Section 15. Regulatory Information and Pictograms

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

WHMIS (Canada) (Pictograms)

HMIS (U.S.A.)

Health Hazard	0
Fire Hazard	1
Reactivity	0
Personal Protection	a

NFPA (U.S.A.)

DSD/DPD (Europe) (Pictograms)

TDG (Canada) (pictograms)

DOT (U.S.A) (Pictograms)

Protective Clothing (Pictograms)

Section 16. Other Information

References	Available upon request.
Other Special Considerations	No additional remark.

Prepared by May on 01/15/96.	**Data entry by May Chau.**
	Print Date: 01/17/96.

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

Continued on Next Page

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

PETRO-CANADA

Material Safety Data Sheet

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

Section 1. Chemical Product and Company Identification

Product Name	**HARMONY AW 22, 32, 46, 68, 80, 100**
Code	490-074, 078, 077, 079, 075, 080. File # W132
DSL	On the DSL list.
Print Date:	01/17/96.
Supplier	PETRO-CANADA P.O. Box 2844, Petro-Canada Centre Calgary, Alberta T2P 3E3
Synonym	None
Chemical Name	Not applicable.
Chemical Family	Petroleum hydrocarbon
Chemical Formula	Not applicable.
In case of Emergency	Petro-Canada Emergency Number: (403) 296-3000 Canutec Transportation Emergency: (613) 996-6666 Poison Control Centre Numbers: Consult local telephone directory for emergency number(s).
Manufacturer	PETRO-CANADA P.O. Box 2844 Petro-Canada Centre Calgary, Alberta T2P 3E3
Material Uses	These products are designed for use as heavy duty hydraulic power transmission fluids and for lubrication where good anti-wear and anti-oxidation properties are required. They would typically be used in high-pressure hydraulic systems, machine tools, presses, compressors, pumps, gear sets, and centralized bearing lubrication systems.

Section 2. Composition/Information on Ingredients

		Exposure Limits (ACGIH)			
Name	**CAS #**	**TLV-TWA(8 h)**	**STEL**	**CEILING**	**% (V/V)**
Mixture of hydrotreated hydrocarbon distillates and additives.	Not applicable	5 mg/m³ (oil mist)	Not applicable	Not applicable	100

Section 3. Hazards Identification.

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

Continued on Next Page

Section 4. First Aid Measures

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

Section 5. Fire-fighting Measures

The Product is:	Class IIIB - combustible (NFPA).
Auto-Ignition Temperature	250°C (482°F)
Flash Points	OPEN CUP: 188°C (370.4°F) (Cleveland, ASTM D92)
Flammable Limits	Not available.
Products of Combustion	Carbon oxides (CO, CO2), smoke and irritating fumes as products of incomplete combustion.
Fire Hazards in Presence of Various Substances	Low fire hazard. This material must be heated before ignition will occur. Avoid contact with strong oxidizing agents, including peroxides, chlorine and strong acids.
Explosion Hazards in Presence of Various Substances	Do not cut, weld, heat, or drill empty container.
Fire Fighting Media and Instructions	Cool containing vessels with water spray in order to prevent pressure build-up, autoignition or explosion. Shut off fuel to fire if it is possible to do so without hazard. SMALL FIRE: Use DRY chemicals, foam, or CO2. LARGE FIRE: Use water spray, fog or foam. *WATER OR FOAM MAY* CAUSE FROTHING. Avoid flushing spilled material into sewers, streams or other bodies of water. For small outdoor fires, portable fire extinguishers may be used, and self contained breathing apparatus (SCBA) may not be required. For all indoor fires and any significant outdoor fires, SCBA is required. Respiratory and eye protection are required for fire fighting personnel.
Special Remarks on Fire Hazards	Flash points COC: 188, 194, 204, 222, 222, 232 °C. (minimum respectively).
Special Remarks on Explosion Hazards	No additional remark.

Section 6. Accidental Release Measures

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

Continued on Next Page

Section 7. Handling and Storage

Handling	Keep away from sources of ignition. Avoid contact with skin and eyes. Practice good personal hygiene. Wash hands after handling and before eating. Launder work clothes frequently. Discard saturated leather goods.
Storage	Store in tightly closed containers in cool, dry, isolated and well-ventilated area.

