SECTION 1 Identification

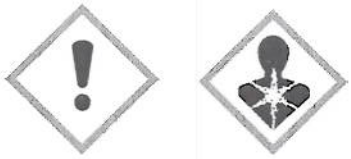
Product name: CHEMR EG I (solution 60%)
Usage: Aircraft Deicing fluid (SAE AMS 1424 Type I)
Company: Chemco inc.
124 de Hambourg
Saint-Augustin-de Desmaures
(Québec) G3A 0B3
Phone : 418-878-5422

Emergency Phone
613-996-6666 (24 hours)

SECTION 2 Hazard Identification

Classification of the chemical
Acute toxicity (Oral) – category 4
Specific target organ toxicity (Oral) – repeated exposure - Category 2

Label elements
Hazard pictogram



Signal Word
WARNING!

Hazard statement (s)
Harmful if swallowed
May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.

Precautionary statement(s)
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.

If Swallowed: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
Get medical advice/ attention if you feel unwell.

Dispose of contents/ container to an approved waste disposal plant.

Other hazards
No data available

SECTION 3 Composition / information on ingredients

Chemical name	CAS Number	Concentration
Ethylene glycol	107-21-1	53
Water	7732-18-5	46

SECTION 4 First-aid measures

Description of first aid measures

General Advice: Firs Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air; if affects occur, consult a physician.

Ingestion: Do not induce vomiting. Seek medical attention immediately. If person is fully conscious give 240 ml of water (1 cup) to dilute and seek medical attention. If medical advice is delayed and if and if an adult has swallowed several ounces of chemical, then give 3-4 ounces (1/3-1/2 Cup) (90-120 ml) of hard liquor such as 80 proof whiskey.

Skin Contact: Immediately flush skin with water while removing contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Contaminated leather items such as shoes should be disposed of properly. Suitable emergency safety shower facility should be immediately available.

Eye Contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist

Most important symptoms and effects, both acute and deleyed
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: If several ounces (60 - 100 ml) of ethylene glycol have been ingested, early administration of ethanol may counter the toxic effects (metabolic acidosis, renal damage). Consider hemodialysis or peritoneal dialysis & thiamine 100 mg plus pyridoxine 50 mg intravenously every 6 hours. If ethanol is used, a therapeutically effective blood concentration in the range of 100 - 150 mg/dl may be achieved by a rapid loading dose followed by a continuous intravenous infusion. Consult standard literature for details of treatment. 4-Methyl pyrazole (Antizol®) is an effective blocker of alcohol dehydrogenase and should be used in the treatment of ethylene glycol (EG), di- or triethylene glycol (DEG, TEG), ethylene glycol butyl ether (EGBE), or methanol intoxication if available. Fomepizole protocol (Brent, J. et al., New England Journal of Medicine, Feb. 8, 2001, 344:6, p. 424-9): loading dose 15 mg/kg intravenously, follow by bolus dose of 10 mg/kg every 12 hours; after 48 hours, increase bolus dose to 15 mg/kg every 12 hours. Continue fomepizole until serum methanol, EG, DEG, TEG or EGBE are undetectable. The signs and symptoms of poisoning include anion gap metabolic acidosis, CNS depression, renal tubular injury, and possible late stage cranial nerve involvement. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. In severe poisoning, respiratory support with mechanical ventilation and positive end expiratory pressure may be required. Maintain adequate ventilation and oxygenation of the patient. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. If burn is present, treat as any thermal burn, after decontamination. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5 Fire-fighting measures

Extinguishing Media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
Unsuitable extinguishing media: Do not use direct water stream. May spread fire.

Special hazards arising from the substance or mixture / Conditions of flammability

During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include and are not limited to: Carbon monoxide. Carbon dioxide.

Unusual Fire and Explosion Hazards: Container may rupture from gas generation in a fire situation. Violent steam generation or eruption may occur upon application of direct water stream to hot liquids.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Burning liquids may be extinguished by dilution with water. Do not use direct water stream. May spread fire. Burning liquids may be moved by flushing with water to protect personnel and minimize property damage.

Special protective equipment for firefighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire fighting helmet, coat, trousers, boots, and gloves). If protective equipment is not available or not used, fight fire from a protected location or safe distance.

SECTION 6 Accidental release measures

Personal precautions, protective equipment and emergency procedures.
Isolate area. Keep unnecessary and unprotected personnel from entering the area. Keep personnel out of low areas. Refer to section 7, Handling, for additional precautionary measures. Use appropriate safety equipment. For additional information, refer to Section 8, Exposure Controls and Personal Protection.

Environmental precautions.
Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and material for containment and cleaning up
Small spills: Absorb with materials such as: Cat litter. Sawdust. Vermiculite. Zorb-all®. Collect in suitable and properly labeled containers.
Large spills: Dike area to contain spill. Recover spilled material if possible. Contain spilled material if possible. See Section 13, Disposal Considerations, for additional information.

