors are heavier than air & may travel along ground and be ignited by heat, pilot lights and other ignition sources.
V. HEALTH HAZARDS

INHALATION Vapors or mist may cause irritation of the nose and throat, headache, nausea, vomiting, dizziness, drowsiness, euphoria, loss of coordination, and disorientation. Chronic exposure may also cause anemia, decreased white blood cell counts, decreased platelets, aplastic anemia, leukemia and irregular heart rhythm. In poorly ventilated areas or confined spaces, unconsciousness and asphyxiation may result. The target organ is the central nervous system.	**PRIMARY ROUTE** Yes
EYE CONTACT May cause irritation, experiences as mild discomfort and seen as slight excess redness of the eye.	Yes
SKIN IRRITATION Prolonged or widespread skin contact may result in the absorption of potentially harmful amounts of material. Can irritate dermatitis.	Yes
INGESTION Slightly toxic to internal organs if swallowed. Abdominal discomfort, nausea and diarrhea may occur. Aspiration may occur during swallowing or vomiting resulting in lung damage. The target organ is the central nervous system.	N/A

V. HEALTH HAZARDS (Cont'd) Back To Table Of Contents
SENSITIZATION PROPERTIES Unknown
CHRONIC Studies sponsored by API, NIOSH and others have shown benzene (a component of gasoline) should be regarded as a potential occupational carcinogen, based on findings of carcinogenic responses in laboratory animals exposed to this substance. The excess cancer risk for workers exposed to this substance has not been calculated; the probability of developing cancer should be decreased by minimizing exposure to the lowest feasible limits. Personnel with pre-existing skin disorders, impaired liver or kidney function, central nervous system or chronic respiratory diseases should avoid exposure to this

material.

OTHER REMARKS

This product contains benzene. Prolonged and repeated exposure to benzene has been associated with anemia and leukemia in humans.

VI. PHYSICAL AND CHEMICAL DATA Back To Table Of Contents

The following data are approximate or typical values and should not be used for precise design purposes.

BOILING RANGE (760 mmHg) 95F	**MELTING POINT** N.A.
SPECIFIC GRAVITY ($H_20 = 1$) .75	**EVAPORATION RATE** (ETHER=1) 0.04
VAPOR PRESSURE (mmHG @68) 5	**VAPOR DENSITY (Air = 1)** 3-4
SOLUBILITY IN WATER Insoluble	**% VOLATILE BY VOLUME** 100
pH N/A	**VISCOSITY (METHOD, TEMP)** N/A
STABILITY Stable	**HAZARDOUS POLYMERIZATION** Will not Occur

APPEARANCE AND ODOR

Light Yellow or Clear Liquid, Gasoline Odor.

CONDITIONS TO AVOID

Strong oxidizing agents, heat, spark, flame and build-up of static electricity.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and hydrocarbons

VII. PROTECTION AND PRECAUTIONS

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HANDLING

Eye Protection: Remove contact lenses and wear chemical safety glasses, goggles or face shield where contact with liquid or mist may occur.

Skin Protection: Wear impervious gloves, clothing and boots when contact with skin may occur. Wash with soap and water before eating, drinking and smoking. Launder contaminated clothing before reuse.

Inhalation: Use approved respiratory protective equipment for cleaning large spills or entry into large tanks, vessels and other confined spaces, or in any situation where airborne concentrations may exceed occupational exposure limits.

Ventilation: Provide adequate general and local exhaust ventilation: (1) to meet occupational exposure limits, (2) to prevent the formation of explosive atmospheres and (3) to prevent oxygen deficient atmospheres, especially in confined spaces.

STORAGE

Store in closed containers in cool, dry, isolated, well-ventilated area away from heat, sources of ignition and incompatibilities. Use non-sparking tools. Ground lines and equipment used during transfer to reduce the possibility of static spark-initiated fire or explosion. Container may pressurize if exposed to heat.

EMPTY CONTAINERS

Empty containers likely contain toxic, flammable/combustible or explosive residue or vapors. Do not cut, grind, drill, weld, reuse or dispose containers unless adequate precautions (including repeated flushing of containers) are taken against these hazards.

VIII. TRANSPORTATION AND OSHA RELATED LABEL INFORMATION

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TRANSPORTATION INCIDENT INFORMATION

For further information relative to spills resulting from transportation incidents, refer to latest Department of Transportation Emergency Response Guidebook for Hazardous Materials Incidents, DOT P 5800.3.

