

APPENDIX 2: MSDS SHEETS



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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: **KOPR KOTE**
CHEMICAL FAMILY: Oil, Copper, Graphite and Lead
WHMIS CLASSIFICATION: Not available
WORK PLACE HAZARD: Not available

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not available
PACKAGE GROUP: Not available
PRODUCT IDENTIFICATION NUMBER (PIN): Not available

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	OSHA PEL	ACGIH TLLV
Petroleum Oil	70M	64742-57-0 or 64742-62-7	Oil Mist TWA - 5 mg/M ³	Not applicable
Lead Powder	15M	7439-92-1	Air - 200 ug/M ³	Air - 0.15 mg/M ³

SECTION III: TOXICOLOGICAL PROPERTIES

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

SKIN CONTACT: Not available.
EYE CONTACT: Not available.
INHALATION: Not available.
INGESTION: Not available.
SYMPTOMS OF EXPOSURE: Redness and irritation of skin.
EFFECTS OF OVEREXPOSURE: Repeated skin contact for persons hypersensitive to petroleum products can cause redness and irritation of skin.
MEDICAL CONDITIONS POTENTIALLY AGGRAVATED BY EXPOSURE: Unknown
MATERIAL LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN: National Toxicology Program - No, IARC - No, OSHA - No

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: Remove by wiping, or waterless hand cleaner, followed by washing.
EYE CONTACT: Wash with copious quantities of water.
INHALATION: Clear air passages, call a physician.
INGESTION: **DO NOT** induce vomiting; call a physician.
OTHER INSTRUCTIONS: Not applicable

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR: Copper colored paste; petroleum odor.
DENSITY (SPECIFIC GRAVITY): 1.23
BOILING POINT: 441° C
MELTING POINT: Not applicable
WATER SOLUBILITY: None

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KOPR KOTE

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% VOLATILE BY VOLUME:	None
EVAPORATION RATE:	< 0.01
VAPOR PRESSURE: (mm Hg)	< 0.01
VAPOR DENSITY: (Air = 1)	> 5.0
pH:	Not available
VISCOSITY:	Not available

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	294° C (COC Method)
FLAMMABLE LIMIT:	LEL = 0.9% UEL = 7%
AUTO-IGNITION TEMPERATURE:	> 315° C
EXTINGUISHING MEDIA:	Use foam, dry chemical, water spray(fog), carbon dioxide CO ₂ , or vaporizing liquid type extinguishing agents.
SPECIAL FIRE FIGHTING PROCEDURES:	Use supplied-air breathing equipment for enclosed or confined spaces.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE []	
INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong oxidizing materials and copper reactive agents. Incompatible with 1-bromo-2propyne, NH ₄ NO ₃ , ClF ₃ , H ₂ O ₂ , NaN ₃ , Na ₂ C ₂ , Zr.
HAZARDOUS DECOMPOSITION PRODUCTS:	Hydrogen, carbon monoxide, aldehydes, smoke, toxic fumes and toxic copper and lead compounds.
HAZARDOUS POLYMERIZATION:	Will not occur [XXX] May occur []

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:	None required.
VENTILATION:	No special ventilation required.
PROTECTIVE GLOVES:	None required.
EYE PROTECTION:	None required.
OTHER PROTECTIVE EQUIPMENT:	Persons with hypersensitive skin should use gloves.
PERMISSIBLE CONCENTRATIONS:	Not available

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Normal precautions as with any petroleum product. Wash hands before eating.

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

Scoop up excess, wipe with rags, pick up residue with diatomaceous earth to avoid walking hazard.

WASTE DISPOSAL METHOD:

Consult federal, provincial/state and local regulations for petroleum products.

SECTION IX: PREPARATION

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

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DATE REVISED: September 1, 1997

BY: Product Safety Committee

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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/M³ (TLV/TWA)
ACGIH 88/89 10 mg/M³ (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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LINSEED SOAP

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% 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

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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

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BY: Product Safety Committee

Material Safety Data / Fiche signalétique

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EMERGENCY 1-800-665-6645

SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME: **LUBTUB**
CHEMICAL FAMILY: Partial Sodium Salt of Polyacrylic Acid
WHMIS CLASSIFICATION: D-2(B)
WORK PLACE HAZARD: Skin and eye irritant.

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not Dangerous Goods
PACKAGE GROUP: Not applicable
PRODUCT IDENTIFICATION NUMBER (PIN): Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50	LC50
Partial sodium salt of polyacrylic acid	15 - 40%	Mixture	Not available	Not available

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:
[XXX] Skin, [XXX] Eye Contact, [] Inhalation, [XXX] Ingestion

SKIN CONTACT: No effects of exposure expected due to contact. Prolonged contact may cause skin irritation or dermatitis in some individuals.
EYE CONTACT: May cause watering of eyes and inflammation of conjunctiva.
INHALATION: If misted, may cause sneezing, slight irritation of nose and throat.
INGESTION: May cause nausea and vomiting.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: Wash exposed area with soap and water. If irritation or abnormalities persist, call a physician.
EYE CONTACT: Immediately flush eyes with water for fifteen (15) minutes and call a physician.
INHALATION: Remove to fresh air. Give artificial respiration if not breathing preferably mouth to mouth. If breathing difficult give oxygen. Call a physician.
INGESTION: If conscious, induce vomiting by giving two glasses of water and sticking finger down throat. *Do not give anything by mouth to an unconscious or convulsing person. Call a physician.*

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR: Clear to hazy, light amber liquid; Slight sweetish odor.
DENSITY (SPECIFIC GRAVITY): 1.2
BOILING POINT: Not available
MELTING POINT: Not available
WATER SOLUBILITY: Soluble
% VOLATILE BY VOLUME: Not available
EVAPORATION RATE: Not available
VAPOR PRESSURE: (mm Hg) Not available
VAPOR DENSITY: (Air = 1) Not available
pH: 7.0 - 9.0

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LUB TUB

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SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: > 100° C
FLAMMABLE LIMIT: Not applicable
EXTINGUISHING MEDIA: Water, water spray, foam, dry chemical.
SPECIAL FIRE FIGHTING PROCEDURES: Self contained respirators required for fire fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE []
INCOMPATIBILITY (CONDITIONS TO AVOID): Strong oxidizing agents and caustic solutions.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon dioxide; carbon monoxide.
HAZARDOUS POLYMERIZATION: Will not occur [XXX] May occur []

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION: If vapors or mist are present suggest approved NIOSH/MESA air purifying respirator.
VENTILATION:
PROTECTIVE GLOVES:
EYE PROTECTION:
OTHER PROTECTIVE EQUIPMENT:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:**STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:****WASTE DISPOSAL METHOD:**

SECTION IX: PREPARATION

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Canada V4G 1L3
Ph. (604) 940-6050 Fax (604) 940-6080

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SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME: **PELADOW®**
PRODUCT USE: Oil Well Fluid Additive
CHEMICAL FAMILY: Calcium Chloride (>90%)

WORK PLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

WHMIS CLASSIFICATION: Class D-2(B)
WORK PLACE HAZARD: Skin and Eye Irritant

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

SHIPPING NAME: Not Regulated Under TDG
TDG CLASSIFICATION: Not applicable
PACKAGE GROUP: Not applicable
PRODUCT IDENTIFICATION NUMBER (PIN): Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50 (oral rat)
Calcium Chloride	91 - 92%	10043-52-4	900-2100 mg / kg (100%)
Sodium Chloride	1 - 2%	7647-14-5	Not available
Potassium Chloride	2-3%	7447-40-7	Not available
Strontium Chloride	1%	10476-85-4	Not available

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:

[XX] Skin, [XX] Eye Contact, [XX] Inhalation, [XX] Ingestion

EYE CONTACT:

Dusts may cause moderate to severe eye irritation, with corneal injury that may be slow to heal. When dissolving, the heat produced may cause more intense effects as well as thermal burns.

SKIN CONTACT:

Short single exposure not likely to cause significant skin irritation. Prolonged or repeated exposure may cause skin irritation, even a burn. May cause more severe response if skin is damp and/or abraded, or if material is confined to skin. When dissolving, the heat produced may cause more intense effects as well as thermal burns. DOT classification: Noncorrosive.

SKIN ABSORPTION:

A single prolonged exposure is not likely to result in the material being absorbed through the skin in harmful amounts. The LD₅₀ for skin absorption in rabbits is >5000 mg / kg.

INGESTION:

Single dose oral toxicity is low. Swallowing solids may cause gastro-intestinal irritation or ulceration.

INHALATION:

Vapours are unlikely due to physical properties. Dust may cause irritation of upper respiratory tract.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: Immediately wash skin with lots of soap and water. Remove contaminated clothing and shoes; wash before reuses. Get medical attention if irritation persists after washing.

EYE CONTACT: *Get immediate medical attention.* Immediately flush eyes with lots of running water for 15 minutes, lifting the upper and lower eyelids occasionally.

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PELADOW®

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INGESTION: If conscious, immediately induce vomiting. *Get immediate medical attention. Do not give anything by mouth to an unconscious or convulsing person.*

INHALATION: remove to fresh air. Give artificial respiration if not breathing. *Get immediate medical attention.*

NOTE TO PHYSICIAN: If burn is present, treat as any thermal burn, after decontamination, No specific antidote. Supportive care. Treatment based on judgement of the physician in response to reactions of patient.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR:	White to off-white powder; odorless.
DENSITY (SPECIFIC GRAVITY):	2.2 g/cc
BOILING POINT:	198° C
MELTING POINT:	Approximately 230° C
WATER SOLUBILITY:	Soluble pH 7-10
% VOLATILE BY VOLUME:	Not applicable
EVAPORATION RATE:	Not applicable
VAPOR PRESSURE: (mm Hg)	0.009 mm Hg 20° C
VAPOR DENSITY: (Air = 1)	Not applicable

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable
FLAMMABLE LIMIT:	Not applicable
EXTINGUISHING MEDIA:	This material is not combustible
SPECIAL FIRE FIGHTING PROCEDURES:	Self-contained respirators required for fire-fighting personnel
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE []

INCOMPATIBILITY (CONDITIONS TO AVOID): (Specific Materials to Avoid) Calcium Chloride will: corrode most metals exposed to air, attack aluminium (and its alloys) and yellow brass; react with sulphuric acid to form hydrogen chloride which is corrosive, irritating, and reactive; give an exothermic reaction with water-reactive materials such as sodium; result in a runaway polymerization reaction with methyl vinyl ether (Bretherick, 1979); and, in solution form react with zinc (galvanizing) to yield hydrogen gas which is explosive (Ibid.). (Bretherick, L. 1979, Handbook of Reactive Chemical Hazards, 2nd Ed.)

HAZARDOUS DECOMPOSITION PRODUCTS: Not Applicable

HAZARDOUS POLYMERIZATION: Will not occur [XX] May occur []

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:	Approved dust respirator mask
VENTILATION:	Local mechanical exhaust
PROTECTIVE GLOVES:	Rubber gloves.
EYE PROTECTION:	Chemical goggles.
OTHER PROTECTIVE EQUIPMENT:	An eyewash and safety shower should be nearby and ready for use.

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PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Avoid eye and prolonged skin contact, Always use cool water (temperature less than 27° C), when dissolving calcium chloride. Heat developed by solutions is very high during dissolving and mixing. When exposed to atmosphere, calcium chloride will pick up water and form a solution. Leather clothing and shoes will be damaged by calcium chloride.

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

Losses incidental to correct applications of this product in its intended uses are not expected to be harmful to the environment. Wear appropriate safety apparel during clean-up. Avoid entry of large amount of product into sewers, natural waters, and drinking water sources. Due to possible harmful effects. Avoid contact with vegetation, animals and fish life. Recover quickly into suitable, dry sealable containers if reusing. Small quantities may be flushed away with plenty of water. Walking surfaces may remain wet longer due to moisture being held by spilled product - avoid by thoroughly water washing surfaces.

WASTE DISPOSAL METHOD:

Dispose of contaminated product and materials used in cleaning up spills or leaks in a manner approved for this material. Consult appropriate regulatory agencies to ascertain proper disposal procedures

SECTION IX: PREPARATION

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DATE ISSUED: December 15, 1994

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Ph. (604) 940-6050 Fax (604) 940-6080

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SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME:	SUPER POLY
CHEMICAL FAMILY:	Cellulose Ether
PRODUCT USE:	Drilling Mud Additive.
WHMIS CLASSIFICATION:	Not a Controlled Product under WHMIS
WORK PLACE HAZARD:	Not applicable.

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION:	Not applicable.
PACKAGE GROUP:	Not applicable.
PRODUCT IDENTIFICATION NUMBER (PIN):	Not applicable.

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50 LC50
No Hazardous Ingredients.			

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:

[] Skin, [] Eye Contact, [] Inhalation, [] Ingestion

SKIN CONTACT:	May produce slight irritation with prolonged contact with moistened product.
EYE CONTACT:	Dust may produce mechanical irritation.
INHALATION:	Non-irritating to mucous membranes, however, breathing high concentrations of the dust may cause mechanical irritation of the nose, throat and upper respiratory tract.
INGESTION:	Passes through relatively inert. May cause gastro intestinal upset. Oral LD50 > 25 g/kg (rats).