Section 8. Exposure Controls/Personal Protection

Engineering Controls	For normal application, special ventilation is not necessary. If user's operations generate fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. Make-up air should always be supplied to balance air removed by exhaust ventilation. Ensure that eyewash station and safety shower are close to work-station.
Personal Protection	Safety glasses. For direct contact of more than 2 hours -- VITON or NITRILE gloves are needed. Wear long sleeved clothing to minimize skin contact. Respirator normally not necessary. If mist generated by heating, spraying, etc. wear an organic vapour respirator with a mist filter. All respirators must be NIOSH certified.
Personal Protection in Case of a Large Spill	No additional remarks
Exposure Limits	8-hour TLV-TWA of 5 mg/m³ recommended by Petro-Canada based on ACGIH TLV for oil mists. Consult local authorities for acceptable exposure limits.

Section 9. Physical and Chemical Properties

Physical State and Appearance	Viscous liquid.
Dropping Point	Not available.
Penetration (@ 25°C)	Not available.
Boiling Point	349°C (660.2°F)
Melting Point	Not available.
Specific Gravity	0.86-0.87 (Water = 1)
Vapor Pressure	0.0075 mm of Hg (@ 20°C)
Vapor Density	Not available.
Volatility	Semi to non-volatile.
Odor Threshold	Not available.
Oil / Water Dist. Coeff.	Not available.
Viscosity (@ 40 °C)	21, 30, 45, 64, 84, 96 cSt (typical respectively)
Solubility	Insoluble in cold water.

Odor	Mild petroleum oil like.
Taste	Not available.
Color	Pale, straw-yellow.

Section 10. Stability and Reactivity

Stability	The product is stable under normal conditions of storage.		
Instability Temperature	Not available.		
Conditions to Avoid	Avoid excessive heat. Formation of oil mist.		
Incompatibility with Various Substances	Highly reactive with oxidizing agents.	**Decompostion products:**	COx, SOx, smoke on combustion.
Corrosivity	Not applicable		
Special Remarks on Reactivity	Peroxides, chlorine, strong acids, etc.		

Continued on Next Page

Special Remarks on Corrosivity	No additional remark.

Section 11. Toxicological Information

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

Section 12. Ecological Information

Ecotoxicity	No studies were found.
BOD5 and COD	No studies were found.
Products of Biodegradation	No studies were found.
Toxicity of the Products of Biodegradation	Not available.
Special Remarks on the Products of Biodegradation	No additional remark.

Section 13. Disposal Considerations

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

Section 14. Transport Information

TDG Classification	Not controlled under TDG (Canada).
Special Provisions for Transport	Not applicable.

Continued on Next Page

Section 15. Regulatory Information and Pictograms

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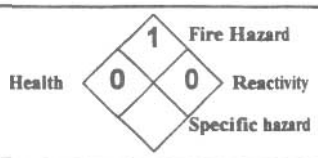
WHMIS (Canada) (Pictograms)

HMIS (U.S.A.)

Health Hazard	0
Fire Hazard	1
Reactivity	0
Personal Protection	a

NFPA (U.S.A.)



DSD/DPD (Europe) (Pictograms)

TDG (Canada) (pictograms)

DOT (U.S.A) (Pictograms)

Protective Clothing (Pictograms)

Section 16. Other Information

References	Available upon request.	
Other Special Considerations	No additional remark.	
Prepared by May on 01/15/96.		**Data entry by May Chau.**
		Print Date: 01/17/96.
Information Contact	**Petro Canada** **Product Safety Coordinator** **(403) 296-4410**	

Continued on Next Page

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*  Canadian Centre for Occupational Health and Safety             *
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*** IDENTIFICATION ***

MSDS RECORD NUMBER : 1034925
PRODUCT NAME(S) : UCARTHERM CLEAR HEAT TRANSFER FLUID
PRODUCT IDENTIFICATION : VAN WATERS & ROGERS MSDS NO.: L1249
DATE OF MSDS : 1994-01-27

*** SUPPLIER/DISTRIBUTOR INFORMATION ***

SUPPLIER/DISTRIBUTOR : VAN WATERS & ROGERS LTD
ADDRESS : 9800 Van Horne Way
Richmond British Columbia
Canada V6X 1W5
EMERGENCY TELEPHONE NO. : 800-424-9300 (CHEMTREC)

*** MATERIAL SAFETY DATA ***

L1249.1 UCARTHERM CLEAR HEAT TRANSFER FLUID

VAN WATERS & ROGERS LTD. 9800 VAN HORNE WAY RICHMOND, B.C. V6X 1W5

WHMIS CODES: D.2A D.2B

----------EMERGENCY ASSISTANCE----------

For Emergency Assistance Involving Chemicals
Call CHEMTREC (800) 424-9300

----------PRODUCT INFORMATION----------

Product Name: UCARTHERM CLEAR HEAT TRANSFER FLUID VW&R Code: L1249

Common Name/Synonym: PM-6195
CAS Registry Number: N/AP (mixture)
Chemical Name: Ethylene glycol (mixture)
Chemical Family: Ethylene glycol
Formula: N/AP (mixture)
Molecular Weight: N/AP (mixture)
Product Use: Heat transfer fluid.

