Section 9. Physical and Chemical Properties

Physical State and Appearance	Gas at room temperature; liquid when stored under pressure.	Viscosity	Not applicable.
Colour	Colourless.	Pour Point	Not applicable.
Odour	Odourless gas in natural state at any concentration. Propane sold for fuel purposes under pressure usually has an odourant added to it. This odourant is usually a mercaptan, which has an odour similar to "rotten eggs" or "skunk". The odourant level is such that it is noticeable below the Lower Exposure Limit (LEL) of the propane. WARNING: Studies have shown that not all persons are sensitive to this skunky smell and may not be able to detect this warning device!	Softening Point	Not applicable.
Odour Threshold	Odour is not an adequate warning to prevent overexposure to propane. Prolonged exposure to mercaptans can cause olfactory desensitization.	Dropping Point	Not applicable.
Boiling Point	-42°C (-43.6°F) @ 1 atm.	Penetration	Not applicable.
Specific Gravity	0.51 Kg/L @ 15°C (Water = 1).	Oil / Water Dist. Coeff.	Log Kow: 2.36; mobile.
Vapour Density	1.56 @ 0°C (32°F), 1.8 @ 20°C (68°F), Air = 1.	Ionicity (in water)	Not applicable.
Vapour Pressure	<10763 mmHg @ 100°F (<1435 kPa @ 38°C).	Dispersion Properties	Not available.
Volatility	Volatile	Solubility	62 ppm in water at 25°C (77°F), slightly soluble in acetone. Soluble in benzene, ether, alcohols, chloroform.

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	Highly reactive with oxidizing agents (peroxides, chlorine).	Decomposition Products	Releases of COx, smoke and irritating fumes when heated to decomposition.

Section 11. Toxicological Information

Routes of Entry	Inhalation, skin contact and eye contact.
Acute Lethality	Simple asphyxiant. LC50 (inhalation/human): no effect for 10,000 ppm (1%) break exposure; slight dizziness in a few minutes at 100,000 ppm (10%).
Chronic or Other Toxic Effects	
Dermal Route:	Low dermal penetration; Skin irritation has not been shown even with twice daily application for 12 weeks in humans volunteers.
Inhalation Route:	Subchronic inhalation studies in monkeys shown no evidence of organs toxicity or abnormalities.
Oral Route:	No studies were found.
Eye Irritation/Inflammation:	No evidence.
Immunotoxicity:	No studies were found.
Skin Sensitization:	No studies were found.
Respiratory Tract Sensitization:	No studies were found.
Mutagenic:	Not mutagenic in the Salmonella typhimurium/microsome assay (Ames test).
Reproductive Toxicity:	No studies were found.
Teratogenicity/Embryotoxicity:	No studies were found.
Carcinogenicity (ACGIH):	Simple asphyxiant.
Carcinogenicity (IARC):	No studies were found.
Carcinogenicity (NTP):	No studies were found.
Carcinogenicity (IRIS):	No studies were found.
Carcinogenicity (OSHA):	No studies were found.

Continued on Next Page

Other Considerations	Acts as a simple asphyxiant -- inert gas or vapour. The narcotic or intoxicated effect of a simple asphyxiant may impaired a person's judgement, but it temporary and will rapidly disappear in fresh air. Persons with anemia or other conditions of reduced oxygen-carrying capacity may be more sensitive. Propane producers and distributors may, from time to time, add small amounts of methanol to the propane to overcome water and freezing problems. Methanol may accumulate in liquid residues in propane piping and storage vessels. Please refer to a methanol Material Safety Data Sheet (MSDS) for further details concerning methanol.