DOT IDENTIFICATION NUMBER

Gasoline UN 1203 DOT Hazard Class 3/Packing Group II

OSHA REQUIRED LABEL INFORMATION

The following Hazard warning should be found on a label, bill of lading or invoice accompanying this shipment:

DANGER!

HIGHLY FLAMMABLE

DO NOT INHALE VAPORS OR FUMES

MAY BE HARMFUL IF ABSORBED THROUGH SKIN

MAY CAUSE DIZZINESS AND DROWSINESS

HARMFUL OR FATAL IF SWALLOWED -- CAN ENTER LUNGS AND CAUSE DAMAGE

USE ONLY AS FUEL

ATTENTION! POSSIBLE CANCER HAZARD

CONTAINS BENZENE WHICH MAY CAUSE CANCER BASED ON ANIMAL DATA

IX. ENVIRONMENTAL INFORMATION

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EPA INFORMATION FOR HAZARDOUS CHEMICAL REPORTING

EPA HAZARD CLASSIFICATION CODE

Acute Hazard	Chronic Hazard	Fire Hazard	Pressure Hazard	Reactive Hazard
xxx	xxx	xxx		

REPORTABLE QUANTITY (RQ), EPA REGULATION 40 CFR 302 (CERCLA Section 102)

THRESHOLD PLANNING QUANTITY (TPQ), EPA REGULATION 40 CFR 355 (SARA Sections 301-304)

TOXIC CHEMICAL RELEASE REPORTING, EPA REGULATION 40 CFR 372 (SARA Section 313)

COMPONENTS	CAS NUMBER	CONCENTRATION
Petroleum Distillate Mixture	8002-05-09	89-98%
Benzene	71-43-2	0.1-5%
Ethyl Benzene	100-41-4	0-5%
Toluene	108-88-3	0-25%
1,2,4 Trimethyl Benzene	95-63-6	0-5%
Xylene	1330-20-7	0-25%
Methyl Tertiary Butyl Ether	1634-04-4	0-15%

PRECAUTIONS IF MATERIAL IS SPILLED OR RELEASED

Report spills as required to appropriate authorities. U.S. Coast Guard regulations require immediate reporting of spills that could reach any waterway including intermittent dry creeks. Report spill to Coast Guard toll free number (800) 424-8802.

In case of accident or road spill notify Chemtrec (800) 424-9300.

IF MATERIAL IS RELEASED OR SPILLED, absorb on fire retardant treated sawdust, diatomaceous earth, etc. Shovel up and dispose of at an appropriate waste disposal facility in accordance with current applicable laws and regulations, and product characteristics at time of disposal.

ENVIRONMENTAL PRECAUTIONS: Prevent spills from entering storm sewers or drains and contact with soil.

WASTE DISPOSAL METHODS

Dispose through a licensed waste disposal company. Follow federal, state and local regulations.

"EMPTY" CONTAINER WARNING

Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity or other sources of ignition.

The information and recommendations contained herein are a compilation of data provided by various suppliers and, to the best of Agway Petroleum Corporation's (APC) knowledge and belief, accurate and reliable as of the date issued. APC does not warrant or guarantee their accuracy or reliability, and APC shall not be liable for any loss or damage arising out of the use thereof. The information and recommendations are offered for the user's consideration and examination, and it is the user's responsibility to satisfy itself that they are suitable and complete for its particular use. If buyer repackages this product, legal counsel should be consulted to insure proper health, safety, and other necessary information is included on the container.

The Environmental Information included under Section IX hereof as well as the Hazardous Materials Identification System (HMIS) and National Fire Protection Association (NFPA) ratings have been included by APC in order to provide additional help and hazard classification information. The ratings recommended are based upon the criteria supplied by the developers of these rating systems, together with APC's interpretation of the available data.

