Susie Ikkutisluk
Nunavut Water Board
P.O. Box 119
Gjoa Haven, Nunavut
X0E 1J0

25 January 2005

Re: WB2MZA0406, Update MSDS sheets

Dear Ms. Ikkutisluk,

As per your request, please find attached the MSDS sheets for the products that were used at the Maze Lake project in 2005.

If you have any question or require further information, please contact me at the following number.

Respectfully submitted,

Nathalie Prud'homme

Nathalie Prud'homme
Consulting Geologist for Placer Dome
Tel:613-230-5618
Email:nathalieprudhomme@sympatico.ca

MATERIAL SAFETY DATA SHEET

Date Prepared: August 26, 1988
Supersedes
MSDS Number: 000116
Reference:

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier: MIDDLE DISTILLATE (DYED OR CLEAR)
MIDDLE DISTILLATE
NO.1 FUEL OIL
SEAWAY DIESEL OIL
FURNACE FUEL OIL
NO.2 FUEL OIL
ESSO HEATING OIL
HEATING OIL
DIESEL FUEL OIL
ESSO COMMERCIAL FUEL
ESSO FURNACE FUEL OIL
ESSO MARINE DIESEL OIL
ESSO MARINE GAS OIL
ESSO NAVAL FUEL OIL 3GP11M
ESSO NAVAL FUEL OIL 3GP15M
ESSO RAILROAD DIESEL
IMPERIAL TOBAC CURING OIL
LIGHT INDUSTRIAL FUEL OIL

Application and Use:
Seasonally adjusted middle distillate for use in liquid fuel burning equipment for heating and/or as a fuel for use in an internal combustion engine of the compression ignition type

Product Description:

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

REGULATORY CLASSIFICATION

WHMIS:

Class D, Division 2, Subdivision B Toxic Material
Class B, Division 3 Combustible Liquids

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name Petroleum Fuel oil
Class Not applicable Packing Group Not applicable
PIN Number Not applicable Guide Number 123

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 #
Fuel Oil No 2	100 v/v	68476-30-2

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State Liquid
Viscosity 1 30 cSt at 40 deg C to
4 40 cSt at 40 deg C
Vapour Density 4
Boiling Point 150 to 370 deg C
Solubility in water: 0%
Freezing/Melting Point: -6 deg C
Vapour Pressure: 4.000 kPa @ 38 deg C
Density 0 85 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.
Elevated temperature 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:

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:

Lifetime skin painting tests indicated that materials of similar composition have produced skin cancer in experimental animals. The relationship of these results to humans has not been fully established.

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends
100 ppm based on composition.

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.

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.
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.

7. FIRE AND EXPLOSION HAZARD

Flashpoint and method: 60 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.
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
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

Material Safety Data / Fiche signalétique

WESTCOAST DRILLING SUPPLIES LTD.
8069 River Way, Delta, British Columbia,
Canada V4G 1L3
Ph. (604) 940-6050 Fax (604) 940-6080

EMERGENCY 1-800-665-6645

SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME:	**LINSEED SOAP**
CHEMICAL FAMILY:	Lubricating grease
WHMIS CLASSIFICATION:	Not regulated
WORK PLACE HAZARD:	Not applicable

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION:	Not available
PACKAGE GROUP:	Not available
PRODUCT IDENTIFICATION NUMBER (PIN):	Not applicable (Petroleum Lubricating Grease)

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50	LC50
Linseed Soap	100%	Mixture		

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY: (Information not available)
[ ] Skin, [ ] Eye Contact, [XXX] Inhalation, [ ] Ingestion

SKIN CONTACT:	Prolonged and repeated contact with skin can cause defatting and drying of the skin resulting in skin irritation and dermatitis.
EYE CONTACT:	Not available.
INHALATION:	Inhalation of oil mist or vapors from hot grease may cause irritation of the upper respiratory tract. Long term intensive exposure may cause benign lung fibrosis.
INGESTION:	Not available.
CHRONIC OVEREXPOSURE:	Not determined.
IRRITATION INDEX: SKIN:	Not available.
SYMPTOMS OF EXPOSURE:	Not available.
EXPOSURE INFORMATION:	Oil mist (particulate): 5 mg/M^3 (TLV/TWA) ACGIH 88/89 10 mg/M^3 (TLV/STEL) ACGIH 88/89