Section 12. Ecological Information

Environmental Fate	Volatilizes and disperses rapidly. Volatilation is expected to be the dominant fate process.	Persistance/ Bioaccumulation Potential	Propane is readily biodegraded by soil bacteria (Microbacterium vaccae). The degradation of propane is similar to the degradation of fatty acids
BOD5 and COD	Not available.	Products of Biodegradation	Not available.
Additional Remarks	Henry's Law constants for propane has been calculated to be 7.07x10-1 atm-m³/mole @ 25°C. These mean that propane may rapidly volatilize from water and moist soil to the atmosphere. The estimated half-life for evaporation of propane from a model river (1m deep flowing 1m/s with a wind speed of 3 m/s) and a model pond are 1.9 hr and 2.3 days, respectively		

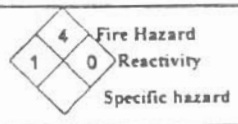
Section 13. Disposal Considerations

Waste Disposal	Preferred waste management priorities are: (1) incineration with energy recovery; (2) evaporation; (3) disposal at licensed waste disposal facility. Ensure that disposal or reprocessing is in compliance with government requirements and local disposal regulations.

Section 14. Transport Information

TDG Classification	Shipping name : Propane or Liquefied Petroleum Gas; UN 1978 or UN 1075, Class 2.1; Label required: Flammable gas.	Special Provisions for Transport	102 Add "SPECIAL COMMODITY" to document if in car load, container load by rail. Acceptable modes of transportation: air (cargo only), rail, road and water. Not acceptable for transport by passenger aircraft.

Section 15. 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.
DSD/DPD (Europe)	2- Risk of explosion by shock, friction, fire or other sources of ignition. 13- Extremely flammable liquefied gas. 16- Explosive when mixed with oxidizing substances. 20/21- Harmful by inhalation and in contact with skin. 35- Causes severe burns.
DSD/DPD (Europe) (Pictograms)	
DOT (U.S.A) (Pictograms)	
HMIS (U.S.A.)	Health Hazard 1 Fire Hazard 4 Reactivity 0 Personal Protection d
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	HCS - Hazardous Communication System
ASTM - American Society for Testing and Materials	HMIS - Hazardous Material Information System
BOD5 - Biological Oxygen Demand in 5 days	IARC - International Agency for Research on Cancer
CAN/CGA B149.2 - Propane Installation Code	IRIS - Integrated Risk Information System
CAS - Chemical Abstract Services	LD50/LC50 - Lethal Dose/Concentration kill 50%
CEPA - Canadian Environmental Protection Act	LDLo/LCLo - Lowest Published Lethal Dose/Concentration
CERCLA - Comprehensive Environmental Response, Compensation and Liability Act	NAERG'96 - North American Emergency Response Guide Book (1996)
CFR - Code of Federal Regulations	NFPA - National Fire Prevention Association
CHIP - Chemical Hazard Information and Packaging Approved Supply List	NIOSH - National Institute for Occupational Safety & Health
COD - Chemical Oxygen Demand	NPRI - National Pollutant Release Inventory
CPR - Controlled Products Regulation	NTP - National Toxicology Program
DOT - Department of Transportation	OSHA - Occupational Safety & Health Administration
DSCL - Dangerous Substances Classification and Labeling (Europe)	PEL - Permissible Exposure Limit
DSD/DPD - Dangerous Substance or Dangerous Preparations	RCRA - Resource Conservation and Recovery Act
	SARA - Superfund Amendments and Reorganization Act
	SD - Single Dose

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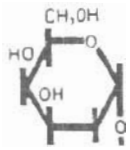


Poly-Drill Drilling Systems

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

MATERIAL SAFETY DATA SHEET/FICHE SIGNALETIQUE

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.
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

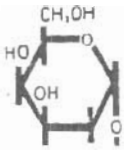
Respiratory Protection: None normally required.
Ventilation: If mist and/or vapors are present, use air purifying respirator of self-contained breathing apparatus, but this is rarely required.
Eye Protection: Safety glasses, if personally preferred
Gloves: Generally not necessary. Personal preference.

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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T2W-OA8
(403) 259-5112 FAX (403) 255-7185

MATERIAL SAFETY DATA SHEET/FICHE SIGNALETIQUE

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

MATERIAL SAFETY DATA SHEET

Date Prepared: August 18, 1988
Supersedes:
MSDS Number: 229760
Reference

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier: ESSO SNOWMOBILE OIL

Application and Use:
Premium quality low ash engine oil for use in air and liquid-cooled, premixed and oil injected, snowmobile engines

Product Description:

A mixture of refined petroleum lubricant basestocks and petroleum solvent plus additives

REGULATORY CLASSIFICATION

WHMIS:

Class B, Division 3: Combustible Liquids.

