



Material Safety Data Sheet

LA2849
UCARTHERM(TM) PM 6195

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Id: LA2849
Product Name: UCARTHERM(TM) PM 6195
Synonyms: None
Chemical Family: Glycols
Application: Heat transfer fluids

Distributed By:
Univar Canada Ltd.
9800 Van Horne Way
Richmond, BC
V6X 1W5

Prepared By: The Safety, Health and Environment Department of Univar Canada Ltd.
Preparation date of MSDS: 01/08/2004
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24-Hour Emergency Telephone Number (CHEMTREC): (800) 424-9300

2. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENTS

Ingredients	Percentage	LD50s and LC50s Route & Species:
Ethylene Glycol 107-21-1	90-95	Oral LD50 (Rat) 4700 mg/kg Oral LD50 (Mouse) 5500 mg/kg Dermal LD50 (Rabbit) 9530 µL/kg

NON-HAZARDOUS COMPONENTS

Ingredients	Percentage	LD50s and LC50s Route & Species:
Dipotassium phosphate 7758-11-4	1-3	Not available.
Water 7732-18-5	3-5	Not available.

Notes: No additional remark.

3. HAZARDS IDENTIFICATION

Potential Acute Health Effects:

Eye Contact: Liquid, vapor, or mist causes irritation, experienced as stinging, excess blinking and tear production, with excess redness of the conjunctiva.

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

Inhalation: May cause irritation of upper respiratory tract. High vapor 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.

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. May be fatal if swallowed. Cardiac failure, pulmonary edema, and severe kidney damage may develop. 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.

4. FIRST AID MEASURES

Eye Contact: Immediately flush eyes with large amounts of water for at least 15 minutes. Get immediate medical attention. Remove contact lenses, if worn.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder before reuse. Get medical attention if irritation persists.

Inhalation: Remove person to fresh air. If not breathing, give artificial respiration. If breathing is difficult, get immediate medical attention.

Ingestion: Do NOT induce vomiting. Never give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into the lungs.

Notes To Physician: It is estimated that the oral dose to adults is of the order of 1.0 ml/kg. Ethylene glycol is metabolized by alcohol dehydrogenase to various metabolites including glyceraldehydes, glycolic acid and oxalic acid which cause an elevated anion-gap metabolic acidosis and renal tubular injury. The signs and symptoms in ethylene glycol poisoning are those of metabolic acidosis, CNS depression and kidney injury. Urinalysis may show albuminuria, hematuria and oxaluria. Clinical chemistry may reveal anion-gap metabolic acidosis and uremia. The currently recommended medical management of ethylene glycol poisoning includes elimination of ethylene glycol and metabolites, correction of metabolic acidosis and prevention of kidney injury. It is essential to have immediate and follow up urinalysis and clinical chemistry. There should be particular emphasis on acid-base balance and renal function tests. A continuous infusion of 5% sodium bicarbonate with frequent monitoring of electrolytes and fluid balance is used to achieve correction of metabolic acidosis and forced diuresis. As a competitive substrate for alcohol dehydrogenase, ethanol is antidotal. Given in the early stages of intoxication, it blocks the formulation of nephrotoxic metabolites. A therapeutically effective blood concentration of ethanol is in the range 100 - 150 mg/dl and should be achieved by a rapid loading dose and maintained by intravenous infusion. For severe and/or deteriorating cases, hemodialysis may be required. Dialysis should be considered for patients who are symptomatic, have severe metabolic acidosis, a blood ethylene glycol concentration greater than 25 mg/dl, or compromise of renal functions.

A more effective intravenous antidote for physician use in 4-methylpyrazole, a potent inhibitor of alcohol dehydrogenases which effectively blocks the formation of toxic metabolites of ethylene glycol. It has been used to decrease the metabolic consequences of ethylene glycol poisoning before metabolic acidosis coma, seizures and renal failure have occurred. A generally recommended protocol is a loading dose of 15 mg/kg followed by 10 mg/kg every 12 hours for 4 doses and the 15 mg/kg every 12 hours until the ethylene glycol concentrations are below 20 mg/100ml. Slow intravenous infusion is required. Since 4-methylpyrazole is dialyzable, increased dosage may be necessary during hemodialysis. Additional therapeutic measures may include the administration of cofactors involved in the metabolism of ethylene glycol. Thiamine (100 mg) and pyridoxine (50 mg) should be given every six hours.

Pulmonary edema 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 non-cardiogenic 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.

