Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Personal Protective Equipment
	Class D-2A: Material causing other toxic effects (VERY TOXIC).	

Section 1. Product and Company Identification

Product Name / Trade name	**Universal Antifreeze/ Coolant**	**Associated Product's Item Code**	**15-241**
Synonym	Coolant and antifreeze. Antifreeze.	**CAS #**	Mixture.
Chemical Family	Glycol.	**Validation Date**	**June 12 2006**
Chemical Formula	Not applicable.	**Print Date**	June 12 2006
Manufacturer	Recochem Inc. 850 Montee de Liesse Montreal, Quebec 514-341-3550	**In Case of Emergency**	Recochem Inc. Communications and Regulatory Affairs Department (905) 791-1788
Material Uses	Industrial applications: Coolant and antifreeze formulations.		

Section 2. Hazardous Ingredients

Name	CAS #	% by Weight	Exposure Limits	
			Canadian Values (ACGIH)	U.S. Values (OSHA)
Ethylene glycol	107-21-1	90-99	**ACGIH (Canada, 2003).** CEIL: 100 mg/m^3	Ethylene glycol Not available.

Section 3. Hazard Identification

Emergency Overview

WARNING.

HARMFUL OR FATAL IF SWALLOWED. Possible damage to liver and kidneys.
Heated material can cause thermal burns.
Mist or vapour from heated materials may cause eye, skin and respiratory irritation.

Potential Acute Health Effects

See Section #11: "Toxicological Information" for further human health effects.

Toxic by ingestion. May cause abdominal discomfort or pain, nausea, vomiting, dizziness, central nervous system effects and coma. Cardiac failure, pulmonary edema and severe kidney damage may develop.
May cause mild eye irritation.
May cause mild skin irritation.
Unlikely to be inhaled because of physical characteristics, however, heated material may produce vapours, which may cause irritation to lungs if inhaled excessively. Inhalation, particularly of mist, may cause irritation of the nose and throat with headache. High vapour concentrations may produce nausea, vomiting, headache, dizziness and irregular eye movement.

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Note to Physician	The signs and symptoms in ethylene glycol poisoning are those of metabolic acidosis, central nervous system depression and kidney injury. Clinical chemistry may reveal anion-gap metabolic acidosis and uremia. Treatment with ethanol to inhibit the metabolism of glycol to oxalate. Early administration of ethanol may counter the toxic effects of ethylene glycol (cardiopulmonary effects attributed to metabolic acidosis and renal damage). Hemodialysis or peritoneal dialysis have been of benefit. Pre-existing skin, eye, and respiratory disorders may be aggravated by exposure to this product. Treat symptomatically and supportively.

Section 4. First Aid Measures

Eye Contact	IMMEDIATELY flush eyes with running water for at least 20 minutes, keeping eyelids open. If irritation persists, seek medical attention.
Skin Contact	Gently and thoroughly wash the contaminated skin with running water and non-abrasive soap. If irritation persists, seek medical attention. Wash contaminated clothing before reusing.
Inhalation	Allow the victim to rest in a well-ventilated area. If irritation persists, seek medical attention. If breathing is difficult, administer oxygen. If victim is not breathing have qualified personnel administer artificial respiration.
Ingestion	Do NOT induce vomiting unless directed to do so by medical personnel.SEEK IMMEDIATE MEDICAL ATTENTION. If medical advice is delayed, and a moderate volume has been swallowed, have individual consume three to four ounces of hard liquor, such as whiskey (antidote is inhibition of alcohol dehydrogenase to prevent kidney damage).

Section 5. Fire Fighting Measures

Products of Combustion	These products are carbon oxides (CO, CO_2).
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemicals, CO_2, water spray or foam. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
Fire Hazards	When heated to decomposition, it emits acrid smoke and irritating fumes. May be combustible at high temperature.
Explosion Hazards	Not a product presenting risks of explosion.