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: Wash exposed area with soap and water. If irritation develops seek medical attention.

EYE CONTACT: Flush eyes with running water for at least fifteen (15) minutes. If illness or adverse symptoms develop, seek medical attention.

INHALATION: Remove from exposure. If illness or adverse symptoms develop, seek medical attention.

INGESTION: Give two (2) glasses of water and induce vomiting. If illness or adverse symptoms develop, seek medical attention.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR:	Light colored powder; Odorless.
DENSITY (SPECIFIC GRAVITY):	1.6
BOILING POINT:	Not applicable
MELTING POINT:	Not applicable
WATER SOLUBILITY:	Complete
% VOLATILE BY VOLUME:	Negligible
EVAPORATION RATE:	Not applicable
VAPOR PRESSURE: (mm Hg)	Not applicable
VAPOR DENSITY: (Air = 1)	Not applicable

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SUPER POLY

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SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable
FLAMMABLE LIMIT:	Not determined
EXTINGUISHING MEDIA:	Water, water fog, chemical, carbon dioxide CO ₂ .
SPECIAL FIRE FIGHTING PROCEDURES:	Evacuate area of all necessary personnel. Use self-contained respirators for fire fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	If in a finely divided and suspended state, treat as a flammable dust. Material becomes very slippery when contacted with water.

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE []	
INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong oxidizing and caustic solutions.
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon Dioxide, Carbon Monoxide
HAZARDOUS POLYMERIZATION:	Will not occur [XXX] May occur []

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:	Suggest dust mask. Nuisance dust.
VENTILATION:	No special requirements.
PROTECTIVE GLOVES:	None required.
EYE PROTECTION:	Suggest goggles, nuisance dust.
OTHER PROTECTIVE EQUIPMENT:	None required.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Avoid ingestion. Practice reasonable caution and personal cleanliness. Avoid skin and eye contact. Material become slippery when wet.

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

Vacuum or sweep-up if dry. If wet, pick up with dry material such as sand or dirt. Avoid flushing with water as material becomes slippery.

WASTE DISPOSAL METHOD:

Dispose of material in accordance with local ordinances. Landfill suggested.

SECTION IX: PREPARATION

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BY: Product Safety Committee

Material Safety Data / Fiche signalétique

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

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SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME: **WDS 120/L**
PRODUCT USE: Flocculant
CHEMICAL FAMILY: Anionic polyacrylamides in water-in-oil emulsion.
CAS NO. AND NAME: Mixture
FORMULA AND M.WT.: Mixture
WHMIS CLASSIFICATION: Combustible liquid, CLASS B-3 Toxic material, CLASS D-2B
WORK PLACE HAZARD:

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not Dangerous Goods
PACKAGE GROUP:
PRODUCT IDENTIFICATION NUMBER (PIN):

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50	LC50
Mineral Spirits	20 - 40%	64742-47-8	Not available	
Alkyl phenol ethoxylate	3 - 7%	68412-54-4	(oral, rat) = 3,000 mg/kg	(dermal rabbit): 2,830 mg/kg
Ethoxylated C12-15 alcohol	< 1 - 6%	68131-39-5	(oral, rat): 2,500 mg/kg	

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:

[XXX] Skin, [XXX] Eye Contact, [XXX] Inhalation, [XXX] Ingestion

SKIN CONTACT:

Contact may cause irritation, redness, swelling, or dermatitis.

SKIN ABSORPTION:

Not available.

EYE CONTACT:

Will cause painful burning or stinging of eyes and lids, watering of eyes, and inflammation of conjunctiva.

INHALATION:

Not available.

INGESTION:

May cause nausea and vomiting.

EFFECTS OF CHRONIC EXPOSURE:

Skin irritation or dermatitis may occur upon frequent or prolonged contact.

EXPOSURE LIMITS:

Contains traces of acrylamide. Exposure limit, TWAEV = 0.03 mg M3 (ONT. Reg. 654/86)

IRRITANCY OF PRODUCT:

Skin: Moderate irritant; Eye: Moderate irritant.

SENSITIZATION TO MATERIAL:

Repeated or prolonged contact may cause sensitization in some individuals.

CARCINOGENICITY:

Product contains traces of acrylamide which is reported by ACGIH as a suspect carcinogen (Group A2).

REPRODUCTIVE TOXICITY:

Not available

TERATOGENICITY:

Not available

MUTAGENICITY:

Not available

TOXICOLOGICALLY SYNERGISTIC

PRODUCTS:

Not available

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WDS 120/L

Page 2 of 3

SECTION IV: FIRST AID MEASURES

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

EYE CONTACT: Immediately flush eyes with water for fifteen (15) minutes and call a physician. Contact lenses should not be worn when working with this material.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

INGESTION: Do not induce vomiting. If conscious, dilute by giving two glasses of water. Call a physician immediately.

SECTION V: PHYSICAL DATA

PHYSICAL STATE:	Liquid
APPEARANCE AND ODOR:	Liquid emulsion
ODOR THRESHOLD:	Not available
DENSITY (SPECIFIC GRAVITY):	Not available
BOILING POINT:	Not available
FREEZING POINT:	Not available
WATER SOLUBILITY:	Soluble
EVAPORATION RATE:	Not available
VAPOR PRESSURE: (mm Hg)	Not available
VAPOR DENSITY: (Air =1)	Not available
DENSITY: (.g/ml):	Not available
pH:	7.0 - 9.0 (0.6% in D.W.)

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	65° C (C.C.)
UPPER FLAMMABLE LIMIT:	Not available
LOWER FLAMMABLE LIMIT:	Not available
AUTO-IGNITION TEMPERATURE:	Not available
CONDITIONS OF FLAMMABILITY:	Requires a source of ignition, the presence of air, and a temperature greater than the flash point.
EXTINGUISHING MEDIA:	Water spray, foam, dry chemical, or carbon dioxide. Water may cause excessive slipperiness.
HAZARDOUS COMBUSTION PRODUCTS:	Oxides of carbon and nitrogen and products of incomplete combustion.
SPECIAL FIRE FIGHTING PROCEDURES:	
EXPLOSION DATA:	Sensitivity to mechanical impact: not sensitive.
EXPLOSION DATA:	Sensitivity to static discharge: Potential for fire and/or explosion.
	Grounding and use of explosion-proof equipment is recommended.

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE:[]	
INCOMPATIBILITY SUBSTANCES	
(CONDITIONS TO AVOID):	Avoid strong oxidizing and reducing agents.
CONDITIONS OF REACTIVITY:	Avoid contamination with reactive substances.
HAZARDOUS DECOMPOSITION PRODUCTS:	Not available
HAZARDOUS POLYMERIZATION:	Will not occur [XXX] May occur []

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SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:	If mist and/or hot vapors are present use air-purifying respirator or self-contained breathing apparatus as required.
ENGINEERING CONTROLS (VENTILATION):	General ventilation with a good source of make-up air recommended for all indoor situations.
PROTECTIVE GLOVES:	Rubber or plastic gloves.
EYE PROTECTION:	Chemical goggles.
OTHER PROTECTIVE EQUIPMENT:	Clothing as required to protect against contact.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Avoid prolonged or frequent contact when handling material. Avoid breathing mists or vapor. Handle only in adequately ventilated areas. Explosion-proof equipment is recommended. Electrically ground all equipment. Protective measures during repair/maintenance of equipment. Wash equipment thoroughly with steam or warm water until clean. Check for flammables with an "explosion meter" and also check the oxygen level with an oxygen meter. In all cases, follow good industrial safety practices before entering equipment.

Keep container closed when not in use. Store in cool and dry location away from oxidizing and reducing agents.

SPECIAL SHIPPING INFORMATION:

None

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

Eliminate sources of ignition. Collect into waste container. Absorb remaining product with earth or sand and dispose of with solid waste. Wash spill site after material pick-up. Do not breathe vapors. Use NIOSH approved respirator if exposed to vapors. Avoid drainage of spilled material to sewers or waterways.

WASTE DISPOSAL METHOD:

Dispose of waste according to federal, provincial, and local regulations.

May be used directly as a fuel stock with appropriate emissions control equipment. Otherwise, incinerate directly with or without other flammable solvent additives.

SECTION IX: PREPARATION

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

DATE ISSUED: January 20, 1995

DATE REVISED: September 1, 1997

BY: Product Safety Committee

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: **BIG BEAR DIAMOND DRILL ROD GREASE**
CHEMICAL FAMILY: Hydrocarbon
WHMIS CLASSIFICATION: Not regulated
WORK PLACE HAZARD: Not applicable

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not regulated
PACKAGE GROUP: Not applicable
PRODUCT IDENTIFICATION NUMBER (PIN): Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50	LC50
Severely hydrotreated naphthenic oils	< 75.00%	64742-52-5	>3 g/kg (Dermal Rabbit) >5 g/kg (Oral Rat)	N/D
Barium soap	< 35.00%	68201-19-4	Not determined	

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:
[XXX] Skin, [] Eye Contact, [] Inhalation, [] Ingestion

SKIN CONTACT: Acute exposure is believed to be minimally irritating

EYE CONTACT: Acute exposure is believed to be minimally irritating.

INHALATION: Believed to be minimally irritating if not in excess of permissible concentrations; see Section VIII.

INGESTION: Not available

CHRONIC OVEREXPOSURE: Not determined

IRRITATION INDEX: SKIN: Believed to be 1.0 - 2.0/8.0 (Rabbit); slightly irritating
EYES: Believed to be <15/110 (Rabbit); no appreciable effect

SYMPTOMS OF EXPOSURE: None expected other than possible minor irritation. Considered practically non-toxic.

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: None considered necessary.

EYE CONTACT: As with most foreign materials, should eye contact occur, flush eyes with plenty of water.

INHALATION: None considered necessary.

INGESTION: None considered necessary. Do not induce vomiting.

OTHER INSTRUCTIONS: In some cases of ingestion and/or inhalation, medical attention should be obtained.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR: Brownish yellow, fibrous grease

DENSITY (SPECIFIC GRAVITY): >1.0

BOILING POINT: 700° F

MELTING POINT: 400° F

WATER SOLUBILITY: Negligible

% VOLATILE BY VOLUME: Not determined

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BIG BEAR DIAMOND DRILL ROD GREASE

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EVAPORATION RATE:	Not determined
VAPOR PRESSURE (mm Hg):	Not determined (low)
VAPOR DENSITY (Air =1):	>1.0
pH:	Not applicable
VISCOSITY:	NLGI No. 3-4 grease

SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	>350° F (COC Method)
FLAMMABLE LIMIT:	Not determined
EXTINGUISHING MEDIA:	According to the National Fire Protection Association Guide, use water spray. Dry chemical, Foam, Carbon Dioxide CO ₂ . Water or foam may cause frothing.
SPECIAL FIRE FIGHTING PROCEDURES:	Use water to cool fire-exposed containers. If a leak or spill has not ignited, use water spray to disperse the vapors and to provide protection for persons attempting to stop the leak. See Hazardous Decomposition Products, Section VII.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	None

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE []	Info not available
INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong oxidizers.
HAZARDOUS DECOMPOSITION PRODUCTS:	This material decomposes at a high temperature to form carbon monoxide, carbon dioxide, aldehydes and ketones, combustion products of nitrogen and sulphur.
HAZARDOUS POLYMERIZATION:	Will not occur [XXX] May occur []

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:	None required if exposures are within the permissible concentrations. See below
VENTILATION:	Natural dilution
PROTECTIVE GLOVES:	Neoprene
EYE PROTECTION:	Chemical type goggle or face shield optional
OTHER PROTECTIVE EQUIPMENT:	Standard work clothing and work shoes.
PERMISSIBLE CONCENTRATIONS: AIR:	5mg/cubic metre of air for mineral oil mist averaged over an 8 hour daily exposure (ACGIH 1986 - 87)

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Exposed persons should exercise reasonable personal cleanliness; this includes cleansing exposed skin areas several times daily with soap and water and laundering or dry cleaning soiled work clothing at least weekly. Minimum feasible handling temperatures should be maintained. Periods of exposure to high temperatures should be minimized. Water contamination should be avoided.

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STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

Contain spill if possible. Wipe up or absorb on suitable material and shovel up.

WASTE DISPOSAL METHOD:

Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures and processes may influence waste classification. Disposal should be in accordance with applicable federal, provincial and local regulations.

SECTION IX: PREPARATION

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

DATE ISSUED: September 17, 1993

DATE REVISED: September 1, 1997

BY: Product Safety Committee

WESTCOAST DRILLING SUPPLIES LTD.