5. FIRE FIGHTING MEASURES

Flash Point: 115 °C / 239 °F

Flash Point Method: Pensky-Martens Closed Cup

Autoignition Temperature: 398 °C / 748 °F

Flammable Limits in Air (%): Lower:3.2 Upper:15 (Ethylene Glycol)

Extinguishing Media: Extinguish fires with water spray or apply alcohol-type or all-purpose-type foam by manufacturer's recommended techniques for large fires. Use carbon dioxide or dry chemical media for small fires.

Special Exposure Hazards: Do not direct a solid stream of water or foam into hot, burning pools; this may cause frothing and increase fire intensity.

Special Protective Equipment: Fire fighters should wear full protective clothing, including self-contained breathing equipment.

NFPA RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 1, REACTIVITY 0

HMIS RATINGS FOR THIS PRODUCT ARE: HEALTH 1, FLAMMABILITY 1, REACTIVITY 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautionary Measures: Wear appropriate protective equipment.

Environmental Precautionary Measures: Prevent entry into sewers or streams, dike if needed.

Procedure for Clean Up: Absorb with an inert dry material and place in an appropriate waste disposal container. Large spills or leaks should be confined by diking.

7. HANDLING AND STORAGE

Handling: Do not swallow. Avoid contact with eyes. Avoid breathing aerosols. Avoid breathing vapor. Keep the containers closed when not in use. Use with adequate ventilation. Wash thoroughly after handling. The maximum recommended temperature on the Heat Transfer Fluid side of a heat exchanger is 160 C. 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.

Storage: Store in a cool, dry, well ventilated area, away from heat and ignition sources. Store in accordance with good industrial practices.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls: General (mechanical) room ventilation may be adequate, if handled at ambient temperatures or in covered equipment. If ambient temperatures are exceeded or operations exist which may produce mist, aerosol or vapor, local exhaust ventilation or other engineering controls may be required. **PROCESS HAZARD:** Sudden release of hot organic chemical vapor or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into hot equipment under a vacuum, 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.

Respiratory Protection: If exposure exceeds occupational exposure limits, use an appropriate NIOSH-approved respirator. NIOSH-approved atmosphere-supplying respirator or a NIOSH-approved air-purifying respirator with organic vapor cartridge and dust/mist pre-filter is recommended.

Gloves: Neoprene gloves. Nitrile gloves. Polyvinylchloride gloves. Butyl rubber gloves.

Skin Protection: As a minimum, wear long-sleeve shirts, trousers, and gloves for routine produce use.

Eyes: 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 Personal Protection Data: Ensure that eyewash stations and safety showers are proximal to the work-station location.

Ingredients	Percentage	Exposure Limit - ACGIH	Exposure Limit - OSHA
Ethylene Glycol	90-95	100mg/m ³ Ceiling	125 mg/m ³ Ceiling 50 ppm Ceiling
Dipotassium phosphate	1-3	Not available.	Not available.
Water	3-5	Not available.	Not available.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid

Color: Colourless

Odor: Mild.

pH Not Available.

Specific Gravity: 1.133

Boiling Point: 163 °C / 325 °F

Freezing/Melting Point: -24 °C / -12 °F
Vapor Pressure: 2.2 mmHg
Vapor Density: 2.1
% Volatile by Volume: 96 Wt%
Evaporation Rate: 0.1
Solubility: 100%
VOCs (lbs/gallon): Not Available.
Viscosity: Not Available.
Molecular Weight: Not Available.

10. STABILITY AND REACTIVITY

Chemical Stability: Stable.
Hazardous Polymerization: Will not occur.
Conditions to Avoid: None known.
Materials to Avoid: Strong oxidizing agents. Strong acids. Materials reactive with hydroxyl compounds. Strong acids and bases.
Hazardous Decomposition Products: Carbon monoxide. Carbon dioxide.
Additional Information: Explosive decomposition may occur if combined with strong acids or strong bases and subjected to elevated temperatures.

11. TOXICOLOGICAL INFORMATION

Principle Routes of Exposure

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. May be fatal if swallowed. Cardiac failure, pulmonary edema, and severe kidney damage may develop. 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.

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

Inhalation: May cause irritation of upper respiratory tract. High vapor 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, vapor, or mist causes irritation, experienced as stinging, excess blinking and tear production, with excess redness of the conjunctiva.