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name: Petroleum Oil
Class: Not applicable — Packing Group: Not applicable
PIN Number: Not applicable — Guide Number: 136

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency Health (416) 968-4368
Emergency Other (519) 339-2145
Technical Info. (416) 968-5114

MANUFACTURER/SUPPLIER:

Esso Petroleum Canada
55 St Clair Avenue West
Toronto, Ontario
M5W 2J8
(416) 968-4111

2. REGULATED COMPONENTS

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

NAME	%	CAS #
Light Hydrotreated Distillate	10-30 v/v	64742-47-8

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Viscosity: 21.40 cSt at 40 deg C
Boiling Point: 150 to 615 deg C
Solubility in water: 0%
Freezing/Melting Point: -45 deg C
Vapour Pressure: 4.200 kPa @ 20 deg C
Density: 0.88 g/cc at 15 deg C
Appearance/odour: Dark blue oil, petroleum odour

4. HEALTH HAZARD INFORMATION

Nature of Hazard

INHALATION:

Negligible hazard at normal temperatures (up to 38 deg C).
Elevated temperatures or mechanical action may form vapours, mists or fumes which may be irritating to the eyes, nose, throat and lungs.
Avoid breathing vapours or mists.

EYE CONTACT:

Slightly irritating, but will not injure eye tissue.

SKIN CONTACT:

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

INGESTION:

Minimal toxicity.

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
For oil mists, 5 mg/m3 recommended based on the ACGIH TLV.

5. FIRST AID MEASURES

INHALATION:

Vapour pressure of this material is low and as such inhalation under normal conditions is usually not a problem. If overexposed to oil mist, remove from further exposure. Administer artificial respiration if breathing has stopped. Keep at rest. Call for prompt medical attention.

EYE CONTACT:

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

SKIN CONTACT:

Flush with large amounts of water. Use soap if available.
Remove severely contaminated clothing (including shoes) and launder before reuse.
If irritation persists, seek medical attention.

INGESTION:

If swallowed, DO NOT induce vomiting. Keep at rest. Get prompt medical attention.

6. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTION:

The selection of personal protective equipment varies, depending upon conditions of use.
Where prolonged and/or repeated skin and eye contact is likely to occur, wear safety glasses with side shields, long sleeves, and chemical resistant gloves.
Where eye contact is unlikely, but may occur as a result of short and/or periodic exposures, wear safety glasses with side shields.
Where concentrations in air may exceed the occupational exposure limits given in Section 4 and where engineering, work practices or other means of exposure reduction are not adequate, approved respirators may be necessary to prevent overexposure by inhalation.

ENGINEERING CONTROLS:

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

HANDLING, STORAGE AND SHIPPING:

Keep containers closed. Handle and open containers with care.
Store in a cool, well ventilated place away from incompatible materials.
Store and load at normal (up to 38 deg C) temperature and at atmospheric pressure.

LAND SPILL:

Eliminate source of ignition. Keep public away. Prevent additional discharge of material, if possible to do so without hazard.
Prevent spills from entering sewers, watercourses or low areas. Contain spilled liquid with sand or earth. Do not use combustible materials such as sawdust.
Recover by pumping (use an explosion proof motor or hand pump), or by using a suitable absorbent.

Consult an expert on disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately.
Take all additional action necessary to prevent and remedy the adverse effects of the spill.

WATER SPILL:

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

Please turn over

MATERIAL SAFETY DATA SHEET

7. FIRE AND EXPLOSION HAZARD

Flashpoint and method 50 deg C PMCT D93

GENERAL HAZARDS:

Combustible Liquid, may form combustible mixtures at or above the flash point.
Decomposes; flammable/toxic gases will form at elevated temperatures (thermal decomposition).
Toxic gases will form upon combustion.
Empty product containers may contain product residue. Do not pressurize, cut, heat, weld, or expose containers to flame or other sources of ignition.