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Canada V4G 1L3
Ph. (604) 940-6050 Fax (604) 940-6080

EMERGENCY 1-800-665-6645

SECTION I: IDENTIFICATION OF PRODUCT

PRODUCT NAME: **550X POLYMER**
CHEMICAL FAMILY: Copolymer of Acrylamide and Sodium Acrylate
PRODUCT USE: Drilling Mud Additive
WHMIS CLASSIFICATION: Not a Controlled Product under WHMIS
WORK PLACE HAZARD: Not applicable

TRANSPORTATION OF DANGEROUS GOODS (TDGR)

CLASSIFICATION: Not applicable
PACKAGE GROUP: Not applicable
PRODUCT IDENTIFICATION NUMBER (PIN): Not applicable

SECTION II: HAZARDOUS INGREDIENTS

INGREDIENT	PERCENTAGE	CAS NUMBER	LD50	LC50
No Hazardous Ingredients				

SECTION III: TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY:
[] Skin, [] Eye Contact, [XXX] Inhalation, [] Ingestion

SKIN CONTACT: Prolonged contact may cause skin irritation or dermatitis in some individuals.
EYE CONTACT: May cause irritation.
INHALATION: May cause sneezing, slight irritation of nose and throat.
INGESTION: Not available
EFFECTS OF ACUTE EXPOSURE: Not available
EFFECTS OF CHRONIC EXPOSURE: Not available

SECTION IV: FIRST AID MEASURES

SKIN CONTACT: Wash exposed area with soap and water. If irritation or abnormalities persist, call a physician.
EYE CONTACT: Immediately flush eyes with water for fifteen (15) minutes and call a physician.
INHALATION: Remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.
INGESTION: Do not induce vomiting. If conscious, dilute by giving two glasses of water. Call a physician immediately.

SECTION V: PHYSICAL DATA

APPEARANCE AND ODOR: White granular solid; faint odor
DENSITY (SPECIFIC GRAVITY): 0.80
BOILING POINT: Decomposes
MELTING POINT: Not applicable
WATER SOLUBILITY: Soluble
% VOLATILE BY VOLUME: Not applicable
EVAPORATION RATE: Not applicable
VAPOR PRESSURE (mm Hg): Very low
VAPOR DENSITY (Air = 1): Not applicable

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550X POLYMER

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SECTION VI: FIRE AND EXPLOSION HAZARD DATA

FLASH POINT:	Not applicable
FLAMMABLE LIMIT:	Not applicable
EXTINGUISHING MEDIA:	Dry chemical, foam, CO ₂
SPECIAL FIRE FIGHTING PROCEDURES:	Use self-contained respirators for fire fighting personnel.
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Oxides of carbon and nitrogen and products of incomplete combustion.

SECTION VII: REACTIVITY DATA

STABLE [XXX] INSTABLE []	
INCOMPATIBILITY (CONDITIONS TO AVOID):	Strong oxidizing agents and caustic solutions.
HAZARDOUS DECOMPOSITION PRODUCTS:	Not applicable
HAZARDOUS POLYMERIZATION:	Will not occur [XXX] May occur []

SECTION VIII: PREVENTATIVE MEASURES

RESPIRATORY PROTECTION:	Suggest NIOSH/MESA approved dust mask.
VENTILATION:	Ten (10) changes per hour suggested.
PROTECTIVE GLOVES:	Suggest plastic or rubber.
EYE PROTECTION:	Suggest goggles.
OTHER PROTECTIVE EQUIPMENT:	Suggest rubber apron.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Avoid prolonged or frequent contact when handling material. Do not inhale dust or breathe vapor. Keep container closed when not in use. Store in a cool and dry location away from oxidizing and reducing agents.

STEPS TO BE TAKEN IN CASE OF SPILL OR LEAK:

Ventilate area. Wear rubber boots, gloves and a self contained breathing apparatus if ventilation is not adequate. Collect into a waste container. Avoid raising dust. Wash spill site after material pick-up. Water solutions are very slippery. May constitute a hazard following a spill.

WASTE DISPOSAL METHOD:

Dispose of waste according to federal, provincial and local regulations.

SECTION IX: PREPARATION

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

DATE ISSUED: January 1, 1991

DATE REVISED: January 1, 1995

BY: Product Safety Committees

**WESTCOAST DRILLING SUPPLIES LTD.**

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Phone: (604) 940-6050 - Fax: (604) 940-6080

Toll Free: 1-800-665-6645

550X POLYMER

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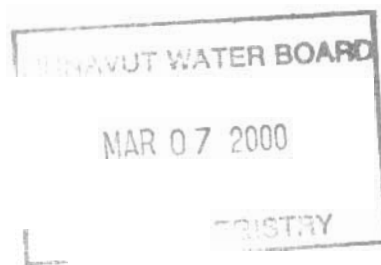
AMENDMENT
HAZARDOUS INGREDIENTS (550X)

Material or component	WT% Hazard data
COPOLYACRYLAMIDE/SODIUM ACRYLATE	Not considered hazardous

ENVIRONMENTAL

DEGRADABILITY/AQUATIC TOXICITY:	Not determined
OCTANOL/WATER PARTITION COEFFICIENT:	Not determined
WASTE DISPOSAL METHODS:	Incineration and/or disposal in Chemical Landfill. Disposer must comply with federal, provincial and local disposal or discharge laws.
RCRA STATUS OF UNUSED MATERIAL IF DISCARDED:	Not a "Hazardous Waste".
HAZARDOUS WASTE NUMBER:	Not available
REPORTABLE QUANTITY:	EPA 40 CFR (CERCLA 102): Not applicable
THRESHOLD PLANNING QUANTITY:	EPA 40 CFR 355 (SERA 301-304): Not applicable
TOXIC CHEMICAL RELEASE REPORTING:	EPA 40 CFR 372 (SERA 311-313): Not applicable
EPA HAZARD CLASSIFICATION CODE:	ACUTE - YES FIRE - NO CHRONIC - NO PRESSURE - NO REACTIVE - NO
HMIS AND NFPA RATINGS:	HMIS NFPA
HEALTH	1
FLAMMABILITY	0
REACTIVITY	1
SPECIAL	Not applicable

APPENDIX 5: FUELS AND LUBRICANTS MSDS SHEETS



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MATERIAL SAFETY DATA SHEET



Date Prepared: February 24, 1994
Revised: April 8, 1993
MSDS Number: 020270

1. PRODUCT INFORMATION

Product Identifier: VARSOL DX 3139 SOLVENT

Application and Use:
Solvent, diluent, chemical feedstock, or fuel

Product Description:
Aliphatic hydrocarbon

CAS number: 8052-41-3

REGULATORY CLASSIFICATION

WHMIS Information:
Class B, Division 3 Combustible Liquids

TDG Information (Rail/Road):
PIN Number: UN 1256
Shipping Name: Naphtha, solvent
Packing Group: III
Primary TDG Class: 3.3

Canadian Environmental Protection Act (CEPA):
All components of this product are either on the Domestic Substances List (DSL) or exempt.

EMERGENCY TELEPHONE NUMBER MANUFACTURER/SUPPLIER

Health/Transportation:
24 Hour Service (519) 339-2145

IMPERIAL OIL
Products Division
111 ST CLAIR AVENUE W
Toronto, Ontario
M5W 1K3
(416) 968-4111

2. REGULATED COMPONENTS

The following component data is defined in accordance with sub-paragraph 1)(i) to (iv) or paragraph 14(a) of the Hazardous Products Act.

ME	%	CAS	LD50	LC50
Stoddard solvent	100	8052-41-3	> 5 g/kg orl rat	> 5 g/m3 rat

3. TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Spec Gravity: 0.78 at 15.5 deg C
Vap Pres: 1.3 kPa at 38 deg C
Solubility in Water: Negligible
Boiling Point: 157 to 200 deg C
Freezing/Melting Point: < -55 deg C
Viscosity: 1.22 cSt at 25 deg C
Vapour Density (air=1): 5
Evaporation Rate: 0.12
% Volatile: 100
Molecular Wt: 144
Odour: Mild petroleum odour
Appearance: Clear, colourless liquid

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

High vapour/aerosol concentrations (greater than approximately 1000 ppm) are irritating to the eyes and the respiratory tract, and may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects, including death.

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
Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause mild to severe pulmonary injury and possibly death

OCCUPATIONAL EXPOSURE LIMIT

ACGIH RECOMMENDS:

For Stoddard Solvent, 100 ppm (525 mg/m3)

MANUFACTURER RECOMMENDS:

200 ppm based on composition.

Local regulated limits may vary

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.

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 container closed. Handle and open containers with care. Store in a cool, well ventilated place away from incompatible materials. DO NOT handle or store near an open flame, heat, or other sources of ignition. Protect material from direct sunlight. Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures. DO NOT pressurize, cut, heat, or weld containers. Empty product containers may contain product residue. DO NOT reuse empty containers without commercial cleaning or reconditioning.

SPILL CONTROL AND DISPOSAL:

Consult an expert on the disposal of recovered material. Ensure disposal in compliance with government requirements and ensure conformity to local disposal regulations. Notify the appropriate authorities immediately.

Please turn over



MATERIAL SAFETY DATA SHEET

Date Prepared May 18, 1995
Supersedes April 13, 1994
MSDS Number 000115

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier LIGHT DISTILLATE (DYED OR CLEAR)
DIESEL ARCTIC (DYED OR CLEAR)
DIESEL DEW (DYED OR CLEAR)
DIESEL FUEL LIGHT (DYED OR CLEAR)
DIESEL LIGHT (LOW SULFUR)
DIESEL 60 (DYED OR CLEAR)
ESSO DIESEL ARCTIC (DYED OR CLEAR)
ESSO DIESEL DEW
ESSO DIESEL FUEL LIGHT
ESSO DIESEL FUEL LIGHT (DYED OR CLEAR)
ESSO DIESEL FUEL OIL 50 (DYED OR CLEAR)
ESSO DIESEL FUEL 60 (DYED OR CLEAR)
ESSO DIESEL 60 (DYED OR CLEAR)
ESSO RAILROAD DIESEL 50 (DYED OR CLEAR)
ESSO STOVE OIL (DYED OR CLEAR)
ESSO STOVE QUALITY COMMERCIAL FUEL
ESSO STOVE QUALITY FURNACE FUEL
ESSO STOVE QUALITY HEATING OIL (DYED OR CLEAR)
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STOVE OIL (DYED OR CLEAR)
STOVE QUALITY FURNACE FUEL
STOVE QUALITY HEATING OIL
STOVE QUALITY HEATING OIL (DYED OR CLEAR)

Application and Use
Clean burning, low sulphur, low temperature operability type light distillate used in liquid fuel burning equipment for heating and/or as a fuel for use in an internal combustion engine of the compression type

Product Description

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

REGULATORY CLASSIFICATION

WHMIS:

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

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt.

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name: Fuel oil
Class: Flammable liquid 3.3 Packing Group: III
PIN Number: UN1202 Guide Number: 123

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr (519) 339-2145
Technical Info (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(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 #
Kerosene, straight run	0-100 v/v	8008-20-6 LD50: > 5g/kg, oral, rat
Light Atmospheric Gas Oil	0-100 v/v	64741-44-2
Light Hydrocracked Distillate	0-100 v/v	64741-77-1

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: not available
Viscosity: 1.30 cSt at 40 deg C
to 2.40 cSt at 40 deg C
Vapour Density: 4
Boiling Point: 180 to 320 deg C
Evaporation rate: < 1 (1 = n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: -39 deg C D97
Odour Threshold: not available
Vapour Pressure: 4 kPa at 38 deg C
Density: 0.82 g/cc at 15 deg C
Appearance/odour: White or pale yellow liquid, petroleum odour

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

Negligible hazard at normal temperatures (up to 38 deg C)
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
Avoid breathing vapours or mists

EYE CONTACT:

Slightly irritating, but will not injure eye tissue.

SKIN CONTACT:

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

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

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:
Oral: LD50 > 5000 mg/kg (Rat)
Dermal: LD50 > 2000 mg/kg (Rabbit)
Inhalation: LC50 > 2500 mg/m3 (Rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
100 ppm based on composition.

Local regulated limits may vary.

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:

Immediately flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun. If irritation persists, seek medical attention.