SECTION IV: FIRST AID MEASURES

SKIN CONTACT:	Remove contaminated clothing. Wash contaminated skin with mild soap and water. Wipe excess from skin.
EYE CONTACT:	Flush eyes with water for at least fifteen (15) minutes.
INHALATION:	Remove victim from further exposure. Additional first aid treatment is not ordinarily required.
INGESTION:	Do not induce vomiting. Obtain medical attention immediately.
OTHER INSTRUCTIONS:	None

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR:	Semi-solid brown colored grease; slight hydrocarbon odor.
DENSITY (SPECIFIC GRAVITY):	1.0
BOILING POINT:	100° C
MELTING POINT:	Not available
WATER SOLUBILITY:	Miscible

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Phone: (604) 940-6050 · Fax: (604) 940-6080
Toll Free: 1-800-665-6645

LINSEED SOAP

% VOLATILE BY VOLUME:	Not available
EVAPORATION RATE:	Not available
VAPOR PRESSURE: (mm Hg)	Not available
VAPOR DENSITY: (Air = 1)	Not available
pH:	9.5
VISCOSITY:	Not available

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	222° C
FLAMMABLE LIMIT:	Not available
AUTO IGNITION TEMP:	343° C
EXTINGUISHING MEDIA:	Dry chemical, carbon dioxide CO_2, foam water fog.
SPECIAL FIRE FIGHTING PROCEDURES:	No special procedures - Avoid inhalation of smoke. Caution, spilled material is slippery. Use water to cool fire-exposed containers.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None currently known.

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE [ ]

INCOMPATIBILITY (CONDITIONS TO AVOID):	Not available.
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon monoxide; carbon dioxide and dense smoke are produced on combustion. Avoid excessive heat, formation of vapors or mists.
HAZARDOUS POLYMERIZATION:	Will not occur [ ] May occur [ ] Not Available

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:	Under conditions of high heat use an air purifying respirator (mechanical filter with accompanying organic vapor cartridge).
VENTILATION:	Highly recommended for all indoor situations to control fugitive emissions. Concentrations in air should be maintained below the recommended threshold limit value if unprotected personnel are involved.
LOCAL:	If oil mist is present or if exposure is exceeded.
MAKE-UP AIR:	Should always be supplied to balance air exhausted (either generally or locally).
PROTECTIVE GLOVES:	Impervious gloves (viton, nitrile, PVC neoprene) should be worn at all times when handling this product.
EYE PROTECTION:	Chemical safety goggles and/or full face shield to protect eyes and face, if product is handled such that it could be splashed into eyes.
OTHER PROTECTIVE EQUIPMENT:	Impervious clothing (apron, coveralls) should be worn in confined workspaces or where the risk of skin exposure is much higher.
PERMISSIBLE CONCENTRATIONS:	Not available.

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LINSEED SOAP

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

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

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

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

WASTE DISPOSAL METHOD:

Reclaim or dispose of at a licensed waste disposal company.

SECTION IX: PREPARATION

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

DATE ISSUED: May 28, 1991 DATE REVISED: September 1, 1997

BY: Product Safety Committee

Material Safety Data Sheet

An electronic version of this MSDS is available at the following web address: http://www.compassminerals.com

Sodium chloride

Section 1. Product and Company Identification

Common Name	: Sodium chloride	Code	: Not available.
Supplier	: Compass Minerals Group 8300 College Boulevard Overland Park, KS 66210, USA	MSDS#	: Not available.
Synonyms	: Sodium chloride, Salt, Sea salt, Saline, Halite, Rock salt, Ice/Snow melter.	Preparation Date	: 10/30/2002.
Trade name	: Sodium chloride.	Print Date	: 10/30/2002.
Material Uses	: Deicing, general industrial and water softening/conditioning purposes.		
Manufacturer	: Canada: Sifto Canada, Inc. 6700 Century Ave., Suite 202 Mississauga, Ontario L5N 6A4, Canada United States: North American Salt Company 8300 College Boulevard Overland Park, KS 66210, USA (913) 344-9100	In Case of Emergency	: Canada: CANUTEC-1-613-996-6666 US: CHEMTREC-1-800-424-9300