Section 6. Accidental Release Measures

Small Spill and Leak	Dilute with water and mop up, or absorb with an inert DRY material and place in an appropriate waste disposal container.
Large Spill and Leak	Stop leak if without risk. Prevent entry into sewers, basements or confined areas; dike if needed. Absorb with an inert material and put the spilled material in an appropriate waste disposal. Dispose of in accordance with regional regulations.

Section 7. Handling and Storage

Handling	DO NOT swallow.Avoid contact with eyes. Avoid breathing vapours or spray mists. Wear suitable protective clothing. Use in a well ventilated area. Avoid contamination with reactive substances. After handling, always wash hands thoroughly with soap and water.
Storage	**See Section #10 for applicable incompatible materials.** Keep container dry. Keep container tightly closed. Keep in a cool, well-ventilated place. Store in an appropriate container. If the fluid is exposed to excessively high temperatures, thermal degradation can occur, avoid high temperatures or sources of heat during extended storage periods.

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Section 8. Exposure Controls, Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.
Personal Protection	
Eyes	Splash goggles. Face shield when handling elevated temperature material.
Body	Wear suitable protective clothing when handling elevated temperature material.
Respiratory	Wear appropriate respirator when ventilation is inadequate.
Hands	Gloves (impervious). Nitrile gloves. Neoprene gloves.

Section 9. Physical and Chemical Properties

Physical State and Appearance	Clear viscous liquid.	**Odour**	Odourless.
Molecular Weight	Not applicable.	**Taste**	Sweet.
pH	9 to 11 [Basic.]	**Colour**	Green.
Boiling/Condensation Point	197°C (386.6°F)	**Volatility**	0% (w/w).
Melting/Freezing Point	-13°C (8.6°F)	**Evaporation Rate**	0.01 compared to Butyl acetate.
Specific Gravity	1.115 to 1.145 (Water = 1)	**Odour Threshold**	Not available.
Vapour Pressure	0.06 mm of Hg (@ 20°C)	**Viscosity**	Not available.
Vapour Density	2.1 (Air = 1)	**Solubility**	Soluble in water, methanol, diethyl ether.
VOC Content	Not available.	**Other Properties**	Not available.

The Product is:	May be combustible at high temperature.
Auto-ignition Temperature	400°C (752°F)
Flash Point	Closed cup: 116°C (240.8°F). (Tagliabue.) Open cup: 115.6°C (240.1°F) (Cleveland).
Flammable Limits	LOWER: 3.2% UPPER: 15.3%
Fire Hazards in Presence of Various Substances	Combustible in presence of open flames and sparks.

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Section 10. Stability and Reactivity

Stability	The product is stable.
Conditions of Instability	No additional remark.
Incompatibility with Various Substances	Reactive with oxidizing agents, acids, alkalis.

Section 11. Toxicological Information

Routes of Entry	Absorbed through skin. Eye contact. Inhalation. Ingestion.
Toxicity to Animals	Acute oral toxicity (LD50): 5000 mg/kg [Rat.]. Acute dermal toxicity (LD50): 9500 mg/kg [Rabbit.].
Acute Effects on Humans	
Eyes	May cause mild eye irritation.
Skin	May cause mild skin irritation. Heated material may also cause skin burns with direct contact.
Inhalation	Unlikely to be inhaled because of physical characteristics, however, heated material may produce vapours, which may cause irritation to lungs if inhaled excessively. Inhalation, particularly of mist, may cause irritation of the nose and throat with headache. High vapour concentrations may produce nausea, vomiting, headache, dizziness and irregular eye movement. Inhalation of mist or vapour from heated material may cause respiratory irritation.
Ingestion	Toxic by ingestion. HARMFUL OR FATAL IF SWALLOWED. Ethylene glycol is more acutely toxic to humans than to animals. The lethal dose in humans is estimated to be 100ml (3 ounces). May cause abdominal discomfort or pain, nausea, vomiting, dizziness, central nervous system effects and coma. Cardiac failure, pulmonary edema and severe kidney damage may develop. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however swallowing amounts larger than that may cause serious injury, even death.
Chronic Effects on Humans	**CARCINOGENIC EFFECTS**: A4 (Not classifiable for human or animal.) by ACGIH. Ethylene glycol did not cause cancer in long term animal studies. **MUTAGENIC EFFECTS**: In vitro and in vivo mutagenicity studies were negative. **TERATOGENIC EFFECTS**: Teratogenic in mice at levels below maternal toxicity. **DEVELOPMENTAL TOXICITY**: Fetotoxic in mice at levels below maternal toxicity. Excessive exposure may cause central nervous system (CNS) depression, kidney failure and possibly liver effects. Repeated or prolonged exposure to the substance can produce target organs damage. Prolonged and repeated contact with skin can cause drying of the skin resulting in irritation and dermatitis. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs. Impaired reproductive, liver, kidney and central nervous system functions from pre-existing disorders may be aggravated by exposure to this product. Pre-existing eye, skin and respiratory disorders may be aggravated by exposure to this product.