Additional Information:

Repeated skin contact with ethylene glycol 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. May aggravate an existing kidney disease. Repeated inhalation of ethylene glycol mist may produce signs of central nervous system involvement, particularly dizziness and nystagmus.

Acute Test of Product:

Acute Oral LD50: Peroral LD50 8200 mg/kg (Rat)

Acute Dermal LD50: Percutaneous LD50 >2000 mg/kg (Rabbit)

Acute Inhalation LC50: Not Available.

Carcinogenicity:

Ingredients	IARC - Carcinogens	ACGIH - Carcinogens
Ethylene Glycol	Not listed.	A4 - Not Classifiable as a Human Carcinogen (aerosol)
Dipotassium phosphate	Not listed.	Not listed.
Water	Not listed.	Not listed.

Carcinogenicity Comment: No additional information available.

Genotoxicity: Not Available.

Reproductive/Developmental Toxicity: Ingestion of large amounts of ethylene glycol has been shown to interfere with reproduction in animals. Specifically, growth retardation and decreased litter size in rats and mice and decreased mating frequency in mice were observed.

Teratogenicity: Based on animal studies, ingestion of very large amounts of ethylene glycol appears to be the major and possibly only route of exposure to produce birth defects.

Embryotoxicity: A three generation study indicated that ethylene glycol did not affect reproductive parameters at dietary concentrations up to 1.0 gm/kg/day in any generation.

Mutagenicity: Not Available.

12. ECOLOGICAL INFORMATION

Ecotoxicological Information:

Ingredients	Ecotoxicity - Fish Species Data	Acute Crustaceans Toxicity:	Ecotoxicity - Freshwater Algae Data
Ethylene Glycol	LC50 (bluegill) 27500 mg/L LC50 (goldfish) 27500 mg/L LC50 (rainbow trout) 41000 mg/L	Not Available.	Not Available.
Dipotassium phosphate	Not Available.	Not Available.	Not Available.
Water	Not Available.	Not Available.	Not Available.

Other Information: May be harmful to aquatic life.

13. DISPOSAL CONSIDERATIONS

Disposal of Waste Method: Disposal of all wastes must be done in accordance with municipal, provincial and federal regulations.

Contaminated Packaging: Empty containers should be recycled or disposed of through an approved waste management facility.

14. TRANSPORT INFORMATION

DOT (U.S.):

DOT Shipping Name: Not Regulated.

DOT Hazardous Class: Not Applicable.

DOT UN Number: Not Applicable.

DOT Packing Group: Not Applicable.

DOT Reportable Quantity (lbs): Not Applicable.

Marine Pollutant: No.

ICAO/IATA:

IATA Proper Shipping Name: Not Regulated.

IATA Hazard Class: Not Applicable.

UN Number: Not Applicable.

Packing Group: Not Applicable.

IATA Label: Not Applicable.

Remarks: No additional remark.

IMDG:

IMDG Proper Shipping Name: Not Regulated.

Hazard Class: Not Applicable.

UN Number: Not Applicable.

Packing Group: Not Applicable.

Marine Pollutant: No.

IMDG Label: Not Applicable.

Remarks: No additional remark.

TDG (Canada):

TDG Proper Shipping Name: Not Regulated.

Hazard Class: Not Applicable.

UN Number: Not Applicable.

Packing Group: Not Applicable.

Note: No additional remark.

Marine Pollutant: No.

15. REGULATORY INFORMATION

U.S. TSCA Inventory Status: All components of this product are either on the Toxic Substances Control Act (TSCA) Inventory List or exempt.

Canadian DSL Inventory Status: All components of this product are either on the Domestic Substances List (DSL) or the Non-Domestic Substances List (NDSL) or exempt.

U.S. Regulatory Rules

Ingredients	CERCLA/SARA - Section 302:	SARA (311, 312) Hazard Class:	CERCLA/SARA - Section 313:
Ethylene Glycol	Not Listed.	LISTED	LISTED
Dipotassium phosphate	Not Listed.	Not Listed.	Not Listed.
Water	Not Listed.	Not Listed.	Not Listed.

California Proposition 65: Not Listed.

MA Right to Know List: Listed.

New Jersey Right-to-Know List: Listed.

Pennsylvania Right to Know List: Listed.

WHMIS Hazardous Class:

D2A VERY TOXIC MATERIALS

D2B TOXIC MATERIALS



16. OTHER INFORMATION

- Additional Information:** This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.
- Disclaimer:** NOTICE TO READER:
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- ***END OF MSDS*****