Material Safety Data Sheet

WHMIS (Pictograms)	WHMIS (Classification)	Personal protective equipment
	**Class D-1B: Material causing immediate and serious toxic effects (Toxic).** **Class D-2A: Material causing other toxic effects (Very toxic).**	

Section 1. Product and Company Identification

Product name / Trade name	**Extended Life Heavy Duty Diesel Coolant**	**Associated Product's Item Code**	**WIP-16720**
Synonym	Not available.	**CAS #**	Not available.
Chemical family	Not available.	**Validation date**	**15/08/2011.**
Chemical formula	CH_2OHCH_2OH	**Print date**	15/08/2011.
Manufacturer/Supplier	Recochem Inc. 850 Montee de Liesse Montreal, Quebec H4T 1P4 (514) 341-3550 www.recochem.com	**In case of emergency**	Recochem Inc. Communications and Regulatory Affairs Department (905) 878-5544
Material uses	Industrial applications: Coolant and antifreeze formulations.		

Section 2. Hazards identification

Emergency Overview

WARNING!

MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

Harmful by inhalation. Do not breathe vapor or mist. Avoid contact with eyes, skin and clothing. May cause target organ damage, based on animal data. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use.

Potential Acute Health Effects

See section 11 for more detailed information on health effects and symptoms.

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..

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 respiratory and skin disorders may be aggravated by over-exposure to this product.
Treat symptomatically and supportively.

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Section 3. Composition, information on ingredients

Canada

Name	CAS number	Conc. (% w/w)
Ethylene glycol	107-21-1	90 - 98
Sodium Benzoate	532-32-1	1 - 5

There are no ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Section 4. First aid measures

Eye contact	Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 20 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
Skin contact	In case of contact, immediately flush skin with plenty of water for at least 20 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
Inhalation	Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
Ingestion	Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
Notes to physician	See section 2 Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Section 5. Fire-fighting measures

Products of combustion	Decomposition products may include the following materials: carbon dioxide carbon monoxide
Fire-fighting media and instructions	Use an extinguishing agent suitable for the surrounding fire.
Fire Hazards	Emits acrid smoke and irritating fumes when heated to decomposition.May be combustible at high temperature.
Explosion Hazards	Not a product presenting risks of explosion.

Section 6. Accidental release measures

Small spill and leak	Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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Large spill and leak	Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see section 1 for emergency contact information and section 13 for waste disposal.

Section 7. Handling and Storage

Handling	Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
Storage	Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Engineering controls No special ventilation requirements. Good general ventilation should be sufficient to control worker exposure to airborne contaminants. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Personal protection

Eyes Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. Recommended: splash goggles

Body Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Hands Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. >8 hours (breakthrough time): nitrile rubber

United States

Product name	**Exposure limits**
Ethylene glycol	**OSHA PEL 1989 (United States, 3/1989).** CEIL: 50 ppm CEIL: 125 mg/m³ **ACGIH TLV (United States, 1/2008).** C: 100 mg/m³ Form: Aerosol

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Canada
Occupational exposure limits

Ingredient	List name	TWA (8 hours) ppm	TWA (8 hours) mg/m³	TWA (8 hours) Other	STEL (15 mins) ppm	STEL (15 mins) mg/m³	STEL (15 mins) Other	Ceiling ppm	Ceiling mg/m³	Ceiling Other	Notations
Ethylene glycol	US ACGIH 1/2008	-	-	-	-	-	-	-	100	-	[a]
	AB 6/2008	-	-	-	-	-	-	-	100	-	[b]
	BC 6/2008	-	-	-	-	100	-	-	-	-	[a]
		-	10	-	-	20	-	-	-	-	[c]
		-	-	-	50	-	-	-	-	-	[d]
	ON 6/2008	-	-	-	-	-	-	-	100	-	
	QC 6/2008	-	-	-	50	127	-	-	-	-	[e]

Form: [a]Aerosol [b]aerosol [c]Particulate [d]Vapour [e]vapour and mist

Section 9. Physical and chemical properties

Physical State and Appearance	Clear viscous liquid.	**Odour**	Odorless.
Molecular weight	Not applicable.	**Taste**	Sweet.
pH	8 to 10	**Colour**	Colorless.
Boiling/condensation point	197°C (386.6°F)	**Volatility**	Not available.
Melting/freezing point	-13°C (8.6°F)	**Evaporation rate**	0.01 (Butyl acetate. = 1)
Relative density	1.12 to 1.15	**Odour Threshold**	25 ppm
Vapor pressure	0.008 kPa (0.06 mm Hg)	**Viscosity**	Dynamic: 21 mPa·s (21 cP)
Vapour Density	2.1 [Air = 1]	**Solubility**	Soluble in water, methanol, diethyl ether.
VOC content	98.2 % (w/w) [ISO 11890-1]	**Other Properties**	Not available.

The product is:	May be combustible at high temperature.
Auto-ignition temperature	Not available.
Flash point	Values for 100% EG 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 the presence of various substances	Non-flammable in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and shocks and mechanical impacts

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Section 10. Stability and reactivity

Stability	The product is stable.
Conditions of instability	Not available.
Incompatibility with various substances	Reactive or incompatible with the following materials: oxidizing materials, acids and alkalis. Avoid contamination with reactive substances.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological Information