FIRE FIGHTING:

Use water spray to cool fire exposed surfaces and to protect personnel.
Shut off fuel to fire.
Use foam, dry chemical or water spray to extinguish fire.
Respiratory and eye protection required for fire fighting personnel.
Avoid spraying water directly into storage containers due to danger of boilover.
A self-contained breathing apparatus (SCBA) should be used for all indoor fires and any significant outdoor fires. For small outdoor fires, which may easily be extinguished with a portable fire extinguisher, use of an SCBA may not be required.

HAZARDOUS COMBUSTION PRODUCTS:

Smoke, carbon monoxide, carbon dioxide

8. REACTIVITY DATA

STABILITY:

This product is stable. Hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:

Strong oxidizing agents

HAZARDOUS DECOMPOSITION:

Fumes, smoke, carbon monoxide and sulphur oxides in case of incomplete combustion

9. NOTES

10. PREPARATION

Prepared by: SPECIALTIES TECHNICAL SERVICES
ESSO PETROLEUM CANADA
55 St Clair Avenue West
Toronto, Ontario
M5W 2J8
(416) 968-5114

CAUTION

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

MATERIAL SAFETY DATA SHEET

Esso

Date Prepared: August 26, 1988
Supersedes:
MSDS Number: 000110
Reference:

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier: TURBINE FUEL AVIATION, WIDE CUT TYPE
ESSO TURBO FUEL B
TURBO B

Application and Use:
Naphtha-kerosene blended aviation fuel for turbine-powered aircraft

Product Description:

A complex mixture of aliphatic, olefinic, naphthenic and aromatic hydrocarbons.

REGULATORY CLASSIFICATION

WHMIS:

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

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name:Gasoline
Class: Flammable Liquid 3.1 Packing Group II
PIN Number: UN1203 Guide Number: 119

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency Health (416) 968-4368
Emergency Other (519) 339-2145
Technical Info. (416) 968-5114

MANUFACTURER/SUPPLIER:

Esso Petroleum Canada
55 St Clair Avenue West
Toronto, Ontario
M5W 2J8
(416) 968-4111

2. REGULATED COMPONENTS

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

NAME	%	CAS #
Light Atmospheric Gas Oil	0-40 v/v	64741-44-2
Naphtha	0-70 v/v	64741-42-0
Reformate Naphtha	0-40 v/v	68919-37-9

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Vapour Density: 4
Boiling Point: 40 to 243 deg C
Solubility in water: 0%
Vapour Pressure: 14 000 kPa @ 38 deg C to
21 000 kPa @ 38 deg C
Density: 0.78 g/cc at 15 deg C
Appearance/odour: White or pale yellow liquid, petroleum odour

4. HEALTH HAZARD INFORMATION

Nature of Hazard

INHALATION:

High vapour concentrations are irritating to the eyes, nose, throat and lungs; may cause headaches and dizziness; may be anesthetic and may cause other central nervous system effects.
Causes suffocation (asphyxiant) if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.
Avoid breathing vapours or mists.

EYE CONTACT:

Irritating, but will not injure eye tissue

SKIN CONTACT:

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

INGESTION:

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

CHRONIC:

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

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
100 ppm based on composition.
For Benzene 1) 5 ppm TWA for 8 hrs/day
2) 3 ppm TWA for 12 hrs/day

THRESHOLD LIMIT VALUES:

ACGIH recommends:
For n-Hexane, 50 ppm (180 mg/m3).

5. FIRST AID MEASURES

INHALATION:

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

EYE CONTACT:

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

SKIN CONTACT:

Flush with large amounts of water. Use soap if available.
Remove severely contaminated clothing (including shoes) and launder before reuse.
If irritation persists, seek medical attention.

INGESTION:

If swallowed, DO NOT induce vomiting. Keep at rest. Get prompt medical attention.

6. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTION:

The selection of personal protective equipment varies, depending upon conditions of use.
Where prolonged and/or repeated skin and eye contact is likely to occur, wear safety glasses with side shields, long sleeves, and chemical resistant gloves.
Where eye contact is unlikely, but may occur as a result of short and/or periodic exposures, wear safety glasses with side shields.
Where concentrations in air may exceed the occupational exposure limits given in Section 4 and where engineering, work practices or other means of exposure reduction are not adequate, approved respirators may be necessary to prevent overexposure by inhalation.

ENGINEERING CONTROLS:

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

Please turn over

HANDLING, STORAGE AND SHIPPING:

Keep containers closed. Handle and open containers with care.
Store in a cool, well ventilated place away from incompatible materials.
Store and load at normal (up to 38 deg C) temperature and at atmospheric pressure.
Material will accumulate static charges which may cause a spark. Static charge build-up could become an ignition source. Use proper grounding procedure.

LAND SPILL:

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

WATER SPILL:

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

7. FIRE AND EXPLOSION HAZARD

Flashpoint and method: -18 deg C COC D92

GENERAL HAZARDS:

Extremely flammable; material will readily ignite at normal temperatures.
Flammable Liquid, may release vapours that form flammable mixtures at or above the flash point.
Decomposes; flammable/toxic gases will form at elevated temperatures (thermal decomposition).

Toxic gases will form upon combustion.
Static Discharge; material may accumulate static charges which may cause an electrical fire.
Empty product containers may contain product residue. Do not pressurize, cut, heat, weld, or expose containers to flame or other sources of ignition.

FIRE FIGHTING:

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

HAZARDOUS COMBUSTION PRODUCTS:

Smoke, carbon monoxide, carbon dioxide

8. REACTIVITY DATA

STABILITY:

This product is stable. Hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:

Strong oxidizing agents

HAZARDOUS DECOMPOSITION:

Fumes, smoke, carbon monoxide and sulphur oxides in case of incomplete combustion

9. NOTES

10. PREPARATION

Prepared by: SPECIALTIES TECHNICAL SERVICES
ESSO PETROLEUM CANADA
55 St Clair Avenue West
Toronto, Ontario
M5W 2J8
(416) 968-5114

CAUTION

MATERIAL SAFETY DATA SHEET

Date Prepared: August 26, 1988
Supersedes:
MSDS Number: 000109
Reference:

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier: LEADED GASOLINE
ESSO GASOLINE
ESSO MARINE GASOLINE
EXXON GASOLINE
LEADED REGULAR GASOLINE

Application and Use:
Leaded fuel for spark-ignited engines

Product Description:

A mixture of aliphatic and aromatic hydrocarbons and additives.

REGULATORY CLASSIFICATION

WHMIS:

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

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name Gasoline
Class Flammable Liquid 3.1 Packing Group II
PIN Number: UN1203 Guide Number: 119

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency Health (416) 968-4368
Emergency Other (519) 339-2145
Technical Info (416) 968-5114

MANUFACTURER/SUPPLIER:

Esso Petroleum Canada
55 St Clair Avenue West
Toronto, Ontario
M5W 2J8
(416) 968-4111

2. REGULATED COMPONENTS

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

NAME	%	CAS #
Gasoline	100 v/v	8006-61-9

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State Liquid
Viscosity 1.00 cSt at 40 deg C
Boiling Point 25 to 210 deg C
Solubility in water 0%
Freezing/Melting Point -40 deg C
Vapour Pressure 55 000 kPa @ 38 deg C
Density 0.73 g/cc at 15 deg C
Appearance/odour: Amber liquid, petroleum odour

4. HEALTH HAZARD INFORMATION

Nature of Hazard

INHALATION:

High vapour concentrations are irritating to the eyes, nose, throat and lungs, may cause headaches and dizziness, may be anesthetic and may cause other central nervous system effects.
Causes suffocation (asphyxiant) if allowed to accumulate to concentrations that reduce oxygen below safe breathing levels.
Contains small amounts of tetraethyl lead (TEL), benzene and n-hexane. Benzene may cause blood and/or blood producing system disorder and/or damage, n-hexane may cause peripheral (e.g. fingers, feet, arms, etc.) nerve damage. In high concentrations gasoline may cause central nervous system disorders.
Avoid breathing vapours or mists.