Section 2. Composition, Information on Ingredients

Name	CAS #	Exposure Limits
Sodium chloride	7647-14-5	TWA PEL: No specific limits have been established for sodium chloride (a soluble substance). As a guideline, OSHA (United States) has established the following limits which are generally recognized for inert or nuisance dust. Particulates Not Otherwise Regulated (PNOR): 5mg/cu.m. Respirable Dust 8-Hour TWA PEL. 15mg/cu.m. Total Dust 8-Hour TWA PEL. TWA TLV: No specific limits have been established for sodium chloride (a soluble substance). As a guideline, ACGIH (United States) has established the following limits which are generally recognized for inert or nuisance dust. Particulates (insolubles) Not Otherwise Classified (PNOC): 10mg/cu.m. Inhalable Particulate TWA TLV, 3mg/cu.m. Respirable Particulate TWA TLV.

Section 3. Hazards Identification

Emergency Overview : White crystalline solid.
WARNING!
MAY CAUSE EYE IRRITATION.

Routes of Entry : Absorbed through skin. Eye contact. Inhalation. Ingestion.

Potential Acute Health Effects

Eyes : Slightly hazardous in case of eye contact (irritant).

Skin : Slightly hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Inhalation : Slightly hazardous in case of inhalation (lung irritant).

Ingestion : Slightly hazardous in case of ingestion.

Potential Chronic Health Effects : Carcinogenic Effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.
Mutagenic Effects: Not available.
Teratogenic Effects: Not available.

Medical Conditions Aggravated by Overexposure: : Repeated or prolonged exposure is not known to aggravate medical conditions.

Potential Environmental Effects : Maybe harmful to freshwater aquatic species and to plants that are not saline tolerant.

See Toxicological Information (section 11)

Continued on Next Page

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Co./Dept. | Co.
Phone # | Phone #
Fax # 204-832-4856 | Fax #

Section 4. First Aid Measures

Eye Contact : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Obtain medical attention if irritation persists.

Skin Contact : Wash with soap and water. Obtain medical attention if irritation persists. Cold water may be used.

Inhalation : If inhaled, move to fresh air. If not breathing, give artificial respiration. Obtain medical attention if irritation persists.

Ingestion : Do not induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious person. Obtain medical attention.

Notes to Physician : Not available.

Section 5. Fire Fighting Measures

Flammability of the Product : May be combustible at high temperature.

Autoignition Temperature : Not available.

Flash Points : Not available.

Flammable Limits : Not available.

Products of Combustion : Decomposes when heated to temperatures above 801 degrees C, may release toxic fumes of chlorine and sodium oxides.

Fire Hazards in Presence of Various Substances : Not available.

Explosion Hazards in Presence of Various Substances : Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions : Use extinguishing media suitable for surrounding materials.

Protective Clothing (Fire) : Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Special Remarks on Fire Hazards : Not available.

Special Remarks on Explosion Hazards : Not available.

Section 6. Accidental Release Measures

Small Spill and Leak : Use appropriate tools to put the spilled solid in a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and dispose of according to local and regional authority requirements.

Large Spill and Leak : Use a shovel to put the material into a convenient waste disposal container. Finish cleaning by spreading water on the contaminated surface and allow to evacuate through the sanitary system.

Section 7. Handling and Storage

Handling : Avoid breathing dust. Avoid contact with incompatibles.

Storage : Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8. Exposure Controls, Personal Protection

Engineering Controls : Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Personal Protection

Eyes : Safety glasses.

Body : Protective clothing may be worn in dusty area, but is generally not required.

Respiratory : NIOSH approved filtering facepiece may be necessary.

Section 9. Physical and Chemical Properties

Physical State and Appearance : White crystalline solid.

Color : White.

Odor : Odorless.