Please turn over



MATERIAL SAFETY DATA SHEET

Date Prepared: April 13, 1994
Supersedes: July 18, 1991
MSDS Number: 000116

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier: MIDDLE DISTILLATE (DYED OR CLEAR)
COMMERCIAL FUEL
COMMERCIAL MARINE DIESEL FUEL
DIESEL FUEL (DYED OR CLEAR)
DIESEL FUEL FOR EPC REFUELLING
DIESEL QUALITY FURNACE FUEL (DYED OR CLEAR)
DIESEL QUALITY HEATING OIL (DYED OR CLEAR)
ESSO COMMERCIAL FUEL (DYED OR CLEAR)
ESSO DIESEL FUEL
ESSO DIESEL FUEL LS
ESSO DIESEL QUALITY COMMERCIAL FUEL (DYED OR CLEAR)
ESSO DIESEL QUALITY FURNACE FUEL
ESSO DIESEL QUALITY HEATING OIL
ESSO FURNACE FUEL (DYED OR CLEAR)
ESSO FURNACE OIL (DYED OR CLEAR)
ESSO HEATING OIL (DYED OR CLEAR)
ESSO MARINE DIESEL FUEL (DYED OR CLEAR)
ESSO MARINE GAS OIL (DYED OR CLEAR)
ESSO RAILROAD DIESEL (DYED OR CLEAR)
ESSO RAILROAD DIESEL FUEL
ESSO RAILROAD DIESEL FUEL #3 (DYED OR CLEAR)
ESSO TOBACCO CURING OIL
ESSO 3-GP-11M
ESSO 3-GP-15M
FUEL OIL 75
FUEL OIL 76
FURNACE FUEL (DYED OR CLEAR)
FURNACE FUEL OIL (DYED OR CLEAR)
HEATING OIL (DYED OR CLEAR)
IRVING LOW SULFUR DIESEL FUEL
LOW SULFUR DIESEL
LOW SULFUR DIESEL (EXPORT (DYED))
MARINE DIESEL (DYED OR CLEAR)
MARINE DIESEL - POUR DEPRESSED (DYED OR CLEAR)
MARINE GAS OIL (DYED OR CLEAR)
NAVAL FUEL OIL 3-GP-11M (DYED)
NO. 2 FUEL OIL
3-GP-11M
3-GP-15M

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

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt.

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name: Fuel oil
Class: Flammable liquid 3.3
PIN Number: UN1202
Packing Group: III
Guide Number: 123

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr: (519) 339-2145
Technical Info: (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(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	> 99.9 v/v	68476-30-2

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: not available
Viscosity: 1.30 cSt at 40 deg C
to 11.00 cSt at 40 deg C
Vapour Density: 4
Boiling Point: 150 to 370 deg C
Evaporation rate: < 1 (1 = n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: not available
Odour Threshold: not available
Vapour Pressure: 4 kPa at 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:

Negligible hazard at normal temperatures (up to 38 deg C).
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 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:

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

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

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:
Oral: LD50 > 5000 mg/kg (Rat)
Dermal: LD50 > 2000 mg/kg (Rabbit)
Inhalation: LC50 > 2500 mg/m3 (Rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
100 ppm based on composition.

Local regulated limits may vary.

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.

Please turn over

Date Prepared: October 31, 1995
Supersedes: April 4, 1994
MSDS Number: 360040

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier: ESSO HD ANTIFREEZE (GM6038M)

Application and Use:
Engine antifreeze coolant

Product Description:

A glycol type antifreeze

REGULATORY CLASSIFICATION

WHMIS:

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

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt.

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name: Compounds, Anti-Freeze
Class: Not regulated
PIN Number: Not regulated
Packing Group: Not regulated
Guide Number: 134

Please be aware that other regulations may apply

TELEPHONE NUMBERS

Emergency 24 hr. (519) 339-2145
Technical Info. (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(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 #
Monoethylene Glycol	80-90 v/v	107-21-1
		LD50: 8.5g/kg, orl, rat LD50: 19g/kg, skn, rbt

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: not available
Viscosity: > 19.10 cSt at 20 deg C
Vapour Density: not available
Boiling Point: 166 deg C
Evaporation rate: < 1 (1 = n-butylacetate)
Solubility in water: 100.00%
Freezing/Pour Point: not available
pH: 11.0
Odour Threshold: not available
Vapour Pressure: < 1 kPa at 38 deg C
Density: 1.11 g/cc at 16 deg C
Appearance/odour: A green coloured liquid, with a sweet smell.

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.
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.
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.

INGESTION:

Moderately toxic

CHRONIC:

Contains ethylene glycol (EG). Repeated high dose exposure to EG by ingestion (animal studies) has caused kidney damage, brain damage, degeneration of the liver, changes in blood chemistry and circulating blood cells. Prolonged and/or repeated exposures may cause similar effects in humans.
Ethylene glycol has been shown to cause developmental and reproductive effects at high dose levels in laboratory animals. The relationship of these results to humans has not been fully established.

This product contains Diethylene Glycol (DEG). Prolonged and repeated exposure through ingestion of DEG may result in toxic effects on the kidney.

ACUTE TOXICITY DATA:

Based on animal and human testing data from similar materials and products, the acute toxicity of this product is expected to be:
Oral: LD50 > 1300 mg/kg (human)
LD50 > 8500 mg/kg (rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
For diethylene glycol, the Supplier recommends an exposure limit of 10 mg/m³ (aerosol) and 50 ppm (total), based upon the AIHA WEEL.

ACGIH recommends:
For Ethylene Glycol aerosol, a ceiling limit of 39.4 ppm (100 mg/m³).

Local regulated limits may vary.

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, induce vomiting only if victim is conscious.
Get prompt medical attention. DO NOT attempt to give anything by mouth to an unconscious person.

6. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTION:

The selection of personal protective equipment varies, depending upon conditions of use.
In open systems where contact is likely, wear safety goggles, chemical-resistant overalls, and chemically impervious gloves.
Where only incidental contact is likely, wear safety glasses with side shields. No other special precautions are necessary provided skin/eye contact is avoided.
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

MATERIAL SAFETY DATA SHEET



Date Prepared April 13, 1994
Supersedes March 9, 1994
MSDS Number 000107

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier AVIATION GASOLINE
AVIATION GASOLINE 100LL
ESSO AVIATION GASOLINE 100LL

Application and Use
Aviation fuel for Piston derived aircraft engines

FOR AVIATION USE ONLY

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

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic
Substances List (DSL) or are exempt

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 24 hr. (519) 339-2145
Technical Info. (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(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	> 99 v/v	8006-61-9	LD50 > 18ml/kg,orf,rat LD50 > 5ml/kg,skn,rbt
Tetraethyl Lead	< 1 v/v	78-00-2	LD50 < .02g/Kg,ing,rat LD50 < .02g/Kg,skn,rat LC50: 6,ppm,inh,rat

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: not available
Viscosity: 0.80 cSt at 20 deg C
Vapour Density: 3.2
Boiling Point: 25 to 170 deg C
Evaporation rate: > 1 (1 = n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: -58 deg C less than
Odour Threshold: not available
Vapour Pressure 38 kPa to 48 kPa at 38 deg C
Density 0.70 g/cc at 15 deg C
Appearance/odour: Blue 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
Avoid breathing vapours or mists
Contains small amounts of tetraalkyl lead, 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

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:

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:

The International Agency for Research on Cancer (IARC) has evaluated gasoline and found it to be a possible human carcinogen.
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.

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:
Oral : LD50 > 18 ml/kg (Rat)
Dermal : LD50 > 5 ml/kg (Rabbit)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
For Benzene (skin) 1) 5 ppm TWA for 8 hrs/day 2) 3 ppm TWA for 12 hrs/day 3) 250 ppm minutes for 5 to 30 minutes.

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.
For Benzene, the ACGIH recommends a TLV of 10 ppm (30 mg/m³), and describes it as a substance of suspect carcinogenic potential in man

Local regulated limits may vary.

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:

DO NOT induce vomiting since it is important that no amount of the material should enter the lungs (aspiration). Keep at rest. Get prompt medical attention.

Please turn over

IMPERIAL OIL

Products Division

AVIATION GASOLINE

MATERIAL SAFETY DATA SHEET



ate Prepared May 03, 1994
upersedes: August 9, 1989
MSDS Number: 229738

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier: EASYMIX

Application and Use:
Premium quality low ash engine oil for use in most air-cooled,
two-cycle engines

Product Description:

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

REGULATORY CLASSIFICATION

WHMIS:

Class B, Division 3: Combustible Liquids

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic
Substances List (DSL) or are exempt.

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name: Petroleum Oil
Class: Flammable Liquid 3.3 Packing Group: III
PIN Number: UN1270 Guide Number: 109

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr. (519) 339-2145
Technical Info. (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(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	8052-41-3

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES.

Physical State: Liquid
Specific gravity: not available
Viscosity: 33.40 cSt at 40 deg C
Vapour Density: not available
Boiling Point: 150 to 615 deg C
Evaporation rate: < 1 (1 = n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: -39 deg C D97
Odour Threshold: not available
Vapour Pressure: 4.2 kPa at 20 deg C
Density: 0.90 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.
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.
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:

Low toxicity.

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products,
the acute toxicity of this product is expected to be:

Oral : LD50 > 5000 mg/kg (Rat)
Dermal : LD50 > 2000 mg/kg (Rabbit)
Inhalation : LC50 > 2500 mg/m3 (Rat)

OCCUPATIONAL EXPOSURE LIMIT:

ACGIH recommends:
For oil mists, 5 mg/m3
For Stoddard Solvent, 100 ppm (525 mg/m3)

Local regulated limits may vary.

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.
In keeping with good personal hygiene practices, wash hands thoroughly
after handling the material.
Do not handle or store near an open flame, sources of heat, or sources
of ignition.
Empty containers may contain product residue. Do not pressurize
cut, heat, or weld empty containers. Do not reuse empty containers
without commercial cleaning or reconditioning.

Please turn over

MATERIAL SAFETY DATA SHEET



ate Prepared: May 03, 1994
upersedes: April 06, 1993
MSDS Number: 229760

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.

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic
Substances List (DSL) or are exempt.

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name: Petroleum Oil
Class: Flammable Liquid 3.3
PIN Number: UN1270
Packing Group: III
Guide Number: 109

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr. (519) 339-2145
Technical Info. (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(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	8052-41-3

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: not available
Viscosity: 21.40 cSt at 40 deg C
Vapour Density: not available
Boiling Point: 150 to 615 deg C
Evaporation rate: < 1 (1 = n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: -45 deg C D97
Odour Threshold: not available
Vapour Pressure: 4.2 kPa at 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.
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.
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:

Low toxicity.

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products,
the acute toxicity of this product is expected to be:
Oral : LD50 > 5000 mg/kg (Rat)
Dermal : LD50 > 2000 mg/kg (Rabbit)
Inhalation : LC50 > 2500 mg/m3 (Rat)

OCCUPATIONAL EXPOSURE LIMIT:

ACGIH recommends:
For oil mists, 5 mg/m3.
For Stoddard Solvent, 100 ppm (525 mg/m3).

Local regulated limits may vary.

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.
In keeping with good personal hygiene practices, wash hands thoroughly
after handling the material.
Do not handle or store near an open flame, sources of heat, or sources
of ignition.
Do not breathe gas, vapour or mist.
Empty containers may contain product residue. Do not pressurize
cut, heat, or weld empty containers. Do not reuse empty containers
without commercial cleaning or reconditioning.

Please turn over



MATERIAL SAFETY DATA SHEET

Date Prepared May 18, 1995
Supersedes April 07, 1994
MSDS Number 000112

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier HIGH FLASH TYPE TURBINE AVIATION FUEL
ESSO JET 5
ESSO TURBO FUEL 5
JET 5
TURBO FUEL 5
3GP-24M

Application and Use
High flash point aviation turbine fuel for on board Naval vessels

Product Description

A mixture of aliphatic and aromatic hydrocarbons and additives

REGULATORY CLASSIFICATION

WHMIS:

Class B, Division 3: Combustible Liquids.
Class D, Division 2, Subdivision A: Very Toxic Material.
Class D, Division 2, Subdivision B: Toxic Material

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt.

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name: Fuel, Aviation, Turbine engine
Class: Flammable liquid 3.3 Packing Group: III
PIN Number: UN1863 Guide Number: 121

Please be aware that other regulations may apply

TELEPHONE NUMBERS

Emergency 24 hr (519) 339-2145
Technical Info (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(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 #
Kerosene, straight run	> 99 v/v	8008-20-6 LD50: > 5g/kg, oral, rat
Diethylene Glycol Monomethyl Ether	0-0.2 v/v	111-77-3 LD50: 9.2g/kg, oral, rat LD50: 0.6g/kg, skin, rabbit

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: not available
Viscosity: 8.00 cSt at -20 deg C
Vapour Density: 4
Boiling Point: 140 to 290 deg C
Evaporation rate: < 1 (1 = n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: -46 deg C D97
Odour Threshold: not available
Vapour Pressure: 4 kPa at 38 deg C
Density: 0.82 g/cc at 15 deg C
Appearance/odour: White or pale yellow liquid, petroleum odour

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

Low toxicity
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.
Avoid breathing vapours or mists.

EYE CONTACT:

Slightly irritating, but will not injure eye tissue

SKIN CONTACT:

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

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

Contains diethylene glycol monomethyl ether (DIEGME). Prolonged and repeated exposure through inhalation or extensive skin contact with DIEGME may result in toxic effects on the kidneys, the reproductive system and/or the embryo/fetus.

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:
Oral LD50 > 5000 mg/kg (Rat)
Dermal LD50 > 2000 mg/kg (Rabbit)
Inhalation LC50 > 2500 mg/m3 (Rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
100 ppm based on composition.

Local regulated limits may vary.

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:

Immediately flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun. If irritation persists, seek medical attention.