SECTION 7 Handling and storage

Precautions for safe handling: Do not swallow. Avoid contact with eyes. Wash thoroughly after handling. Spills of these organic materials on hot fibrous insulations may lead to lowering of the autoignition temperatures possibly resulting in spontaneous combustion. See Section 8, EXPOSURE CONTROLS AND PERSONAL PROTECTION.

Conditions for safe storage: Store in accordance with good manufacturing practices. Additional storage and handling information on this product may be obtained by calling your sales or customer service contact.

SECTION 8 Exposure Controls / personal protection

Exposure Limits

CHEMICAL NAME	ACGIH TLV		OSHA PEL	
	TWA	STEL	PEL	STEL
Ethylene Glycol	50 mg/m3	100 mg/m3	N/Av	N/Av

Exposure Controls
Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures
Eye/face protection: Use safety glasses (with side shields). If there is a potential for exposure to particles which could cause eye discomfort, wear chemical goggles. If exposure causes eye discomfort, use a full-face respirator.
Skin protection
Hand protection: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Use gloves with insulation for thermal protection, when needed. If hands are cut or scratched, use gloves chemically resistant to this material even for brief exposures. Examples of preferred glove barrier materials include: Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Avoid gloves made of: Polyvinyl alcohol ("PVA").

NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: When prolonged or frequently repeated contact could occur, use protective clothing chemically resistant to this material. Selection of specific items such as faceshield, boots, apron, or full-body suit will depend on the task. When handling hot material, protect skin from thermal burns as well as from skin absorption.

Respiratory protection: Atmospheric levels should be maintained below the exposure guideline. When airborne exposure guidelines and/or comfort levels may be exceeded, use an approved air-purifying respirator. The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

SECTION 9 Physical et chimical properties

Appearance: Liquid, Orange
Odour: None
Odour threshold: Not determined.
pH: 7.0 – 8.5
Melting/Freezing point: - 43 °C
Initial boiling point and boiling range: Not applicable.
Flash point (method): > 100,00 °C Pensky Martens (CC)
Evaporation rate (BuAe=1): Not determined.
Flammability (solid, gas): Not determined.
Lower flammable limit (% by vol.): Not determined.
Upper flammable limit (% by vol.): Not determined.
Vapour pressure: 2.7 mm Hg
Vapour density: 1. (Air = 1)
Relative density / Specific gravity: 1,07
Solubility in water: Soluble in water
Partition coefficient: Not determined.
Auto-ignition temperature: Not determined.
Decomposition temperature: Not determined.
Viscosity: Not determined.

SECTION 10 Stability et reactivity

Reactivity: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions. See Storage, section 7

Possibility of hazardous reactions: Polymerization will not occur.

Condition to avoid: Exposure to elevated temperatures can cause product to decompose. Generation of gas during decomposition can cause pressure in closed systems.

Incompatible materials: Avoid contact with: Strong acids. Strong bases. Strong oxidizers.

Hazardous decomposition products: Decomposition products depend upon temperature, air supply and the presence of other materials. Decomposition products can include and are not limited to: Aldehydes. Alcohols. Ethers.

SECTION 11 Toxicological information

Acute toxicity
Acute oral toxicity
Oral toxicity is expected to be moderate in humans due to ethylene glycol even though tests with animals show a lower degree of toxicity. Ingestion of quantities (approximately 65 mL (2 oz.) for diethylene glycol or 100 mL (3 oz.) for ethylene glycol) has caused death in humans. May cause nausea and vomiting. May cause abdominal discomfort or diarrhea. Excessive exposure may cause central nervous system effects, cardiopulmonary effects (metabolic acidosis), and kidney failure.

As product: Single dose oral LD50 has not been determined.
For Ethylene glycol: LD50, Rat, male and female, > 7,712 mg/kg
For Ethylene glycol: Lethal Dose, Human, adult, 3 Ounces

Acute dermal toxicity
Prolonged skin contact is unlikely to result in absorption of harmful amounts. Repeated skin exposure to large quantities may result in absorption of harmful amounts. Massive contact with damaged skin or of material sufficiently hot to burn skin may result in absorption of potentially lethal amounts.

For Ethylene glycol:LD50, Rabbit, > 10,600 mg/kg

Acute inhalation toxicity
At room temperature, exposure to vapor is minimal due to low volatility. With good ventilation, single exposure is not expected to cause adverse effects. If material is heated or areas are poorly ventilated, vapor/mist may accumulate and cause respiratory irritation and symptoms such as headache and nausea.