Molecular Weight : 58.44 g/mole

Molecular Formula : NaCl

pH (5% Soln/Water) : 6 to 8 [Neutral.]

Continued on Next Page

Boiling/Condensation Point	:	1413°C (2575.4°F)
Melting/Freezing Point	:	800.9°C (1473.6°F)
Critical Temperature	:	Not available.
Specific Gravity	:	2.165 (Water = 1)
Vapor Pressure	:	0.1 kPa (1 mmHg) (at 865°C)
Vapor Density	:	Not applicable.
Volatility	:	0% (v/v). 0% (w/w).
Odor Threshold	:	Not applicable.
Evaporation Rate	:	Not applicable.
VOC	:	0 (%)
Viscosity	:	Not applicable.
LogK$_{ow}$	:	Not available.
Solubility	:	Soluble in cold water, hot water. 36g/100g H_2O (20°C)

Section 10. Stability and Reactivity

Stability and Reactivity	:	The product is stable.
Conditions of Instability	:	Not applicable.
Incompatibility with Various Substances	:	Reactive with oxidizing agents, acids, lithium, bromine trifluoride.
Hazardous Decomposition Products	:	These products are chlorine, oxides of sodium.
Hazardous Polymerization	:	Will not occur.

Section 11. Toxicological Information

Toxicity to Animals	:	Acute oral toxicity (LD50): 3000 mg/kg [Rat]. Acute toxicity of the dust (LC50): >2100 mi/m^3 4 hour(s) [Rat].
Chronic Effects on Humans	:	Carcinogenic Effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH. May cause damage to the following organs: upper respiratory tract, skin, eyes, stomach.
Other Toxic Effects on Humans	:	Slightly hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation (lung irritant).
Special Remarks on Toxicity to Animals	:	Not available.
Special Remarks on Chronic Effects on Humans	:	Not available.
Special Remarks on Other Toxic Effects on Humans	:	Not available.

Section 12. Ecological Information

Ecotoxicity	:	Maybe harmful to freshwater aquatic species and to plants that are not saline tolerant.
BOD and COD	:	Not applicable.
Biodegradable/OECD	:	Not applicable.
Mobility	:	Not available.
Products of Degradation	:	Not applicable.
Toxicity of the Products of Biodegradation	:	Not applicable.
Special Remarks	:	Not applicable.

Section 13. Disposal Considerations

Waste Information	:	Waste must be disposed of in accordance with federal, state/provincial and local environmental control regulations.
Waste Stream	:	Not available.

Consult your local or regional authorities.

Continued on Next Page

Section 14. Transport Information

Regulatory Information	UN number	Proper shipping name	Class	Packing Group	Label
DOT Classification	Not applicable.	Not applicable.	Not a DOT controlled material (United States).	Not applicable.	
TDG Classification	Not applicable.	Not applicable.	Not a TDG controlled material.	Not applicable.	
ADR/RID Class	Not available.	Not available.	Not available.	Not available.	
IMDG Class	Not available.	Not available.	Not available.	Not available.	
IATA-DGR Class	Not available.	Not available.	Not available.	Not available.	

Section 15. Regulatory Information

HCS Classification : Not controlled under the HCS (United States).

U.S. Federal Regulations : TSCA 8(b) inventory: Sodium chloride 7647-14-5

SARA 302/304/311/312 hazardous chemicals: Sodium chloride
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Sodium chloride: Immediate (Acute) Health Hazard

Not listed under CWA.

Not listed under CAA.

Not listed under CERCLA.

State Regulations : No products were found under New Jersey, New York and Pennsylvania RTK.

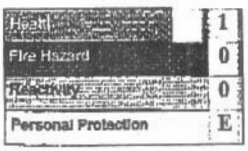
California Prop. 65: No ingredient was found.

Canadian Regulations : Not controlled under WHMIS (Canada).

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

Section 16. Other Information

Hazardous Material Information System (U.S.A.)



National Fire Protection Association (U.S.A.)

References : Not available.

Other Special Considerations : Not available.

Date of printing : 10/30/2002.

Preparation Date : 10/30/2002.