INGESTION:

DO NOT induce vomiting since it is important that no amount of the material should enter the lungs (aspiration). 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 skin and eye contact is unlikely, but may occur as a result of short and/or periodic exposures, wear long sleeves and safety glasses with side shields.
Where concentrations in air may exceed the occupational exposure limits

Please turn over



MATERIAL SAFETY DATA SHEET

Date Prepared March 29, 1995
Supersedes May 5, 1994
MSDS Number 027020

1. PRODUCT INFORMATION

Product Identifier IMPERIAL XYLENE

Application and Use
Solvent diluent, chemical feedstock, or fuel

Product Description
Aromatic hydrocarbon

CAS number 1330-20-7

REGULATORY CLASSIFICATION

WHMIS Information
Class B, Division 2 Flammable Liquids
Class D, Division 2, Subdivision B Toxic Material

TDG Information (Rail/Road)
PIN Number UN 1993
Shipping Name Flammable liquids, n.o.s.
Hazardous Substance (Ethyl Benzene, Xylenes)
Packing Group III
Primary TDG Class 3
Subsidiary TDG Class 9.2

Canadian Environmental Protection Act (CEPA):
All components of this product are either on the Domestic Substances List (DSL) or exempt.

EMERGENCY TELEPHONE NUMBER

Health/Transportation
24 Hour Service (519) 339-2145

MANUFACTURER/SUPPLIER

IMPERIAL OIL
Products Division
111 ST CLAIR AVENUE W.
Toronto, Ontario
M5W 1K3
(416) 968-4111

2. REGULATED COMPONENTS

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

NAME	% (v/v)	CAS	
Xylenes	60-100	1330-20-7	LD50: 4 g/kg ori rat LC50: 6,500 ppm rat
Ethyl benzene	10-30	100-41-4	LD50: 3.5 g/kg ing rat 17.8 g/kg skn rat

3. TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Spec Gravity 0.87 at 15.5 deg C
Vap Pres. 1.893 kPa at 38 deg C Approximate
Solubility in Water: 0.02% at 25 deg C
Boiling Point: 139 to 141 deg C
Freezing/Melting Point: -35 deg C
Viscosity: 0.65 cSt at 25 deg C Approximate
Vapour Density (air = 1): 3.7
Evaporation Rate: 0.8 Approximate
% Volatile: 100
Molecular Wt: 106
Odour: Aromatic odour
Appearance: Clear, colorless liquid

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

High vapour/aerosol concentrations (greater than approximately 1000 ppm) are irritating to the eyes and the respiratory tract, and may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects, including death.
Negligible hazard at normal temperatures (up to 38 deg C).

EYE CONTACT:

Irritating, but will not injure eye tissue

SKIN CONTACT:

Frequent or prolonged contact may irritate the skin.
Low toxicity.
Brief contact with the liquid will not result in significant irritation unless evaporation is prevented.
Skin contact may aggravate an existing dermatitis condition.

INGESTION:

Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause mild to severe pulmonary injury and possibly death.
Low toxicity.

SPECIAL HEALTH PRECAUTIONS:

Health studies have shown that many petroleum hydrocarbons pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

OCCUPATIONAL EXPOSURE LIMIT

ACGIH RECOMMENDS:

For Xylene, 100 ppm (434 mg/m³)
For Ethyl Benzene, 100 ppm (434 mg/m³)

Local regulated limits may vary

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.

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.

HANDLING, STORAGE AND SHIPPING:

Keep container closed. Handle and open containers with care.
Store in a cool, well ventilated place away from incompatible materials.
DO NOT handle or store near an open flame, heat, or other sources of ignition. Protect material from direct sunlight.
Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures.

Please turn over

MATERIAL SAFETY DATA SHEET



Date Prepared: February 24, 1994
Supersedes: July 18, 1991
MSDS Number: 028010

1. PRODUCT INFORMATION

Product Identifier: ESSO VARSOL

Application and Use:
Solvent, diluent, chemical feedstock, or fuel

Product Description:
Aliphatic hydrocarbon.

CAS number: 8052-41-3

REGULATORY CLASSIFICATION

WHMIS Information:
Class B, Division 3: Combustible Liquids

TDG Information (Rail/Road):
PIN Number: UN 1256
Shipping Name: Naphtha, solvent
Packing Group: III
Primary TDG: Class 3.3

Canadian Environmental Protection Act (CEPA):
All components of this product are either on the Domestic Substances List (DSL) or exempt.

EMERGENCY TELEPHONE NUMBER MANUFACTURER/SUPPLIER

Health/Transportation
24 Hour Service (519) 339-2145

IMPERIAL OIL
Products Division
111 ST CLAIR AVENUE W.
Toronto, Ontario
M5W 1K3
(416) 968-4111

2. REGULATED COMPONENTS

The following component data is defined in accordance with sub-paragraph (a)(i) to (iv) or paragraph 14(a) of the Hazardous Products Act.

AME	%	CAS	
Stoddard solvent	100	8052-41-3	LD50: > 5 g/kg or rat LC50: > 5 g/m3 rat

3. TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Spec. Gravity: 0.78 at 15.5 deg C
Vap. Pres.: < 0.133 kPa at 20 deg C
Solubility in Water: < 0.01% at 25 deg C
Boiling Point: 156 to 197 deg C
Freezing/Melting Point: -58 deg C
Viscosity: 1.14 cST at 25 deg C
Vapour Density (air = 1): 4.8
Evaporation Rate: 0.1 Approximately
% Volatile: 100
Odour: Mild petroleum odor.
Appearance: Clear, colorless liquid.

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

High vapour/aerosol concentrations (greater than approximately 1000 ppm) are irritating to the eyes and the respiratory tract, and may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects, including death.

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)
Skin contact may aggravate an existing dermatitis condition

INGESTION:

Minimal toxicity.
Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause mild to severe pulmonary injury and possibly death.

SPECIAL HEALTH PRECAUTIONS:

Health studies have shown that many petroleum hydrocarbons pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

OCCUPATIONAL EXPOSURE LIMIT

ACGIH RECOMMENDS:

For Trimethylbenzene, 25 ppm (123 mg/m3)
For Stoddard Solvent, 100 ppm (525 mg/m3)

MANUFACTURER RECOMMENDS:

100 ppm based on composition.

Local regulated limits may vary.

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:

Immediately flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun.

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 container closed. Handle and open containers with care. Store in a cool, well ventilated place away from incompatible materials. DO NOT handle or store near an open flame, heat, or other sources of ignition. Protect material from direct sunlight. Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures. DO NOT pressurize, cut, heat, or weld containers. Empty product containers may contain product residue. DO NOT reuse empty containers without commercial cleaning or reconditioning.

Please turn over

MATERIAL SAFETY DATA SHEET



Date Prepared: May 10, 1994
Supersedes: June 20, 1993
MSDS Number: 028355

1. PRODUCT INFORMATION

Product Identifier: ESSO IOSOL

Application and Use
Solvent, diluent, chemical feedstock, or fuel.

Product Description:
Aliphatic hydrocarbon.

CAS number: 64742-49-0

REGULATORY CLASSIFICATION

WHMIS Information
Class B, Division 2, Flammable Liquids
Class D, Division 2, Subdivision B, Toxic Material

TDG Information (Rail/Road):
PIN Number: UN 1255
Shipping Name: Naphtha, petroleum
Hazardous Substance: Naphtha, Petroleum
Packing Group: II
Primary TDG: Class 3.1

Canadian Environmental Protection Act (CEPA):
All components of this product are either on the Domestic Substances List (DSL) or exempt.

EMERGENCY TELEPHONE NUMBER	MANUFACTURER/SUPPLIER
Health/Transportation 24 Hour Service (519) 339-2145	IMPERIAL OIL Products Division 111 ST. CLAIR AVENUE W Toronto, Ontario M5W 1K3 (416) 968-4111

REGULATED COMPONENTS

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

NAME	%	CAS
Light naphtha - Hydrotreated	100	64742-49-0

3. TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Spec. Gravity: 0.68 at 15.6 deg C
Vap. Pres.: 12.983 kPa at 20 deg C Approximate
Solubility in Water: < 0.01% at 25 deg C
Boiling Point: 64 to 96 deg C Approximate
Freezing/Melting Point: -54 deg C
Viscosity: 0.49 cSt at 25 deg C Approximate
Vapour Density (air = 1): 3
Evaporation Rate: 5.6 Approximate
% Volatile: 100
Odour: Mild petroleum odour.
Appearance: Clear, colourless liquid.

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

High vapour/aerosol concentrations (greater than approximately 1000 ppm) are irritating to the eyes and the respiratory tract, and may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, central nervous system defects, brain damage and possibly death.

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:

Minimal toxicity
Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause mild to severe pulmonary injury and possibly death.

CHRONIC:

Contains n-Hexane. Prolonged and/or repeated exposure to n-Hexane may cause progressive and potentially irreversible damage to the peripheral nervous system, particularly in the arms and legs.
Simultaneous overexposure to the vapours of n-Hexane and Methyl Ethyl Ketone (MEK) or to n-Hexane and Methyl Isobutyl Ketone (MIBK) can increase the risk of adverse effects from n-Hexane on the peripheral nervous system.

SPECIAL HEALTH PRECAUTIONS:

Health studies have shown that many petroleum hydrocarbons pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

OCCUPATIONAL EXPOSURE LIMIT

ACGIH RECOMMENDS:

For Toluene, 50 ppm (188 mg/m³).
For n-Hexane, 50 ppm (176 mg/m³); for other isomers, 500 ppm (1760 mg/m³).
For Trimethylbenzene, 25 ppm (123 mg/m³).
For Cyclohexane, 300 ppm (1030 mg/m³).

MANUFACTURER RECOMMENDS:

100 ppm based on composition.

Local regulated limits may vary.

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:

Immediately flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun.

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



Imperial Oil

MATERIAL SAFETY DATA SHEET

Date Prepared: October 31, 1995
Supersedes: April 4, 1994
MSDS Number: 360000

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier: ESSO RAD

Application and Use:
Engine antifreeze coolant

Product Description:

A glycol type antifreeze

REGULATORY CLASSIFICATION

WHMIS:

Class D, Division 2, Subdivision A: Very Toxic Material

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name: Compounds, Anti-Freeze
Class: Not regulated Packing Group: Not regulated
PIN Number: Not regulated Guide Number: 134

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr. (519) 339-2145
Technical Info. (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(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 #
Monoethylene Glycol	80-90 v/v	107-21-1 LD50: 8.5g/kg, ori, rat LD50: 19g/kg, skn, rbt

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: not available
Viscosity: > 19.10 cSt at 20 deg C
Vapour Density: not available
Boiling Point: 166 deg C
Evaporation rate: < 1 (1 = n-butylacetate)
Solubility in water: 100.00%
Freezing/Pour Point: not available
pH: 11.0
Odour Threshold: not available
Vapour Pressure: < 1 kPa at 38 deg C
Density: 1.11 g/cc at 16 deg C
Appearance/odour: A green coloured liquid, with a sweet smell.

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.
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.
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.

INGESTION:

Moderately toxic

CHRONIC:

Contains ethylene glycol (EG). Repeated high dose exposure to EG by ingestion (animal studies) has caused kidney damage, brain damage, degeneration of the liver, changes in blood chemistry and circulating blood cells. Prolonged and/or repeated exposures may cause similar effects in humans.
Ethylene glycol has been shown to cause developmental and reproductive effects at high dose levels in laboratory animals. The relationship of these results to humans has not been fully established.

This product contains Diethylene Glycol (DEG). Prolonged and repeated exposure through ingestion of DEG may result in toxic effects on the kidney.

ACUTE TOXICITY DATA:

Based on animal and human testing data from similar materials and products, the acute toxicity of this product is expected to be:
Oral: LD50 > 1300 mg/kg (human)
LD50 > 8500 mg/kg (rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
For diethylene glycol, the Supplier recommends an exposure limit of 10 mg/m³ (aerosol) and 50 ppm (total), based upon the AIHA WEEL.

ACGIH recommends:
For Ethylene Glycol aerosol, a ceiling limit of 39.4 ppm (100 mg/m³)

Local regulated limits may vary.

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, induce vomiting only if victim is conscious.
Get prompt medical attention. DO NOT attempt to give anything by mouth to an unconscious person.

6. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTION:

The selection of personal protective equipment varies, depending upon conditions of use.
In open systems where contact is likely, wear safety goggles, chemical-resistant overalls, and chemically impervious gloves.
Where only incidental contact is likely, wear safety glasses with side shields. No other special precautions are necessary provided skin/eye contact is avoided.
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

IMPERIAL OIL

Products Division

ESSO RAD

MATERIAL SAFETY DATA SHEET



Date Prepared: May 10, 1994
Supersedes: June 20, 1993
MSDS Number: 027010

1. PRODUCT INFORMATION

Product Identifier: IMPERIAL TOLUENE

Application and Use:
Solvent, diluent, chemical feedstock, or fuel

Product Description:
Aromatic hydrocarbon

CAS number: 108-88-3

REGULATORY CLASSIFICATION

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

TDG Information (Rail/Road):

PIN Number: UN 1294
Shipping Name: Toluene
Packing Group: II
Primary TDG: Class 3.2
Subsidiary TDG: Class 9.2

Canadian Environmental Protection Act (CEPA):
All components of this product are either on the Domestic Substances List (DSL) or exempt.