----------PREPARATION INFORMATION----------

Date Issued: 01/93
Supercedes: New Issue
Prepared By: MSDS Coordinator. Contact during business hours, Pacific Time (604)-273-1441.

----------HAZARDOUS INGREDIENTS----------

Component(s)/CAS No.	% wt.	Exposure Limits, ppm OSHA PEL	ACGIH TLV
Ethylene glycol (107-21-1)	94	50* vapour	50* vapour
Potassium hydroxide (1310-58-3)	1	2 mg/m3*	2 mg/m3*
Water and processing additives (N/A)	3	N/D	N/D
Dipotassium hydrogen phosphate (7758-11-4)	2	N/D	N/D

*Ceiling

Local regulated limits may vary.

----------PHYSICAL PROPERTIES----------

Boiling Point (C at 760 mm Hg): 164.5
Melting Point: N/D
Freezing Point: -24 C
Specific Gravity (Water=1): 1.133 at 20/20 C
Vapour Pressure (at 20 C): 1.2 mmHg
Vapour Density (air = 1): 2.1
pH: N/D
Solubility in Water (% by weight): 100
% Volatile: 96.27 by weight
Evaporation Rate (Butyl Acetate=1): 0.1
Odour Threshold: N/D
Coefficient of Water/Oil Distribution: N/D
Appearance and Odour: Transparent colourless liquid; mild odour.
Physical State: Liquid.

----------FIRE AND EXPLOSION INFORMATION----------

Flash Point/Method: 126.7 C, Pensky-Martens closed cup, ASTM D 93
129.4 C, Cleveland open cup, ASTM D 92
Lower Flammable Limit, % by volume: approx. 3.2
Upper Flammable Limit, % by volume: approx. 15
Upper and lower limits for ethylene glycol.

Autoignition Temperature: N/D

Extinguishing Media: Use alcohol-type or all-purpose-type foam by manufacturers' recommended techniques for large fires. Use water spray, carbon dioxide, or dry chemical media for small fires.

Special Fire Fighting Procedures: Do not spray pool fires directly; a solid stream of water or foam directed into hot, burning liquid may cause frothing. Use self-contained breathing apparatus and protective clothing.

Unusual Fire and Explosion Hazards: None currently known.

Hazardous Combustion Products: Burning can produce carbon dioxide and/or carbon monoxide.

Explosion Data
Sensitivity to Mechanical Impact: N/D
Sensitivity to Static Discharge: N/D
Conditions of Flammability: N/D

----------HAZARDOUS REACTIVITY----------

Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: None currently known.

Materials to Avoid: Explosive decomposition may occur if combined with strong acids or strong bases and subjected to elevated temperatures. Therefore, avoid strong acids and strong bases at elevated temperatures. Avoid contamination with strong oxidizing agents, and materials reactive with hydroxyl compounds.

Hazardous Decomposition Products: Burning can produce carbon dioxide and/or carbon monoxide.

Conditions of Reactivity: None currently known.

----------FIRST AID MEASURES----------

If Inhaled: Remove to fresh air. Call a physician if symptoms persist.

In Case of Eye Contact: Immediately flush eyes with water for several minutes.

In Case of Skin Contact: Remove contaminated clothing and flush skin with water.

If Ingested: If conscious, give 2 glasses of water and induce vomiting. Call a physician immediately. If medical advice is delayed and the person has swallowed moderate volumes of ethylene glycol (a few ounces), then give three to four ounces of hard liquor such as whiskey.