Prepared by : Dell Tech Laboratories Ltd. (519) 858-5021

Notice to Reader

Continued on Next Page

PROPANE

Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Protective Clothing	TDG (pictograms)
	A, B-1		

Section 1. Chemical Product and Company Identification

Product Name	PROPANE	Code	200-000-1, 200-000-2, File # W222
		DSL	On the DSL.
Synonym	Propane HD-5, Propane commercial, Dimethylmethane, Propyl hydride, Liquified Petroleum Gas (LPG), Alkane, C3H8.	TSCA	On TSCA inventory list.
Supplier	ICG PROPANE INC. 810, 10201 Southport Road S.W. Calgary, Alberta T2W 4X9	In case of Emergency	ICG Propane Inc. 1-800-424-8807
Material Uses	Propane is used as a fuel gas, refrigerant and as a raw material for organic synthesis. The grade determines the propane content. It is supplied as pressurized liquid in tanks and cylinders.		

Section 2. Composition and Information on Ingredients

			Exposure Limits (ACGIH)		
Name	CAS #	% (V/V)	TLV-TWA(8 h)	STEL	CEILING
Propane ***	74-98-6	>90	Simple asphyxiant ***	Not applicable	Not applicable
Propylene */**	115-07-1	<5	Simple asphyxiant	Not applicable	Not applicable
Butane	106-97-8	<3	800 ppm	Not applicable	Not applicable
Ethyl mercaptan	75-08-1	<50 ppm	0.5 ppm	Not applicable	Not applicable

* Propane commercial contains more propylene.
** Propylene may not be present.
*** Notice of Intended Change 1996: 2500 ppm (4508 mg/m3)

Supplier Recommendation	Recommends a maximum exposure level of 1000 ppm (1800 mg/m³) for 8 hours time weighted average when handling propane based on OSHA PEL for simple asphyxiant.
Other Exposure Limits	Consult local, provincial or territory authorities for acceptable exposure limits.

Section 3. Hazards Identification.

Potential Health Effects	The health effects caused by exposure to propane are much less serious than its fire and explosion risk. Propane is essentially nontoxic in concentrations less than the lower explosive limit, but at very high concentrations it is a simple asphyxiant and displaces oxygen from the breathing atmosphere. Lack of oxygen may cause dizziness, headaches, diminished awareness, faulty judgement, increasing fatique, impaired muscular coordination progressing to convulsions, coma and death. A person working around propane in an enclosed space or in close proximity to a propane source (filling cylinders, purging lines and lighting / adjusting pilot lights, etc) who feels "light-headed", "dizzy", "drunken", or a little intoxicated should realize this effect may be due to a dangerously high level of propane vapours (in the explosive range) and go immediately into fresh air. Direct contact with escaping gas or liquefied gas can result in freezing burns or frost bite to skin and eyes. For more information, refer to Section 11.

Section 4. First Aid Measures

Eye Contact	If the eye tissue is frozen, seek medical attention immediately: if tissue is not frozen, immediately and thoroughly flush the eyes with running water for at least 15 minutes, keeping eyelids open. If irritation, pain, swelling, or crying has occurred, get medical attention.
Skin Contact	If frostbite has occurred, do not rub the affected areas or flush them with water, but thaw frosted parts by soaking in water. In order to prevent further tissue damage, do not attempt to remove frozen clothing from frostbitten areas. If frostbite has not occurred, immediately and thoroughly wash contaminated skin with soap and water.
Inhalation	Evacuate the victim to fresh air at once. If the victim is not breathing, perform mouth-to-mouth resuscitation. Administer oxygen if available. Keep the victim warm and at rest. Seek medical attention as soon as possible.
Ingestion	Since the product is a gas and that it is mostly probable that it will be inhaled more than ingested, please consider first to look at the preventive measures in case of inhalation.
Note to Physician	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.