EMERGENCY TELEPHONE NUMBER MANUFACTURER/SUPPLIER

Health/Transportation

24 Hour Service (519) 339-2145

IMPERIAL OIL
Products Division
111 ST CLAIR AVENUE W.
Toronto, Ontario
M5W 1K3
(416) 968-4111

2. REGULATED COMPONENTS

The following component data is defined in accordance with sub-paragraph 3(a)(i) to (iv) or paragraph 14(a) of the Hazardous Products Act.

NAME	%	CAS	
Toluene	100	108-88-3	LD50: > 2 g/kg skn rbt LC50: 8,000 ppm rat

3. TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Spec. Gravity: 0.87 at 15.5 deg C
Vap. Pres.: 7 kPa at 38 deg C
Solubility in Water: < 0.1% at 20 deg C
Boiling Point: 110 to 111 deg C
Freezing/Melting Point: -95 deg C
Viscosity: 0.65 cSt at 25 deg C
Vapour Density (air = 1): 3.17
Evaporation Rate: 2.1
% Volatile: 100
Molecular Wt: 92
Odour: Aromatic odour.
Appearance: Clear, colourless liquid.

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

High vapour/aerosol concentrations (greater than approximately 1000 ppm) are irritating to the eyes and the respiratory tract, and may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects, including death.
Negligible hazard at normal temperatures (up to 38 deg C).

EYE CONTACT:

Irritating, but will not injure eye tissue.

SKIN CONTACT:

Frequent or prolonged contact may irritate the skin and cause a skin rash (dermatitis).
Brief contact with the liquid will not result in significant irritation unless evaporation is prevented.

INGESTION:

Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause mild to severe pulmonary injury and possibly death.
Low toxicity.

OCCUPATIONAL EXPOSURE LIMIT

ACGIH RECOMMENDS:

For Toluene, 50 ppm (188 mg/m3).

Local regulated limits may vary.

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.

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.

HANDLING, STORAGE AND SHIPPING:

Keep container closed. Handle and open containers with care.
Store in a cool, well ventilated place away from incompatible materials.
DO NOT handle or store near an open flame, heat, or other sources of ignition. Protect material from direct sunlight.
Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures.
DO NOT pressurize, cut, heat, or weld containers.
Empty product containers may contain product residue. DO NOT reuse empty containers without commercial cleaning or reconditioning.

SPILL CONTROL AND DISPOSAL:

Consult an expert on the 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

Esso

Date Prepared April 07, 1994
Supersedes July 18, 1991
MSDS Number 000117

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier INTERMEDIATE RESIDUAL FUEL
ESSO FUEL OIL 46 LS
ESSO MARINE INTERMEDIATE FUEL
FUEL OIL 46
FUEL OIL 46 LS
IMPERIAL ROYAL FUEL OIL
INTERMEDIATE FUEL OIL
MARINE INTERMEDIATE FUEL

Application and Use
Intermediate residual fuel requiring some preheating for use in liquid fuel burning equipment for heating and/or as a fuel in medium to slow speed internal combustion engines

Product Description

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

REGULATORY CLASSIFICATION

WHMIS:

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

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt.

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name: Fuel oil
Class: Flammable liquid 3.3
PIN Number: UN1202
Packing Group: III
Guide Number: 123

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr (519) 339-2145
Technical Info (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(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
Heavy Atmospheric Gas Oil	0-40 v/v	68915-96-8
Light Cat. Cracked Distillate	0-80 v/v	64741-59-9
Cat Cracked Clarified Oil	0-10 v/v	64741-62-4
Oxidized Pitch (petroleum)	0-70 v/v	68187-58-6

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: 0.930 to 0.995 at 15.5 deg C
Viscosity: 12.00 cSt at 50 deg C
to 460.00 cSt at 50 deg C
Vapour Density: > 1
Boiling Point: not available
Evaporation rate: < 1 (1 = n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: not available
Odour Threshold: not available
Vapour Pressure: 0.1 kPa at 15 deg C
Appearance/odour: Black liquid

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

Low toxicity.
Elevated temperatures or mechanical action may form vapours, mists or fumes which may affect various internal body systems.
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.
Avoid breathing vapours or mists.

EYE CONTACT:

Slightly irritating, but will not injure eye tissue

SKIN CONTACT:

Irritating
Frequent or prolonged contact may irritate the skin and cause a skin rash (dermatitis).
Certain components present in this material may be absorbed through the skin in toxic quantities.

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 polycyclic aromatic compounds (PAC's). Prolonged and/or repeated skin contact with certain PAC's has been shown to cause skin cancer. Prolonged and/or repeated exposures by inhalation of certain PAC's may also cause cancer of the lung and of other parts of the body. This material or one of its components has shown evidence of causing mutations in laboratory animals.
Prolonged and/or repeated exposures may cause liver disorder and/or damage

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:

Oral : LD50 > 5000 mg/kg (Rat)
Dermal : LD50 > 2000 mg/kg (Rabbit)
Inhalation : LC50 > 2500 mg/m3 (Rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
For total oil mist and particulate, 0.2 mg/m3 benzene soluble fraction recommended.

Local regulated limits may vary.

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:

Immediately flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun. If irritation persists, seek medical attention.

INGESTION:

DO NOT induce vomiting since it is important that no amount of the material should enter the lungs (aspiration). Keep at rest. Get prompt medical attention.

Please turn over

IMPERIAL OIL

Products Division

INTERMEDIATE RESIDUAL FUEL



MATERIAL SAFETY DATA SHEET

Date Prepared May 17, 1995
Supersedes May 3, 1994
MSDS Number 000113

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier KEROSENE (DYED OR CLEAR)
ESSO KEROSENE
ESSO KEROSENE (DYED)
KEROSENE
KEROSENE (DYED)
KEROSENE FOR UFA

Application and Use:
Light, low sulphur, clean burning distillate fuel for vented heaters and wick lamps

Product Description:

A mixture of petroleum aliphatic, olefinic, naphthenic and aromatic hydrocarbons

REGULATORY CLASSIFICATION

WHMIS:

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

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name: Kerosene
Class: Flammable liquid 3.3 Packing Group: III
PIN Number: UN1223 Guide Number: 122

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr. (519) 339-2145
Technical Info (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(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 #
Kerosene, straight run	100 v/v	8008-20-6 LD50: > 5g/kg, oral, rat

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: not available
Viscosity: 1.00 cSt at 40 deg C
to 1.90 cSt at 40 deg C
Vapour Density: 4.5
Boiling Point: 130 to 288 deg C
Evaporation rate: < 1 (1 = n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: -35 deg C D97
Odour Threshold: not available
Vapour Pressure: < 1 kPa at 38 deg C
Density: 0.80 g/cc at 15 deg C
Appearance/odour: Clear, colourless liquid, petroleum odour

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

Negligible hazard at normal temperatures (up to 38 deg C).
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.
Avoid breathing vapours or mists

EYE CONTACT:

Slightly irritating, but will not injure eye tissue

SKIN CONTACT:

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

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

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:
Oral LD50 > 5000 mg/kg (Rat)
Dermal LD50 > 2000 mg/kg (Rabbit)
Inhalation LC50 > 2500 mg/m3 (Rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
100 ppm based on composition.

Local regulated limits may vary.

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:

Immediately flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun. If irritation persists, seek medical attention.

INGESTION:

DO NOT induce vomiting since it is important that no amount of the material should enter the lungs (aspiration). 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 skin and eye contact is unlikely, but may occur as a result of short and/or periodic exposures, wear long sleeves and 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



MATERIAL SAFETY DATA SHEET

Date Prepared May 18 1995
Supersedes April 13 1994
MSDS Number 000111

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier KEROSENE TYPE AVIATION TURBINE FUEL
ESSO JET A
ESSO JET A1
ESSO TURBO FUEL A
ESSO TURBO FUEL A1
JET A
JET A1
TURBO FUEL A
TURBO FUEL A1
TURBO FUEL A1 F34
TURBO FUEL A1-JPB

Application and Use
Kerosene-type aviation fuel for turbine-powered aircraft

Product Description

A mixture of aliphatic and aromatic hydrocarbons and additives.

REGULATORY CLASSIFICATION

WHMIS:

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

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt.

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name: Fuel, Aviation, Turbine engine
Class: Flammable liquid 3.3 Packing Group: III
PIN Number: UN1863 Guide Number: 121

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr (519) 339-2145
Technical Info (800) 266-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(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 #	
Kerosene, straight run	0-100 v/v	8008-20-6	LD50 > 5g/kg, oral, rat
Light Hydrocracked Distillate	0-100 v/v	64741-77-1	
Ethylene Glycol Monomethyl Ether	0-0.15 v/v	109-86-4	LD50 2.4g/kg, oral, rat LD50 0.8g/kg, oral, rat
Diethylene Glycol Monomethyl Ether	0-0.15 v/v	111-77-3	LD50 9.2g/kg, oral, rat LD50 0.6g/kg, skin, rat

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State Liquid
Specific gravity not available
Viscosity 8.00 cSt at -20 deg C
Vapour Density 4
Boiling Point 140 to 300 deg C
Evaporation rate < 1 (1 = n-butylacetate)
Solubility in water negligible
Freezing/Pour Point -40 deg C MAX
Odour Threshold not available
Vapour Pressure 4 kPa at 38 deg C

Density 0.81 g/cc at 15 deg C
Appearance/odour White or pale yellow liquid, petroleum odour

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

Negligible hazard at normal temperatures (up to 38 deg C)
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
Avoid breathing vapours or mists

EYE CONTACT:

Slightly irritating, but will not injure eye tissue

SKIN CONTACT:

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

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 indicate that materials of similar composition have produced skin cancer in experimental animals. The relationship of these results to humans has not been fully established.
May contain ethylene glycol monomethyl ether (EGME). Prolonged and/or repeated exposure 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.
Contains diethylene glycol monomethyl ether (DEGME). Prolonged and repeated exposure through inhalation or extensive skin contact with DEGME may result in toxic effects on the kidneys, the reproductive system and/or the embryo/fetus

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:
Oral LD50 > 5000 mg/kg (Rat)
Dermal LD50 > 2000 mg/kg (Rabbit)
Inhalation LC50 > 2500 mg/m3 (Rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
100 ppm based on composition.

Local regulated limits may vary

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:

Immediately flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun. If irritation persists, seek medical attention.

INGESTION:

DO NOT induce vomiting since it is important that no amount of the material should enter the lungs (aspiration). Keep at rest. Get prompt medical attention.

Please turn over

Date Prepared February 24, 1994
Supersedes May 5, 1993
MSDS Number 920140

1. PRODUCT INFORMATION

Product Identifier PORTABLE HEATER FUEL

Application and Use
Solvent diluent chemical feedstock, or fuel.

Product Description
Aliphatic hydrocarbon

CAS number 8052-41-3

REGULATORY CLASSIFICATION

WHMIS Information
Class B, Division 3 Combustible Liquids

TDG Information (Rail/Road)
PIN Number UN 1256
Shipping Name Naphtha, solvent
Packing Group III
Primary TDG Class 3

Canadian Environmental Protection Act (CEPA)
All components of this product are either on the Domestic Substances List (DSL) or exempt

EMERGENCY TELEPHONE NUMBER

Health/Transportation
24 Hour Service (519) 339-2145

MANUFACTURER/SUPPLIER

IMPERIAL OIL
Products Division
111 ST CLAIR AVENUE W
Toronto, Ontario
M5W 1K3
(416) 968-4111

2. REGULATED COMPONENTS

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

NAME	% (w/w)	CAS	LD50: > 5 g/kg ori rat LC50: > 5 g/m3 rat
Stoddard solvent	100	8052-41-3	

3. TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

Physical State Liquid
Spec Gravity 0.79 at 15.5 deg C
Vap Pres < 0.1 kPa at 20 deg C
Solubility in Water < 0.01% at 25 deg C
Boiling Point 156 to 197 deg C
Freezing/Melting Point -55 deg C
Viscosity 1.14 cSt at 25 deg C
Vapour Density (air = 1) 4.8
Evaporation Rate 0.1 Approximately
% Volatile 100
Odour Mild petroleum odor.
Appearance Clear, colorless liquid.

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

High vapour/aerosol concentrations (greater than approximately 1000 ppm) are irritating to the eyes and the respiratory tract, and may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects, including death.