Notes to Physician: The principal toxic effects of ethylene glycol, when swallowed, are kidney damage and metabolic acidosis. Ethanol is antidotal, and its early administration may block the formation of nephrotoxic metabolites of ethylene glycol in the liver. Ethanol should be given intravenously, as a 5% solution in sodium bicarbonate, at a rate of about 10 mL ethanol per hour. A desired therapeutic level of ethanol in blood is 100 mg/dL. Hemodialysis may be required. 4-Methylpyrazole, a potent inhibitor of alcohol dehydrogenase, has been used therapeutically to decrease the metabolic consequences of ethylene glycol poisoning before coma, seizure, and renal failure have occurred (20 mg/kg/day).

Pulmonary oedema with hypoxemia has been described in a number of patients following poisoning with ethylene glycol. The mechanism of production has not been elucidated, but it appears to be noncardiogenic in origin in several cases. Respiratory support with mechanical ventilation and positive end-expiratory pressure may be required. There may be cranial nerve involvement in the late stages of toxicity from swallowed ethylene glycol. In particular, effects have been reported involving the seventh, eighth, and ninth cranial nerves, presenting with bilateral facial paralysis, diminished hearing, and dysphagia.

----------HEALTH HAZARD INFORMATION----------

Primary Routes of Exposure: Inhalation, eye contact, ingestion.

Signs, Symptoms and Effects of Exposure
Inhalation: May cause irritation of the nose and throat with headache, particularly from mists. High vapour concentrations (caused, for example, by heating the material in an enclosed and poorly ventilated workplace) may produce nausea, vomiting, headache, dizziness, and irregular eye movements.

Eye Contact: Liquid, vapour, and mist may cause discomfort in the eye with persistent conjunctivitis, seen as slight excess redness of the conjunctiva. Serious corneal injury is not anticipated.

Skin Contact: No evidence of adverse effects from available information.

Skin Absorption: No evidence of adverse effects from available information.
Ingestion: May cause abdominal discomfort or pain, nausea, vomiting, dizziness, drowsiness, malaise, blurring of vision, irritability, lumbar pain, oliguria, uremia, and central nervous system effects, including irregular eye movements, convulsions, and coma. Cardiac failure and pulmonary oedema may develop. Severe kidney damage follows the swallowing of large volumes of ethylene glycol. May be fatal. A few reports have been published describing the development of weakness of the facial muscles, diminished hearing, and difficulty with swallowing during the late stages of severe poisoning.

Chronic Effects of Exposure: Effects of repeated overexposure: Inhalation of mists may produce signs of central nervous system involvement, particularly dizziness and nystagmus.

Medical Conditions Aggravated by Exposure: May aggravate existing kidney diseases.

Additional Information: N/D

----------TOXICITY DATA----------

Ethylene Glycol
LD50 Oral (rat): 4700 mg/kg, RTECS (1991)
LD50 Dermal (rabbit): 9530 mg/kg, RTECS (1991)
LC50 (species): N/D

Potassium Hydroxide
LD50 Oral (rat): 273 mg/kg, RTECS (1991)
LD50 Dermal (rabbit): N/D
LC50 (species): N/D

Water & processing additives
LD50 Oral (rat): N/D
LD50 Dermal (rabbit): N/D
LC50 (species): N/D

Dipotassium Hydrogen Phosphate
LD50 Oral (rat): N/D
LD50 Dermal (rabbit): N/D

LC50 (species): N/D

Carcinogenicity: Two chronic feeding studies, using rats and mice, have not produced any evidence that ethylene glycol causes dose-related increases in tumour incidence, or a different pattern of tumours compared with untreated controls. The absence of a carcinogenic potential for ethylene glycol has been supported by numerous in vitro genotoxicity studies showing that it does not produce mutagenic or clastogenic effects.

Sodium tolytriazole has demonstrated mutagenic activity in a bacterial test system. A correlation has been established between mutagenic activity and carcinogenic activity in many chemicals.

Sensitization: Repeated skin contact may, in a very small proportion of cases, cause sensitization with the development of allergic contact dermatitis. The incidence is significantly less than 1% with the undiluted material.