Continued on Next Page

Available in French

Section 5. Fire-fighting Measures

Flammability	Class I - flammable gas (NFPA).	Flammable Limits	LOWER: 2.1%, UPPER: 9.5%
Flash Points	CLOSED CUP:-104.4°C (-156°F).	Auto-Ignition Temperature	450°C (842°F)
Fire Hazards in Presence of Various Substances	Extremely flammable in presence of open flames, sparks, and heat. Vapours are heavier than air and may travel considerable distance to sources of ignition and flash back. Rapid escape of vapour may generate static charge causing ignition.	Explosion Hazards in Presence of Various Substances	Can react vigorously with oxidizing materials. Severe explosion hazard when exposed to chlorine dioxide. Vapour explosion hazard indoors, outdoors or in sewers. Do not cut, weld, heat, drill or pressurize empty container.
Products of Combustion	Burns with a luminous, smoky flame. Carbon oxides (CO, CO2), smoke and irritating fumes as products of incomplete combustion.		
Fire Fighting Media and Instructions	NAERG'96, GUIDE 115, Flammable Gas: 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. Cool containing vessels with water spray in order to prevent pressure build-up, autoignition or explosion. SMALL FIRE: use DRY chemicals or CO2. LARGE FIRE: use water spray or fog. Avoid flushing spilled material into sewers, streams or other bodies of water. For small outdoor fires, portable fire extinguishers may be used, and self contained breathing apparatus (SCBA) may not be required. For all indoor fires and any significant outdoor fires, SCBA is required. Respiratory and eye protection are required for fire fighting personnel. Handle damaged cylinders with extreme care.		

Section 6. Accidental Release Measures

Material Release or Spill	NAERG'96, Guide 115, Flammable Gas. ELIMINATE ALL IGNITION SOURCES. Avoid contact. Stop leak if without risk. By forced ventilation, maintain concentration of gas below the range of explosive mixture. Remove the tank or cylinder to an open area. Leave to bleed off in the atmosphere. Check with applicable jurisdiction for specific disposal requirements of spilled material and empty containers. Notify the appropriate authorities immediately.

Section 7. Handling and Storage

Handling	Keep away from heat, spark, open flames and other sources of ignition. Empty container may contain flammable/explosive residues or vapours. DO NOT reuse empty containers without commercial cleaning or reconditioning. Ground/bond line and equipment during pumping or transfer to avoid accumulation of static charge. Keep away from incompatibles such as oxidizing agents (peroxides, chlorine). Avoid inhalation of vapours and skin or eyes contact with liquid. Practice good personal hygiene. Wash hands after handling and before eating. Launder work clothes frequently. Discard saturated leather goods. SPECIAL PRECAUTIONS: Sludges and tank scale from propane storage tanks, trucks and rail cars, and filters/screens may contain naturally occurring radioactive material ("NORM") in the form of lead 210. Similarily, equipment used for the transfer of propane such as product pipelines, pumps and compressors, may have detectable levels of radioactive lead 210 on inner surfaces. Workers involved in cleaning, repair or other maintenance on inner surfaces of such equipment should avoid breathing dust generated from such activities. Suitable codes of practice should be developed for these activities, detailing appropriate occupational hygiene and disposal practices.
Storage	Transport and store cylinders and tanks secured in an upright position in a ventilated space. Cylinders that are not in use must have the valves in closed position and be equipped with a protective cap or collar. Do not store with oxidizing agents, oxygen or chlorine cylinders. Transport, handle and store according to applicable Federal and Provincial regulations (i.e. CAN/CGA B149.2 Propane installation Code and TDG regulations.

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 (as per the CAN/CGA B 149.2 Propane Installation Code), adequate oxygen (at least 18% by volume), and flame-proof electrical switches and lighting system. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety shower are close to the work-station location.
Personal Protection	
Eyes	Face shield or chemical splash goggles in case of splashing.
Body	Wear appropriate loose clothing with closed neck and long sleeves to prevent the skin from becoming frozen from contact with the liquid or from contact with vessels containing the liquid.
Respiratory	Above 2100 ppm, NIOSH/OSHA recommends any Self-Contained Breathing Apparatus (SCBA) with a full facepiece (Assigned protection factor =50).
Hands	Wear insulated gloves to prevent from frostbite.
Feet	Safety boots or shoes.

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