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)
Skin contact may aggravate an existing dermatitis condition

INGESTION:

Minimal toxicity
Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause mild to severe pulmonary injury and possibly death

SPECIAL HEALTH PRECAUTIONS:

Health studies have shown that many petroleum hydrocarbons pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

OCCUPATIONAL EXPOSURE LIMIT

ACGIH RECOMMENDS:

For Trimethylbenzene, 25 ppm (123 mg/m3)
For Stoddard Solvent, 100 ppm (525 mg/m3)

MANUFACTURER RECOMMENDS:

100 ppm based on composition

Local regulated limits may vary.

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:

Immediately flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun.

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 container closed. Handle and open containers with care. Store in a cool, well ventilated place away from incompatible materials. DO NOT handle or store near an open flame, heat, or other sources of ignition. Protect material from direct sunlight. Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures. DO NOT pressurize, cut, heat, or weld containers. Empty product containers may contain product residue. DO NOT reuse empty containers without commercial cleaning or reconditioning.

Please turn over



MATERIAL SAFETY DATA SHEET

Date Prepared May 18, 1995
Supersedes April 13, 1994
MSDS Number 000110

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier TURBINE FUEL AVIATION, WIDE CUT TYPE
ESSO JET B
ESSO TURBO FUEL B
JET B
TURBO FUEL B
TURBO FUEL B F40
TURBO FUEL B JP4

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

Product Description

A mixture of aliphatic and aromatic hydrocarbons and additives

REGULATORY CLASSIFICATION

WHMIS:

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

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name Fuel, Aviation, Turbine Engine
Class Flammable Liquid 3.1 Packing Group II
PIN Number UN1863 Guide Number: 120

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr (519) 339-2145
Technical Info (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(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 #
Kerosene, straight run	40-70 v/v	8008-20-6 LD50: > 5g/kg, oral, rat
Naphtha, full range	30-60 v/v	64741-42-0
Ethylene Glycol Monomethyl Ether	0-0.15 v/v	109-86-4 LD50: 2.4g/kg, oral, rat LD50: 0.8g/kg, oral, rabbit
Diethylene Glycol Monomethyl Ether	0-0.15 v/v	111-77-3 LD50: 9.2g/kg, oral, rat LD50: 0.6g/kg, skin, rabbit

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: not available
Viscosity: 0.60 cSt at 40 deg C
Vapour Density: 4
Boiling Point: 40 to 243 deg C
Evaporation rate: < 1 (1 = n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: -53 deg C less than
Odour Threshold: not available
Vapour Pressure: 21 kPa at 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:

Negligible hazard at normal temperatures (up to 38 deg C)
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
Avoid breathing vapours or mists

EYE CONTACT:

Slightly irritating, but will not injure eye tissue

SKIN CONTACT:

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

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:

May contain ethylene glycol monomethyl ether (EGME). Prolonged and/or repeated exposure 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.
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 diethylene glycol monomethyl ether (DIEGME). Prolonged and repeated exposure through inhalation or extensive skin contact with DIEGME may result in toxic effects on the kidneys, the reproductive system and/or the embryo/fetus.

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:
Oral LD50 > 5000 mg/kg (Rat)
Dermal LD50 > 2000 mg/kg (Rabbit)
Inhalation LC50 > 2500 mg/m3 (Rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
100 ppm based on composition
For Benzene (skin) 1) 5 ppm TWA for 8 hrs/day 2) 3 ppm TWA for 12 hrs/day 3) 250 ppm minutes for 5 to 30 minutes.

ACGIH recommends:

For n-Hexane, 50 ppm (180 mg/m3).
For Benzene, the ACGIH recommends a TLV of 10 ppm (30 mg/m3), and describes it as a substance of suspect carcinogenic potential in man.
For 2-Methoxyethanol, (skin) 5 ppm (16 mg/m3).

Local regulated limits may vary

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:

Immediately flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun. If irritation persists, seek medical attention.

Please turn over



MATERIAL SAFETY DATA SHEET

Date Prepared: November 03, 1994
Supersedes: April 11, 1994
MSDS Number: 000108

may be dyed a variety of colours for tax or other purposes; petroleum odour.

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier: UNLEADED GASOLINE (DYED OR CLEAR)
ESSO EXTRA MIDGRADE GASOLINE
ESSO EXTRA MIDGRADE UNLEADED
ESSO MIDGRADE UNLEADED
ESSO PREMIUM UNLEADED
ESSO REGULAR UNLEADED
ESSO SUPER PREMIUM UNLEADED
ESSO SUPREME PREMIUM UNLEADED
ESSO SUPREME 92 PREMIUM UNLEADED
ESSO UNLEADED (REGULAR)
EXXON MIDGRADE UNLEADED
EXXON PREMIUM UNLEADED
EXXON REGULAR UNLEADED
INDOLENE GASOLINE
MIDGRADE GASOLINE
MIDGRADE UNLEADED
PREMIER GASOLINE
PREMIUM UNLEADED
REGULAR UNLEADED

Application and Use:
Unleaded fuel for spark ignited engines. The product name will include "DYED" if the product is dyed for tax purposes.

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
PIN Number: UN1203
Packing Group: II
Guide Number: 119

Please be aware that other regulations may apply.

TELEPHONE NUMBERS

Emergency 24 hr. (519) 339-2145
Technical Info. (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St. Clair Avenue West
Toronto, Ontario
M5W 1K3
(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	> 99 v/v	8006-61-9	LD50 > 18 ml/kg, orl, rat LD50 > 5 ml/kg, skn, rbt
Methyl T-Butyl Ether	0-11 v/v	1634-04-4	LD50: 3.9 g/kg, ing, rat LD50: > 10 g/kg, skn, rbt LC50: 142 Mg/L, inh, rat

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: not available
Viscosity: 0.80 cSt at 20 deg C
Vapour Density: 3.2
Boiling Point: 25 to 210 deg C
Evaporation rate: > 10 (1 = n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: -60 deg C less than
Odour Threshold: not available
Vapour Pressure: 76 kPa to 103 kPa at 38 deg C
Density: 0.73 g/cc at 15 deg C
Appearance/odour: Naturally occurring water white or pale yellow;

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.
Avoid breathing vapours or mists.
Contains small amounts of methylcyclopentadienyl manganese tricarbonyl (MMT), benzene and n-hexane. MMT may cause nervous system, liver and kidney effects. Benzene may cause blood and/or the blood producing system disorder and/or damage; n-hexane may cause peripheral (e.g. fingers, feet, arms etc.) nerve damage. In high concentrations gasoline components may cause central nervous system disorders.

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:

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:

The International Agency for Research on Cancer (IARC) has evaluated gasoline and found it to be a possible human carcinogen.
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.)

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:
Oral : LD50 > 18 ml/kg (Rat)
Dermal : LD50 > 5 ml/kg (Rabbit)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
For gasoline, 100 ppm (300 mg/m3).
For Benzene (skin) 1) 5 ppm TWA for 8 hrs/day 2) 3 ppm TWA for 12 hrs/day 3) 250 ppm minutes for 5 to 30 minutes.
For Methyl-tert-butyl ether, a 15 minute short-term exposure limit (STEL) of 50 ppm.

ACGIH recommends:
For Gasoline, 300 ppm (900 mg/m3).
For n-Hexane, 50 ppm (180 mg/m3).
For Benzene, the ACGIH recommends a TLV of 10 ppm (30 mg/m3), and describes it as a substance of suspect carcinogenic potential in man.

Local regulated limits may vary.

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.

Please turn over



MATERIAL SAFETY DATA SHEET

Date Prepared February 24, 1994
Supersedes May 5, 1993
MSDS Number 020010

1. PRODUCT INFORMATION

Product Identifier: VARSOL 3139 SOLVENT

Application and Use:
Solvent, diluent, chemical feedstock, or fuel

Product Description:
Aliphatic hydrocarbon

CAS number: 8052-41-3

REGULATORY CLASSIFICATION

WHMIS Information:
Class B, Division 3 Combustible Liquids

TDG Information (Rail/Road):
PIN Number: UN 1256
Shipping Name: Naphtha, solvent
Packing Group: III
Primary TDG Class: 3

Canadian Environmental Protection Act (CEPA)
All components of this product are either on the Domestic Substances List (DSL) or exempt.

EMERGENCY TELEPHONE NUMBER

Health/Transportation

24 Hour Service (519) 339-2145

MANUFACTURER/SUPPLIER

IMPERIAL OIL
Products Division
111 ST CLAIR AVENUE W
Toronto, Ontario
M5W 1K3
(416) 968-4111

2. REGULATED COMPONENTS

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

NAME	% (v/v)	CAS	LD50, > 5 g/kg or rat	LC50, > 5 g/m3 rat
Stoddard solvent	100	8052-41-3		

3. TYPICAL PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
Spec. Gravity: 0.79 at 15.5 deg C
Vap. Pres.: < 0.1 kPa at 20 deg C
Solubility in Water: < 0.01% at 25 deg C
Boiling Point: 156 to 197 deg C
Freezing/Melting Point: -58 deg C
Viscosity: 1.14 cSt at 25 deg C
Vapour Density (air = 1): 4.8
Evaporation Rate: 0.1 Approximately
% Volatile: 100
Odour: Mild petroleum odor
Appearance: Clear, colorless liquid

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

High vapour/aerosol concentrations (greater than approximately 1000 ppm) are irritating to the eyes and the respiratory tract, and may cause headaches, dizziness, anesthesia, drowsiness, unconsciousness, and other central nervous system effects, including death.

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).
Skin contact may aggravate an existing dermatitis condition.

INGESTION:

Minimal toxicity.
Small amounts of liquid aspirated into the respiratory system during ingestion or from vomiting may cause mild to severe pulmonary injury and possibly death.

SPECIAL HEALTH PRECAUTIONS:

Health studies have shown that many petroleum hydrocarbons pose potential human health risks which may vary from person to person. As a precaution, exposure to liquids, vapors, mists or fumes should be minimized.

OCCUPATIONAL EXPOSURE LIMIT

ACGIH RECOMMENDS:

For Trimethylbenzene, 25 ppm (123 mg/m3)
For Stoddard Solvent, 100 ppm (525 mg/m3)

MANUFACTURER RECOMMENDS:

100 ppm based on composition

Local regulated limits may vary.

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:

Immediately flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun.

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 container closed. Handle and open containers with care. Store in a cool, well ventilated place away from incompatible materials. DO NOT handle or store near an open flame, heat, or other sources of ignition. Protect material from direct sunlight. Material will accumulate static charges which may cause an electrical spark (ignition source). Use proper grounding procedures. DO NOT pressurize, cut, heat, or weld containers. Empty product containers may contain product residue. DO NOT reuse empty containers without commercial cleaning or reconditioning.

Please turn over

Date Prepared September 18, 1995
Supersedes September 15, 1992
MSDS Number 000103

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier ISOBUTANE

Application and Use
Chemical feedstock, gasoline blending and heating fuel.

Product Description

Colourless, odourless gases composed mainly of C4 hydrocarbons, stored and handled as liquids under pressure

REGULATORY CLASSIFICATION

WHMIS:

Class A - Compressed Gas
Class B, Division 1 Flammable Gases

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt.

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name: Liquified Petroleum Gas (Butane) - Not Odourized
Class: Flammable Gas 2.1 Packing Group: Not regulated
PIN Number: UN1075 Guide Number: 103

Please be aware that other regulations may apply

TELEPHONE NUMBERS

Emergency 24 hr. (519) 339-2145
Technical Info. (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(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 #
Normal Butane	0-50 v/v	106-97-8
Isobutane	50-100 v/v	75-28-5
Propane	0-5 v/v	74-98-6

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Gas
Specific gravity: not available
Vapour Density: 2.01 VAP
Boiling Point: -12 deg C
Evaporation rate: >1 (1 = n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: not available
Odour Threshold: not available
Vapour Pressure: 240 kPa at 16 deg C
Density: 0.56 g/cc at 15 deg C
Appearance/odour: Colourless odourless gas

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

May cause central nervous system disorder (e.g. loss of coordination, weakness, fatigue, mental confusion and blurred vision) and/or damage. Breathing high vapour concentrations (saturated vapours) for a few minutes may be fatal. Saturated vapours can be encountered in confined spaces and/or under conditions of poor ventilation

May cause irritation, breathing failure, coma and death without any warning odour being sensed.
Avoid breathing vapours or mists

EYE CONTACT:

Exposure to rapidly expanding gas or vapourizing liquid may cause frostbite (cold burns) and permanent eye damage

SKIN CONTACT:

Exposure to rapidly expanding gas or vapourizing liquid may cause frostbite (cold burn).

INGESTION:

Not considered to be a hazard.

ACUTE TOXICITY DATA:

Based upon animal test data, the acute toxicity of this product is expected to be:
Inhalation: 4-Hour LC50 = 280,000 ppm (Rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
For Propane, 1000 ppm TWA for 8 hours/day, and 1500 ppm for a 15 minute short term exposure (STEL)
For Isobutane, 800 ppm.

ACGIH recommends
For Butane, 800 ppm (1900 mg/m3)

Local regulated limits may vary

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:

Immediately flush eyes with large amounts of water for at least 15 minutes. Get prompt medical attention.