EYE CONTACT:

Irritating, but will not injure eye tissue.

SKIN CONTACT:

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

INGESTION:

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

CHRONIC:

Contains benzene. Human health studies (epidemiology) indicate that prolonged and/or repeated overexposures to benzene may cause damage to the blood producing system and serious blood disorders, including leukemia.
Animal tests suggest that prolonged and/or repeated overexposures to benzene may damage the embryo/fetus. The relationship of these animal studies to humans has not been fully established.

Contains n-hexane. Prolonged and/or repeated exposures may cause damage to the peripheral nervous system (e.g. fingers, feet, arms etc.).
Contains organic lead. Prolonged and/or repeated exposures may cause damage to the central nervous system, brain injury resulting in behavioral changes, and reproductive system effects.
Studies indicate that this material is an animal carcinogen. The relationship of these results to humans has not been fully established.

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends
For Benzene 1) 5 ppm TWA for 8 hrs/day
2) 3 ppm TWA for 12 hrs/day

THRESHOLD LIMIT VALUES:

ACGIH recommends:
For Gasoline, 300 ppm (900 mg/m3)
For n-Hexane, 50 ppm (180 mg/m3)
For Tetraethyl Lead, (skin), 0.1 mg/m3

5. FIRST AID MEASURES

INHALATION:

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

EYE CONTACT:

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

SKIN CONTACT:

Flush with large amounts of water. Use soap if available.
Remove severely contaminated clothing (including shoes) and launder before reuse.
If irritation persists, seek medical attention.

INGESTION:

If swallowed, DO NOT induce vomiting. Keep at rest. Get prompt medical attention.

6. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTION:

The selection of personal protective equipment varies, depending upon conditions of use.
Where prolonged and/or repeated skin and eye contact is likely to occur, wear safety glasses with side shields, long sleeves, and chemical resistant gloves.
Where eye contact is unlikely, but may occur as a result of short and/or periodic exposures, wear safety glasses with side shields.
Where concentrations in air may exceed the occupational exposure limits given in Section 4 and where engineering, work practices or other means of exposure reduction are not adequate, approved respirators may be necessary to prevent overexposure by inhalation.

Please turn over

ENGINEERING CONTROLS:

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

HANDLING, STORAGE AND SHIPPING:

Keep containers closed. Handle and open containers with care. Store in a cool, well ventilated place away from incompatible materials. Store and load at normal (up to 38 deg C) temperature and at atmospheric pressure.
Material will accumulate static charges which may cause a spark. Static charge build-up could become an ignition source. Use proper grounding procedure.

LAND SPILL:

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

WATER SPILL:

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

7. FIRE AND EXPLOSION HAZARD

Flashpoint and method: -42 deg C COC D92

GENERAL HAZARDS:

Extremely flammable; material will readily ignite at normal temperatures
Flammable Liquid, may release vapours that form flammable mixtures at or above the flash point.
Decomposes; flammable/toxic gases will form at elevated temperatures (thermal decomposition)
Toxic gases will form upon combustion
Static Discharge, material may accumulate static charges which may cause an electrical fire.
Empty product containers may contain product residue. Do not pressurize, cut, heat, weld, or expose containers to flame or other sources of ignition.

FIRE FIGHTING:

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

HAZARDOUS COMBUSTION PRODUCTS:

Smoke, carbon monoxide, carbon dioxide and oxides of lead

8. REACTIVITY DATA

STABILITY:

This product is stable. Hazardous polymerization will not occur.

INCOMPATIBLE MATERIALS AND CONDITIONS TO AVOID:

Strong oxidizing agents

HAZARDOUS DECOMPOSITION:

Fumes, smoke, carbon monoxide and sulphur oxides in case of incomplete combustion

9. NOTES

10. PREPARATION

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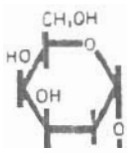
CAUTION



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 SIGNALETIQUE

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