* *
* M S D S *
* Canadian Centre for Occupational Health and Safety *
* * * * * * * * * * * * * * Issue : 94-4 (November, 1994) *

*** IDENTIFICATION ***

ISDS RECORD NUMBER : 265686
'RODUCT NAME(S) : Motor Oil 10W30
)ATE OF MSDS : 1988-05

*** MANUFACTURER INFORMATION ***

IANUFACTURER : Recochem Inc
)DDRESS : 850 Montee de Liesse
Montreal Quebec
Canada H4T 1P4
Telephone: 514-341-3550

*** SUPPLIER/DISTRIBUTOR INFORMATION ***

UPPLIER/DISTRIBUTOR : Recochem Inc
)DDRESS : 850 Montee de Liesse
Montreal Quebec
Canada H4T 1P4
Telephone: 514-341-3550

*** MATERIAL SAFETY DATA ***

BULLETIN DE SECURITE DU MATERIEL
MATERIAL SAFETY DATA SHEET

SECTION I - NOM ET PRODUIT - NAME AND PRODUCT

omplete par - Completed by
R. Hill May 1988
om du produit - Trade name
Motor Oil 10W30
ynonymes - Synonyms
Petroleum Oil C.A.S. Registry #64742-50-3

SECTION II - COMPOSES DANGEREUX ET PROPRIETES PHYSIQUES - HAZARDOUS INGREDIENTS AND PHYSICAL PROPERTIES

NGREDIENTS DANGEREUX AZARDOUS INGREDIENTS	%	TLV, LD50 (units)
ot applicable		

oint d'ebullition:
oiling point: Not determined

oint de Fusion:
elting Point: Not determined

oids specifique (H2O=1):
pecific gravity (H2O=1): 0.873 at 60 deg F

Volatil par volume:
Volatile by volume: Not determined

ension de vapeur (mm de Hg):
apor pressure (mm of Hg): Not determined

olubilite dans l'eau (%):
olubility in water (%): Insoluble

itesse d'evaporation (=1):
vaporation rate (=1): <1

ensite de vapeur (air=1):
apor density (air=1) Not determined

emarques - Remarks
dour threshold not determined
H not applicable
ensity not applicable
istibution coefficient
il/water not determined

Apparence et odeur - Appearance and odor
Clear amber liquid
Characteristic Petroleum odour

SECTION III - FEU ET EXPLOSION - FIRE AND EXPLOSION DATA

oint eclair et methode - Flash point and method
370 deg F minimum C.O.C.
imites d'inflammabilite - Flammable limits (STP - % vol)
Not determined
Inferieure - lower Superieure - higher
emperature
utoignition
ot determined

Materiel extincteur - Extinguishing media
C02 dry chemical, foam, water fog

echniques speciales pour combattre le feu - Special fire fighting procedures
Handle as petroleum fire. Avoid smoke inhalation
isques d'explosion - Explosion Hazards
None.
Explosion data sensitivity to mechanical impact: None
Sensitivity to static discharge: Low
lammability Classification
None

SECTION IV - REACTIONS - REACTIVITY DATA

tabilite - Stability (etat normal - normal conditions)
Stable [X] Instable [ ]
tats a eviter - Conditions to avoid
None.
ncompatibilite - Incompatibility (materiaux a eviter - Materials to avoid)
] H20 [ ] Acide - Acid [ ] Base - Base [ ] Corrosif - Corrosive
] Materiel oxydant - Oxydant material [ ] Autres - Others
ot Applicable
roduits de decomposition dangereux - Dangerous decomposition products
Carbon Monoxide
olymerisation dangereuse - Dangerous polymerization
Peut se produire - May occur [ ]
Ne se produira pas - Will not occur [X]

Etats a eviter - Conditions to avoid
Not applicable

SECTION V - PRECAUTIONS - REQUIREMENTS

Entreposage - Storing:
Store in cool dry area

Manutention - Handling:
No special handling procedure required

Materiel de protection individuelle - Specific personal protective equipment

Vetements - Clothing:
Not required

Systeme de respiration - Respiration devices:
Not required

Ventilation - Ventilation requirements
Normal ventilation adequate

Marche a suivre en cas de fuite/renversement - Steps to take if spilled/leaked
Clean up with absorbent material.

Elimination des dechets - Waste disposal
Dispose of in accordance with municipal regulation.