Canada

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Ethylene glycol	LC50 Inhalation Dusts and mists	Rat	2725 mg/m³	4 hours
	LD50 Dermal	Rabbit	9500 mg/kg	-
	LD50 Dermal	Rabbit	9500 mg/kg	-
	LD50 Dermal	Rabbit	9530 uL/kg	-
	LD50 Intraperitoneal	Mouse	5614 mg/kg	-
	LD50 Intraperitoneal	Rat	5010 mg/kg	-
	LD50 Intravenous	Rat	3260 mg/kg	-
	LD50 Oral	Cat	1650 mg/kg	-
	LD50 Oral	Dog	5500 mg/kg	-
	LD50 Oral	Mouse	5500 mg/kg	-
	LD50 Oral	Rat	4000 mg/kg	-
	LD50 Oral	Rat	4700 mg/kg	-
	LD50 Oral	Rat	5000 mg/kg	-
	LD50 Subcutaneous	Rat	2800 mg/kg	-
	LD50 Unreported	Mouse	8050 mg/kg	-
	LD50 Unreported	Rabbit	5017 mg/kg	-
	LD50 Unreported	Rat	13 g/kg	-
Sodium Benzoate	LD50 Oral	Rat	4070 mg/kg	-
	LD50 Oral	Rat	4070 mg/kg	-

Conclusion/Summary (Ethylene glycol) The most common effects seen from ingestion of ethylene glycol are central nervous system (CNS) depression (muscular incoordination, lethargy, coma) and harmful effects on the kidneys including inflammation, degeneration, tissue death (necrosis), tubule dilation and oxalate crystal or stone deposition.

Chronic toxicity

Conclusion/Summary Not available.

Carcinogenicity

Conclusion/Summary Exposure can cause dermatitis.

Classification

Product/ingredient name	ACGIH	IARC	EPA	NIOSH	NTP	OSHA
Ethylene glycol	A4	-	-	-	-	-

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Mutagenicity

Conclusion/Summary : Not available.

Teratogenicity

Conclusion/Summary : (Ethylene Glycol) Embryotoxicity (late resorptions), fetotoxicity (reduced fetal body weight) and teratogenicity (external, soft tissue and skeletal defects) have been observed in rats and mice exposed to at high oral doses that caused no or minimal maternal toxicity. The US National Toxicology Program-Center for the Evaluation of Risks to Human Reproduction (NTP-CERHR) has also concluded that oral exposure to high doses of ethylene glycol causes developmental toxicity in rats and mice.

Reproductive Toxicity

Conclusion/Summary : Not available.

Section 12. Ecological information

For accidental discharges into the environment, see Section 6:"Accidental Release Measures" for suggested instructions.

Ecotoxicity : This product shows a low bioaccumulation potential.

Canada

Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Ethylene glycol	Acute EC50 >100 mg/L	Daphnia	4 hours
	Acute EC50 >100 mg/L	Daphnia	4 hours
	Acute IC50 >100 mg/L	Algae	1 hours
	Acute IC50 >100 mg/L	Algae	1 hours
	Acute LC50 >100000 ug/L Marine water	Crustaceans - Crangon crangon - Adult	48 hours
	Acute LC50 6900000 to 8800000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 >100 mg/L	Fish	24 hours
	Acute LC50 >100 mg/L	Fish	24 hours
	Acute LC50 8050000 ug/L Fresh water	Fish - Pimephales promelas - <=7 days	96 hours
	Chronic NOEC 11610000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia - <=24 hours	48 hours
	Chronic NOEC 6090000 ug/L Fresh water	Fish - Pimephales promelas - <=7 days	96 hours
Sodium Benzoate	Acute LC50 >100000 ug/L Fresh water	Fish - Pimephales promelas - Juvenile (Fledgling, Hatchling, Weanling) - 0.2 to 0.5 g	96 hours

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

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Section 13. Disposal considerations

Waste information The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations.

Section 14. Transport information

Canada TDG Classification	
Class	Not a TDG-controlled material.
Subsidiary class	-
Proper Shipping Name (Canada) TDG	Not applicable.
UN number	Not applicable.
Packing Group	Not applicable.
Special provisions	Not applicable.

No placard (handling and hazard label) required.

IMDG Classification	
Class	Not controlled under IMDG.
Subsidiary class	Not applicable.
Proper Shipping Name IMDG	Not applicable.
UN number	Not applicable.
Packing Group	Not applicable.
Marine pollutant	Not a pollutant.
Special provisions	Not applicable.

No placard (handling and hazard label) required.

No placard (handling and hazard label) required.

United States DOT (Classification)	
Class	Class 9: Miscellaneous hazardous material.
Subsidiary class	-
Proper Shipping Name (United States) DOT	Environmentally hazardous substance, liquid, n.o.s. (Ethylene glycol based coolant)
UN number	UN 3082
Packing Group	III
Special provisions	In single containers of 5000 lbs capacity or less this product is exempt from DOT regulations (not regulated). Does not require label or placards. Reportable Quantity (RQ)= 5000 lbs (2268 kg) (as ethylene glycol) For bulk shipments equal to or greater than Reportable Quantity (RQ), please adhere to classification as outlined in DOT Classification section.

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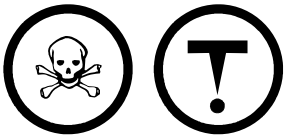
International Air Transport Association (IATA)	For air shipment classification and associated regulations, please refer to the latest edition of IATA Dangerous Goods Regulations.

Section 15. Regulatory information

WHMIS Classification (Canada)	Class D-1B: Material causing immediate and serious toxic effects (Toxic). 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.

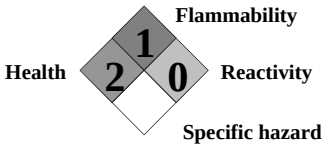


HCS Classification (U.S.A.)	Target organ effects
U.S.A. Regulatory Lists	This product and/ or all of its components are on the TSCA inventory list.

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 15/08/2011 ph.# 905-878-5544.

Printed 15/08/2011.

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MSDS are available at www.recochem.com