Section 12. Ecological Information

Ecotoxicity	**For accidential discharges into environment, see Section #6: "Accidential Release Measures" for suggested instructions.** Ecotoxicity in water: >100 mg/l [IC50, Algae.], 1 hour(s) [Algae]. >100 mg/l [LC50, Fish.], 24 hour(s) [Fish]. >100 mg/l [EC50, Daphnia.], 4 hour(s) [Daphnia]. Practically non-toxic to aquatic organisms.Biodegradable. Biodegradation under aerobic static laboratory conditions is high. This product is not expected to bioaccumulate through food chains in the environment. Poses a significant risk of oxygen depletion in aquatic systems.

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Section 13. Disposal Considerations

Waste Information	Waste must be disposed of in accordance with federal, state or provincial and local environmental control regulations.

Section 14. Transport Information

Canada Transportation of Dangerous Goods (TDG) Information

Primary Class	Not a TDG controlled material.
Subsidiary Class (if applicable)	-
Proper shipping name	Not applicable.
Hazard Identification Number	Not applicable.
Packing Group	Not applicable.
Special Provisions	Not applicable.

No placard (handling and hazard label) required.

International Maritime Dangerous Goods (IMDG) Transportation Information

Primary Class	Not controlled under IMDG.
Subsidiary Class (if applicable)	Not applicable.
Proper shipping name	Not applicable.
Hazard Identification Number	Not applicable.
Packing Group	Not applicable.
Marine Pollutant	Not pollutant.
Special Provisions	Not applicable.

No placard (handling and hazard label) required.

No placard (handling and hazard label) required.

United States Department of Transportation (DOT) Information

Primary Class	Class 9: Miscellaneous hazardous material.
Subsidiary class (if applicable)	-
Proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (Ethylene glycol)
Hazard Identification Number	UN 3082
Packing Group	III
Special Provisions	In containers of 5000 lbs capacity or less this product is exempt from DOT regulations (non regulated). Regulated Quantity (RQ)= 5000 lbs (2268 kg) (as ethylene glycol) For bulk shipments equal to or greater than Regulated Quantity (RQ), please adhere to classification as outlined in DOT Classification section.

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International Air Transport Association (IATA)	For air shipment classification and associated regulations, please refer to the latest edition of IATA Dangerous Goods Regulations.

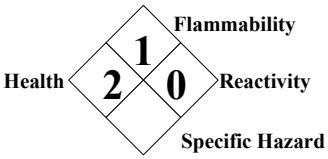
Section 15. Other Regulatory Information and Pictograms

WHMIS Classification (Canada)	Class D-2A: Material causing other toxic effects (VERY TOXIC).
Canada Domestic Substances List (DSL) Status	This product and/ or all of its components are on the DSL.
HCS Classification (U.S.A.)	Class: Target organ effects.
U.S.A. Regulatory Lists	This product and/ or all of its components are on the TSCA inventory list.

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

Health	2
Flammability	1
Reactivity	0
Personal Protection	B

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



Section 16. Other Information

Validated and verified by Compliance and Technical Information Manager on June 12 2006	**Printed June 12 2006**

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