SKIN CONTACT:

In case of cold burns caused by rapidly expanding gas or vapourizing liquid, get prompt medical attention.

INGESTION:

First aid is not applicable.

6. PREVENTIVE AND CORRECTIVE MEASURES

PERSONAL PROTECTION:

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

In open systems where contact is likely, wear gas-proof goggles, face shield, chemical-resistant overalls, and appropriate thermal/chemical gloves. Where skin and eye contact is unlikely, but may occur as a result of short and/or periodic exposures, wear long sleeves, chemical resistant gloves, gas-proof goggles, and a face shield.

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.

HANDLING, STORAGE AND SHIPPING:

Keep containers closed. Handle and open containers with care. Store in a cool, well ventilated place away from incompatible materials. Empty containers may contain product residue. Do not pressurize cut, heat, or weld empty containers. Do not reuse empty containers without commercial cleaning or reconditioning. Store and load the container at normal (up to 38 deg C) temperature and at atmospheric pressure.

Please turn over

MATERIAL SAFETY DATA SHEET



Date Prepared April 13, 1994
Supersedes April 12, 1994
MSDS Number 000118

Cette fiche signalétique est aussi disponible en français

1. PRODUCT INFORMATION

Product Identifier: HEAVY RESIDUAL FUEL
BUNKER FUEL OIL
HEAVY FUEL OIL
HEAVY FUEL OIL 6101
HEAVY FUEL OIL 6152
HEAVY FUEL OIL 6203
HEAVY FUEL OIL 6302
HEAVY FUEL OIL 6303
NO 6 FUEL OIL

Application and Use
High BTU, high viscosity heavy residual fuel

Product Description

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

REGULATORY CLASSIFICATION

WHMIS:

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

CEPA: CANADIAN ENVIRONMENTAL PROTECTION ACT

All components of this product are either on the Domestic Substances List (DSL) or are exempt.

TRANSPORTATION OF DANGEROUS GOODS INFORMATION

Shipping Name: Fuel oil
Class: Flammable liquid 3.3
PIN Number: UN1202
Packing Group: III
Guide Number: 123

Please be aware that other regulations may apply

TELEPHONE NUMBERS

Emergency 24 hr (519) 339-2145
Technical Info (800) 268-3183

MANUFACTURER/SUPPLIER:

IMPERIAL OIL
Products Division
111 St Clair Avenue West
Toronto, Ontario
M5W 1K3
(416) 966-4111

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
Heavy Atmospheric Gas Oil	0-50 v/v	68915-86-8
Oxidized Pitch (petroleum)	0-70 v/v	68187-58-6
Light Cat. Cracked Distillate	0-40 v/v	64741-59-9
Cat. Cracked Clarified Oil	0-100 v/v	64741-62-4

3. TYPICAL PHYSICAL & CHEMICAL PROPERTIES

Physical State: Liquid
Specific gravity: 0.930 to 1.035 at 15.5 deg C
Viscosity: 200.00 cSt at 50 deg C
to 635.00 cSt at 50 deg C
Vapour Density: > 1
Boiling Point: not available
Evaporation rate: < 1 (1 = n-butylacetate)
Solubility in water: negligible
Freezing/Pour Point: not available
Odour Threshold: not available
Vapour Pressure: 0.1 kPa at 20 deg C
Appearance/odour: Black viscous liquid

4. HEALTH HAZARD INFORMATION

NATURE OF HAZARD

INHALATION:

Low toxicity
Elevated temperatures or mechanical action may form vapours, mists or fumes which may affect various internal body systems.
It is possible for the toxic gas hydrogen sulphide to build up in tanks or other confined spaces that contain this product. Although the gas smells like rotten eggs at low concentrations, it may cause irritation, respiratory collapse, coma and death without necessarily any warning odour being sensed.
Avoid breathing vapours or mists

EYE CONTACT:

Slightly irritating, but will not injure eye tissue

SKIN CONTACT:

Irritating
Frequent or prolonged contact may irritate the skin and cause a skin rash (dermatitis)
Certain components present in this material may be absorbed through the skin in toxic quantities
Exposure to hot material may cause thermal burns

INGESTION:

Low toxicity
Irritating to mouth, throat and stomach and may cause digestive tract disorder and/or damage

CHRONIC:

Contains polycyclic aromatic compounds (PAC's). Prolonged and/or repeated skin contact with certain PAC's has been shown to cause skin cancer. Prolonged and/or repeated exposures by inhalation of certain PAC's may also cause cancer of the lung and of other parts of the body. This material or one of its components has shown evidence of causing mutations in laboratory animals.
Prolonged and/or repeated exposures may cause liver disorder and/or damage

ACUTE TOXICITY DATA:

Based on animal testing data from similar materials and products, the acute toxicity of this product is expected to be:
Oral: LD50 > 5000 mg/kg (Rat)
Dermal: LD50 > 2000 mg/kg (Rabbit)
Inhalation: LC50 > 2500 mg/m3 (Rat)

OCCUPATIONAL EXPOSURE LIMIT:

Manufacturer recommends:
For total oil mist and particulate, 0.2 mg/m3 benzene soluble fraction recommended

Local regulated limits may vary.

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:

Immediately flush with large amounts of water. Use soap if available. Remove contaminated clothing, including shoes, after flushing has begun. If irritation persists, seek medical attention.
For hot material, immediately immerse in or flush affected area with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze and get prompt medical attention.

INGESTION:

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

Please turn over

IMPERIAL OIL

Products Division

HEAVY RESIDUAL FUEL

PRODUCT IDENTIFIER 

AIRCHIME HAND HELD HORN PROPELLANT - 10939

SECTION 6 - TOXICOLOGICAL PROPERTIES**ROUTE OF ENTRY:**CONTACT ☐ SKIN ABSORPTION ☐ EYE CONTACT ☐ INHALATION ☒ INGESTION ☐**EFFECT OF ACUTE EXPOSURE TO PRODUCT**

INHALATION OF HIGH CONCENTRATIONS OF VAPOR IS HARMFUL AND MAY CAUSE HEART IRREGULARITIES, UNCONSCIOUSNESS OR DEATH.

EFFECT OF CHRONIC EXPOSURE TO PRODUCT: Not available**EXPOSURE LIMITS**

None established by OSHA or ACGIH. Producer sets TLV at 1000 ppm

CARCINOGENICITY

Not listed by NTP, IARC, OSHA or ACGIH

SENSITIZATION TO PRODUCT

Not known to be a sensitizer

IRRITANCY OF PRODUCT

High exposure to gas produced reversible eye, skin and respiratory irritation in animals. Liquified gas burns skin (frostbite).

TERATOGENICITY

Not teratogenic in animal tests

REPRODUCTIVE TOXICITY

Not a reproductive toxin in animal tests

MUTAGENICITY

Not mutagenic in animal tests

SYNERGISTIC PRODUCTS

No data available

SECTION 7 - PREVENTIVE MEASURES**PERSONAL PROTECTIVE EQUIPMENT****GLOVES**

Not required under normal horn use conditions.

RESPIRATOR

Not required under normal horn use conditions.

EYE (SPECIFY)

Not required under normal horn use conditions.

FOOTWEAR (SPECIFY)

Not required under normal horn use conditions.

CLOTHING (SPECIFY)

Not required under normal horn use conditions.

OTHER (SPECIFY)

Hearing protection should be used when sounding horn; wear protective clothing and gloves if contact with liquified gas expected.

ENGINEERING CONTROLS (SPECIFY, EG. VENTILATION, ENCLOSED PROCESS)

If use indoors provide adequate ventilation.

LEAK AND SPILL PROCEDURE

Restrict access and ventilate the area. Vent to atmosphere until can is empty.

WASTE DISPOSAL

Do not puncture or incinerate. Dispose in accordance with local waste disposal regulations.

HANDLING PROCEDURES AND EQUIPMENT

CONTENTS UNDER PRESSURE. DO NOT PLACE IN HOT WATER OR NEAR RADIATORS OR OTHER SOURCE OF HEAT.

Wear hearing protection; hold at arms length; and do not tilt, shake or invert can when sounding horn.

STORAGE REQUIREMENTS:

Store in cool, well ventilated, dry area, out of sun and away from sources of heat or flames.

SPECIAL SHIPPING INFORMATION

DOT Description, Refrigerant Gas, N.O.S.(Tetrafluoroethane), 2.2, UN1078, Label Class 2

SECTION 8 - FIRST AID MEASURES**SPECIFIC MEASURES****INHALATION**

IF HIGH CONCENTRATIONS ARE INHALED, IMMEDIATELY REMOVE TO FRESH AIR. KEEP PERSON CALM. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. CALL A PHYSICIAN IMMEDIATELY.

SKIN CONTACT

CONTACT WITH LIQUID CAN CAUSE FROSTBITE., IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. REMOVE CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN.

EYE CONTACT

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. CALL A PHYSICIAN.

INGESTION

INGESTION IS NOT CONSIDERED A POTENTIAL ROUTE FOR EXPOSURE. PRODUCT IS GASEOUS AT NORMAL TEMPERATURE AND PRESSURE.

SECTION 9 - PREPARATION DATE OF MSDS**PREPARED BY:**

L.H. TRUONG - MANAGEMENT

PHONE NUMBER:

(604) 291-8295

DATE:

MAY 1, 1995

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT IDENTIFICATION AND USE

PRODUCT IDENTIFIER : AIRCHIME HAND HELD HORN PROPELLANT - 10939	PRODUCT IDENTIFICATION NUMBER UN1078
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PRODUCT USE : HAND HELD SAFETY HORN CONTAINING LIQUIFIED, COMPRESSED GAS.

MANUFACTURER'S NAME: AIRCHIME MANUFACTURING CO. LTD.

STREET ADDRESS: 1410 BOUNDARY ROAD	CITY : BURNABY	PROVINCE : B.C.	POSTAL CODE: V5K-4V3	TEL. NUMBER : (604) 291-8295 FAX NUMBER : (604) 294-6440
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SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS	%	CAS NUMBER	LD ₅₀ OF INGREDIENT (SPECIFY SPECIES AND ROUTE)	LC ₅₀ OF INGREDIENT (SPECIFY SPECIES)
1,1,1,2-TETRAFLUOROETHANE	100	811-97-2	DATA NOT AVAILABLE	567,000 PPM IN RAT
Also known as HFC 134a; Dymel 134a; Norflurane; R134a				

SECTION 3 - PHYSICAL DATA

PHYSICAL STATE : LIQUID GAS	ODOR AND APPEARANCE : ODOR SLIGHT ETHEREAL AND CLEAR, COLORLESS		ODOR THRESHOLD (PPM) NOT AVAILABLE
VAPOUR PRESSURE : 96 PSIA @ 25 °C (77 °)	VAPOUR DENSITY: 3.18 (AIR = 1)	% VOLATILES : 100 WT%	BOILING POINT: -26.2°C (15.2°F) @ 736mm Hg
PH : NOT AVAILABLE	DENSITY: 1.21 G/CC @ 25°C (77°F)- LIQUID		FREEZING POINT: NOT APPLICABLE
SOLUBILITY IN WATER: 0.15 WT % @ 25 °C & 14.7 PSIA			

SECTION 4 - FIRE AND EXPLOSION DATA

FLAMMABILITY: YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> IF YES, UNDER WHICH CONDITIONS? ▷	
MEAN OF EXTINCTION: Cool cans with water spray to avoid rupture, wear self-contained breathing apparatus.	
FLASH POINT (°C) AND METHOD: NIL	UPPER FLAMMABLE LIMIT (% BY VOLUME): NOT APPLICABLE LOWER FLAMMABLE LIMIT (% BY VOLUME) NOT APPLICABLE
AUTO-IGNITION TEMPERATURE (°C) : GREATER THAN 743 °C (> 1369 °F)	HAZARDOUS COMBUSTION PRODUCTS: Contents may decompose on contact with flame or hot metal surface to form highly toxic and irritating hydrogen fluoride and carbonyl fluoride gases.
EXPLOSION DATA : ▷ Pressurized container can burst violently if punctured, crushed or heated.	SENSITIVITY TO STATIC DISCHARGE NOT APPLICABLE

SECTION 5 - REACTIVITY DATA

CHEMICAL STABILITY: YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> IF YES, UNDER WHICH CONDITIONS? ▷		PRODUCT IS STABLE UNDER NORMAL CONDITION 25 °C AND 14.7 PSIA
INCOMPATIBILITY WITH OTHER SUBSTANCES YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> IF YES, WHICH ONES? ▷		Incompatible with alkali or alkali metals, strong acids and powder Aluminum, Zinc, Beryllium etc..
REACTIVITY AND UNDER WHAT CONDITIONS? Propellant gas is combustible at pressures as low as 5.5 psig at 177°C (351°F) in air at greater than 60% air by volume.		
HAZARDOUS DECOMPOSITION PRODUCTS: Propellant gas decomposes in contact with flames or heated metal surfaces to form toxic and irritating hydrogen fluoride and carbonyl fluoride gases		