SECTION VI - DOMMAGES OCCASIONNES A LA SANTE - HEALTH HAZARD INFORMATION

Voies d'exposition - Routes of exposure	
Inhalation - Inhalation:	Not hazardous
Contact epidermique - Skin contact:	Not hazardous
Absorption cutanee - Skin absorption:	Not hazardous
Contact oculaire - Eye contact:	May cause irritation
Ingestion - Ingestion:	Not determined
Effets de la surexposition - Effects of over-exposure:	Not determined

Cas d'urgence et premiers soins - Emergency and first-aid

Yeux - Eyes:	Flush with running water for at least 15 minutes
Peau - Skin:	Wash with soap and water
Inhalation - Inhalation:	Remove to fresh air
Ingestion - Ingestion:	Call a doctor immediately

Proprietes Toxicologiques - Toxicological Properties

MOTOR OIL 10W30

- Exposure Limits	- TLV 5 mg/m3
- Irritancy of product	- Not determined
- Sensitization to product	- Not determined
- Carcinogenicity	- Not considered a carcinogen (NTP.) (IARC)
- Reproductive toxicity	- Not determined
- Teratogenicity	- Not determined
- Mutagenicity	- Not determined
- Name of toxicologically synergistic products	- None

Special Shipping Information - None
Source: Breslube Material Safety Data Sheet

RECOCHEM INC
R.A. HILL
DATE: 1988-05

MATERIAL SAFETY DATA SHEET

Calcium Chloride

Identity (Trade Name As Used On Label)

Merck
Manufacturer

Quinton Instrument Co.
Distributor

3303 Monte Villa Parkway
Address

Bothell, WA 98021

(425) 402-2000
Phone Number (For Information)

CHEMTREK (800) 424-9300
Emergency Phone Number Telex*

J892401
MSDS Number*

10043-52-4
CAS Number*

04/09/98
Date Prepared

Michele Bluemer
Prepared By*

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

SECTION 1 - MATERIAL IDENTIFICATION AND INFORMATION

COMPONENTS - Chemical Name & Common Names (Hazardous Components 1% or greater; Carcinogens 0.1% or greater)	%*	OSHA PEL	ACGIH TLV	OTHER LIMITS RECOMMENDED
Calcium Chloride, 10043-52-4	100	Not Established	Not Established	
Non-Hazardous Ingredients				
TOTAL	100			

SECTION 2 - PHYSICAL / CHEMICAL CHARACTERISTICS

Boiling Point	2912°F	Specific Gravity (H_2O = 1)	2.15
Vapor Pressure (mm Hg and Temperature)	NA	Melting Point	1431°F
Vapor Density (Air=1)	NA	Evaporation Rate (_____ = 1)	NA
Solubility in Water	74.5%	Water Reactive	No
Appearance and Odor	White, solid crystals		

SECTION 3 - FIRE AND EXPLOSION HAZARD DATA

Flash Point and Method Used	Unknown	Auto-Ignition Temperature	Flammability Limits in Air % by Volume	LEL	UEL
Extinguisher Media	Negligible fire hazard when exposed to heat or flame				
Special Fire Fighting Procedures	Move containers from fire area if you can without risk. Apply cooling water to sides of containers that are exposed to flame until after fire is out.				
Unusual Fire and Explosion Hazard Data	Do not use water directly on material. Avoid breathing corrosive vapors; keep upwind.				

* Optional

SECTION 4 - REACTIVITY HAZARD DATA

STABILITY ✓Stable Unstable	Conditions To Avoid	Anhydrous form reacts exothermically with water.
Incompatability (Materials to Avoid)	Boric Acid + Calcium Oxide, Bromine Trifluoride, Furan-2-Peroxycarboxylic Acid, Metals, Methyl Vinyl Ether, Zinc.	
Hazardous Decomposition Products	Thermal decomposition products may include toxic and corrosive fumes of chlorine.	
HAZARDOUS POLYMERIZATION May Occur ✓ Will Not Occur	Conditions To Avoid	Not Applicable

SECTION 5 - HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY	✓ Inhalation ✓ Skin Contact	✓ Ingestion Not Hazardous	CARCINOGEN LISTED IN	NTP IARC Monograph	OSHA ✓ Not Listed
HEALTH HAZARDS	Acute & Chronic	Inhalation - May cause irritation, Skin - May cause severe irritation, erythema, dermatitis. Eye - May cause irritation and conjunctivitis. Ingestion-Overdose may cause gastrointestinal tract or cardiovascular irregularities.			
Signs and Symptoms of Exposure		Irritation-Coughing & shortness of breath. Burning sensation & pain in the nasal cavities, occassional nose bleeds, & tickling in the throat. Skin-Blistering, exfoliation, alceration, necrosis & scarring. Eyes-Redness & pain. Ingestion-May cause abdominal spasms and nausea.			
Medical Conditions Generally Aggravated by Exposure		None specified by manufacturer			