For Ethylene glycol: LC50, Rat, male and female, 6 Hour, dust/mist, > 2.5 mg/l

Skin corrosion/irritation
Brief contact is essentially nonirritating to skin. Prolonged contact may cause slight skin irritation with local redness. Repeated contact may cause skin irritation with local redness.

Serious eye damage/eye irritation
May cause slight eye irritation. Corneal injury is unlikely. Vapor or mist may cause eye irritation.

Sensitization
Based on information for component(s): Did not cause allergic skin reactions when tested in guinea pigs.
For respiratory sensitization: No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
The data presented are for the following material: Ethylene glycol.
Observations in humans include: Nystagmus (involuntary eye movement).
In animals, effects have been reported on the following organs: Kidney. Liver.

Carcinogenicity
Ethylene glycol did not cause cancer in long-term animal studies.

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. Exposures by inhalation or skin contact, the primary routes of occupational exposure, had minimal effect on the fetus, in animal studies.

Reproductive toxicity
Ingestion of large amounts of ethylene glycol has been shown to interfere with reproduction in animals.

Mutagenicity
Contains a component(s) which were negative in in vitro genetic toxicity studies. Contains component(s) which were negative in animal genetic toxicity studies.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

SECTION 12 Ecological information

Toxicity
Acute toxicity to fish

Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Ethylene glycol 107-21-1	6500 - 13000: 96 h Pseudokirchneriella subcapitata mg/L EC50	41000: 96 h Oncorhynchus mykiss mg/L LC50 14 - 18: 96 h Oncorhynchus mykiss mL/L LC50 static 27540: 96 h Lepomis macrochirus mg/L LC50 static 40761: 96 h Oncorhynchus mykiss mg/L LC50 static 16000: 96 h Poecilia reticulata mg/L LC50 static 40000 - 60000: 96 h Pimephales promelas mg/L LC50 static	EC50 = 10000 mg/L 16 h EC50 = 620 mg/L 30 min EC50 = 620.0 mg/L 30 min	46300: 48 h Daphnia magna mg/L EC50

Persistence and degradability
Ethylene glycol
Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% mineralization in OECD test(s) for inherent biodegradability). 10-day Window: Pass

Biodegradation: 90 - 100 %
Exposure time: 10 d
Method: OECD Test Guideline 301A or Equivalent
10-day Window: Not applicable
Biodegradation: 90 %
Exposure time: 1 d
Method: OECD Test Guideline 302B or Equivalent
Theoretical Oxygen Demand: 1.29 mg/mg

Bioaccumulative potential
Ethylene glycol
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -1.36 Measured
Mobility in soil
Ethylene glycol
Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient(Koc): 1 Estimated.

SECTION 13 Disposal considerations

Waste Disposal Method :

All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility solely of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN MSDS SECTION: Composition Information. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Reclaimer. Incinerator or other thermal destruction device.

SECTION 14 Transport information

Transportation of Dangerous Goods Classification: Not regulated

SECTION 15 Regulatory Information

All components of this material are listed on the TSCA inventory and are included on the Canadian DSL.

SECTION 16 Other information

Legend:

ACGIH - American Conference of Governmental Industrial Hygienists
AICS – Australian Inventory of Chemical Sstances
ATE – Acute Toxicity Estimate
CAS - Chemical Abstracts Service Registry Number
CFSAN - Center for Food Safety and Applied Nutrition
CSA – Canadian Standards Association
DOE - Department of Energy
DSL - Domestic Substances List
EC50 – Effective Concentration 50%
EEC - European Economic Community
EINECS – European Inventory of Existing Commercial Chemical Substances
ENCS – Existing and New Chemical Substances
EPA - Environmental Protection Agency
FDA - Food and Drug Administration
GHS - Globally Harmonized System (of Classification and Labeling of Chemicals)
HSDB – Hazardous Substances Data Bank
HMIS - Hazardous Material Information System
IARC – International Agency for Research on Cancer
IATA - International Air Transportation Association
ICAO - International Civil Aviation Organization
IMO - International Maritime Organization
IMDG - International Maritime Dangerous Goods
LC – Lethal Concentration
LD - Lethal Dose

LEL - Lower Explosive Limit
N/Ap - Not Applicable
N/Av – Not Available
NFPA - National Fire Protection Association
NIOSH - National Institute for Occupational Safety and Health
OECD - Organization for Economic Cooperation and Development
OSHA - Occupational Safety and Health Association
PEL - Permissible Exposure Limit
SARA - Superfund Amendments and Reauthorization Act
SDS – Safety Data Sheet
STEL- Short Term Exposure Limit
TDG – Canadian Transport of Dangerous Goods Act & Regulations
TLV - Threshold Limit Value
TSCA - Toxic Substances Control Act
UEL - Upper Explosive Limit
WHMIS - Workplace Hazardous Material Information System

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