Irritancy: N/D
Reproductive Effects: N/D

Teratogenicity: Ethylene glycol has been shown to produce dose-related teratogenic effects in rats and mice when given by gavage or in drinking water at high concentrations or doses. The no-effect dose for developmental toxicity for ethylene glycol given by gavage over the period of organogenesis has been shown to be 150 mg/kg/day for the mouse and 500 mg/kg/day for the rat. Also, in a preliminary study to assess the effects of exposure of pregnant rats and mice to aerosols at concentrations 150, 1000, and 2500 mg/m3 for 6 hours a day throughout the period of organogenesis, teratogenic effects were produced at the highest concentration, but only in mice. The conditions of these latter experiments did not allow a conclusion as to whether the developmental toxicity was mediated by inhalation of aerosol, percutaneous absorption of ethylene glycol from contaminated skin, or swallowing of ethylene glycol as a result of grooming the wetted coat. In a further study, comparing effects from high aerosol concentration by whole-body or nose-only exposure, it was shown that nose-only exposure resulted in maternal toxicity (1000 and 2500 mg/m3) and developmental toxicity with minimal evidence of teratogenicity (2500 mg/m3). The no-effect concentration (based on maternal toxicity) was 500 mg/m3. In a further study in mice, no teratogenic effects could be produced when ethylene glycol was applied to the skin of pregnant mice over the period of organogenesis. The above observations suggest that ethylene glycol is to be regarded as an animal teratogen; there is currently no available information to suggest that ethylene glycol has caused birth defects in humans. Cutaneous application of ethylene glycol is ineffective in producing developmental toxicity; exposure to high aerosol concentration is only minimally effective in producing developmental toxicity; the major route for producing developmental toxicity is perorally.

Mutagenicity: Numerous in vitro genotoxicity studies have shown that ethylene glycol does not produce mutagenic or clastogenic effects. Sodium tolytriazole has demonstrated mutagenic activity in a bacterial test system.

Toxicologically Synergistic Products: N/D
Other Data: N/D
Environmental Effects: N/D

----------PREVENTATIVE MEASURES----------

Ventilation (Engineering Controls): General (mechanical) room ventilation is expected to be adequate if handled in covered equipment. Local exhaust ventilation is needed at points where vapours can be expected to escape to the workplace air.

Personal Protective Equipment
Respiratory: NIOSH or MSHA approved self-contained breathing apparatus in high vapour concentrations.
Eye: Monogoggles or face shield.
Clothing: N/D
Footwear: N/D
Hands: Natural rubber, nitrile, neoprene, or PVC gloves.
Other Protective Measures: Eye bath and safety shower.

Action to Take for Spills or Leaks: Wear suitable protective equipment. Small spills can be flushed with large amounts of water. Larger spills should be collected for disposal.

Waste Disposal Method: Incinerate in a furnace where permitted under appropriate federal, provincial, and local regulations. At very low concentrations in water, ethylene glycol is readily biodegradable in a biological wastewater treatment plant.

Storage and Handling Precautions and Equipment: DANGER! Harmful or fatal if swallowed. Causes eye irritation. Prolonged or repeated breathing of mist or vapour is harmful. May cause kidney and nervous system damage. Ethylene glycol causes birth defects in laboratory animals.

Do not swallow. Avoid contact with eyes. Do not breathe mist from spray. Avoid prolonged or repeated breathing of vapour. Keep container closed. Use with adequate ventilation. Wash thoroughly after handling.

Special Shipping Information: N/D

Other Precautions: The maximum recommended skin temperature on the heat transfer fluid side of a heat exchanger is 160C. If the fluid is exposed to excessively high temperatures, thermal degradation can occur; organic acids and other irritating fumes could result. Respiratory protection, such as an air-supplied mask, may be needed until the fumes can be removed.

Undyed, this heat transfer fluid is not suitable for use in any system where contamination of drinking water supply is possible.

WARNING: Sudden release of hot organic chemical vapours or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without the presence of obvious ignition sources. Published "autoignition" or ignition" temperature values cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions.

Any use of this product in elevated-temperature processes should be thoroughly evaluated to establish and maintain safe operating conditions. Further information is available in a technical bulletin entitled "Ignitio Hazards of Organic Chemical Vapours."

FOR INDUSTRIAL USE ONLY

----------REGULATORY INFORMATION----------

TDG Classification

Shipping Name: Non-Regulated
UN: N/R
Class:
PKG:

WHMIS Classification: D.2A; D.2B

Listed on the Domestic Substances List (DSL): Yes

----------FOR PRODUCT AND SALES INFORMATION----------

Contact Your Local Van Waters & Rogers Ltd. Branch Office.

----------NOTICE----------

VAN WATERS & ROGERS LTD. EXPRESSLY DISCLAIMS ALL EXPRESSED OR IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE PRODUCT PROVIDED.

----------REVISION INFORMATION----------

Legend: N/AP - Not Applicable. N/D - No Data Available.

========== END OF MSDS ==========