EMERGENCY FIRST AID PROCEDURES - Seek medical assistance for further treatment, observation and support if necessary

Eye Contact	Wash immediately with large amounts of water or normal saline for at least 15 minutes.
Skin Contact	Remove contaminated clothing. Wash area with soap or mild detergent & large amounts of water.
Inhalation	Remove from exposure to fresh air immediately. If breathing has stoped, preform artificial respiration. Keep warm and at rest.
Ingestion	If vomitng occurs keep head lower than hips. Get medical attention.

SECTION 6 - CONTROL AND PROTECTIVE MEASURES

Respiratory Protection (Specify Type)	The specific respirator selected must be based on contamination levels found in the work place.		
Protective Gloves	Wear appropriate protective gloves.	Eye Protection	Wear splash prove and dust resistant
Ventilation To Be Used	Local Exhaust ✓	Mechanical (General)	Special
	Other (Specify)		
Other Protective Clothing and Equipment	Wear appropriate protective equipment and clothing to prevent skin contact.		
Hygienic Work Practice	Should provide an eye wash fountain and quick drench shower within the immediate work area.		

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE / LEAK PROCEDURES

Steps to be Taken If Material Is Spilled Or Released	
Waste Disposal Methods	
Precautions to be Taken in Handling and Storage	
Other Precautions and/or Special Hazards	

NFPA					HMIS				
Rating*	Health___	Flammability___	Reactivity___	Special___	Rating*	Health___	Flammability___	Reactivity___	Personal Protection___

Poly-Drill Drilling Systems

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

Section 1—PRODUCT IDENTIFICATION

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

PRODUCT DESCRIPTION: Latex polyelectrolyte

SECTION 2—COMPOSITION

A liquid cationic 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.
Teratongenicity: 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: Don 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

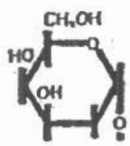
Respiratory Protection: None normally required.
Ventilation: If mist and/or vapors are present, use air purifying respirator of self-contained breathing apparatus, but this is rarely required.
Eye Protection: Safety glasses, if personally preferred
Gloves: Generally not necessary. Personal preference.

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



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Section 1—PRODUCT IDENTIFICATION

PRODUCT TRADE NAME(S): Poly Drill CLAY TREAT II

SECTION 2—COMPOSITION

SECTION 3—PHYSICAL DATA

Boiling Point: 100 C
Solubility in Water: Soluble
Density (g/ml): 1.1
Appearance and Odor: Red. Characteristic slight odor.

Specific Gravity (@ 25 Deg.C.): 1.09
pH: 5.0 - 7.0 (1.0% solution)
Physical State: Liquid

SECTION 4--FIRE AND EXPLOSION DATA

Flash Point: >93.3 C
Conditions of flammability: Will burn after drying
Hazardous combustion products: Oxides of carbon and nitrogen and products of incomplete 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: Not available.

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: Contains trace acrylamide (SKIN). Exposure limit, TWAEV=0.03 mg/m(ONT. Reg. 654/86).
Contains traces of isopropanol. Exposure limit, TWAEV=400ppm, STEV=500ppm(ONT. Reg. 654/86).
Carcinogenicity: This product contains traces of acrylamide. Acrylamide is listed by IARC(Group 2B) and ACGIH(Group A2) as a possible human carcinogen.
Teratongenicity: 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: Don not induce vomiting: Call a physician immediately.

SECTION 8—HANDLING AND USE PRECTIONS

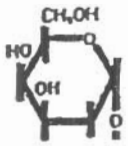
Storage requirements: keep container closed when no in use. Store in a cool dry location away from oxidizing and reducing agents.
Waste Disposal: product should be disposed of in accordance with applicable local, Provincial and Federal regulations.
Steps must be taken if product is released or spilled: 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 of self-contained breathing apparatus, but this is rarely required.
Eye Protection: Safety glasses, if personally preferred
Gloves: Generally not necessary. Personal preference.

SECTION 11—DEPARTMENT OF TRANSPORTATION INFORMATION

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



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MATERIAL SAFETY DATA SHEET

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/cm
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.
Teratongenicity: 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: Don 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 of 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