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	**Heavy duty Antifreeze/ Coolant purple**	**Associated Product's Item Code**	**WIP-16280**
Synonym	Not available.	**CAS #**	Not applicable.
Chemical family	Glycol.	**Validation date**	**2/16/2009.**
Chemical formula	Not applicable.	**Print date**	2/16/2009.
Manufacturer	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

MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

May cause target organ damage, based on animal data.

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.

Continued on next page

Section 3. Composition, information on ingredients

Canada

Name	CAS number	%
ethanediol	107-21-1	90 - 99

There are no ingredients or additional 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	Immediately flush eyes with plenty of water for at least 60 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Skin contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Inhalation	Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Ingestion	Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
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 oxides
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.

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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 or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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 breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. 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, gases 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

Product name	Exposure limits
Canada	
ethanediol	**ACGIH (Canada, 2003).** CEIL: 100 mg/m³ **CA Alberta Provincial (Canada, 10/2006).** 15 min OEL: 100 mg/m³ 15 minute(s). Form: aerosol **CA British Columbia Provincial (Canada, 7/2007).** STEL: 100 mg/m³ 15 minute(s). Form: Aerosol TWA: 10 mg/m³ 8 hour(s). Form: Particulate

Continued on next page

STEL: 20 mg/m³ 15 minute(s). Form: Particulate
STEL: 50 ppm 15 minute(s). Form: Vapour

CA Ontario Provincial (Canada, 3/2007).
CEV: 100 mg/m³

CA Quebec Provincial (Canada, 12/2006).
STEV: 50 ppm 15 minute(s). Form: vapour and mist
STEV: 127 mg/m³ 15 minute(s). Form: vapour and mist

United States

ethanediol

ACGIH TLV (United States, 1/2007).
C: 100 mg/m³ Form: Aerosol

OSHA PEL 1989 (United States, 3/1989).
CEIL: 50 ppm
CEIL: 125 mg/m³

Section 9. Physical and chemical properties

Physical State and Appearance	Clear viscous liquid.	**Odour**	Odourless.
Molecular weight	62.07 g/mole	**Taste**	Sweet.
pH	Not available.	**Colour**	Purple.
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.
Relative density	1.12 to 1.15	**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	1115 (g/l).	**Other Properties**	Not available.

The product is:	May be combustible at high temperature.
Auto-ignition temperature	400°C (752°F)
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

Continued on next page

Section 10. Stability and reactivity

Stability	The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions of instability	No additional remark.
Incompatibility with various substances	Reactive with oxidizing agents, acids, alkalis.
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
ethanediol	LD50 Dermal	Rabbit	9500 mg/kg	-
	LD50 Dermal	Rabbit	9530 uL/kg	-
	LD50 Intraperitoneal	Rat	5010 mg/kg	-
	LD50 Intravenous	Rat	3260 mg/kg	-
	LD50 Oral	Rat	4700 mg/kg	-
	LD50 Oral	Rat	4000 mg/kg	-
	LD50 Subcutaneous	Rat	2800 mg/kg	-
	LD50 Unreported	Rat	13 g/kg	-
	LDLo Intramuscular	Rat	3300 mg/kg	-
	LDLo Intravenous	Rat	2800 mg/kg	-
	LDLo Intramuscular	Rat	3300 mg/kg	-
	TDLo Oral	Rat	1110 mg/kg	-
	TDLo Oral	Rat	5000 mg/kg	-
	TDLo Oral	Rat	120 mg/kg	-
	TDLo Oral	Rat	1000 mg/kg	-
	TDLo Subcutaneous	Rat	3000 mg/kg	-

Conclusion/Summary : Toxic for humans or animal life.

Chronic toxicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Exposure can cause dermatitis.

Classification

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

Mutagenicity

Conclusion/Summary : Not available.

Continued on next page

Teratogenicity

Conclusion/Summary : Not available.

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.

Environmental effects : This product shows a low bioaccumulation potential.

Canada

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
ethanediol	Daphnia.	Acute EC50 >100 mg/L	Daphnia	4 hours
	Algae.	Acute IC50 >100 mg/L	Algae	1 hours
	Fish.	Acute LC50 >100 mg/L	Fish	24 hours
	-	Acute LC50 27540 mg/L Fresh water	Fish - Lepomis macrochirus	96 hours
	-	Acute LC50 >100 ml/L Fresh water	Fish - Lepomis macrochirus	96 hours
	-	Acute LC50 41 to 47 ml/L Fresh water	Fish - Oncorhynchus mykiss	96 hours
	-	Acute LC50 16 to 18 ml/L Fresh water	Fish - Oncorhynchus mykiss	96 hours
	-	Acute LC50 >18500 mg/L Fresh water	Fish - Oncorhynchus mykiss	96 hours
	-	Acute LC50 10500000 to 12700000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 10000000 to 12300000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 >10000000 ug/L Fresh water	Fish - Pimephales promelas	96 hours
	-	Acute LC50 >10000000 ug/L Fresh water	Daphnia - Daphnia magna	48 hours
	-	Acute LC50 8050000 ug/L	Fish - Pimephales promelas	96 hours

Continued on next page

		Fresh water		
	-	Acute LC50 6900000 to 8800000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 49000000 to 60000000 ug/L Fresh water	Fish - Pimephales promelas	96 hours
	-	Acute LC50 22600000 to 26500000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 25500000 to 29800000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 13900000 to 16600000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 13140000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Chronic NOEC 11610000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Chronic NOEC 24000000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Section 13. Disposal considerations

Waste information The generation of waste should be avoided or minimized wherever possible. 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.

Continued on next page

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.

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.

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)
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.

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

Continued on next page

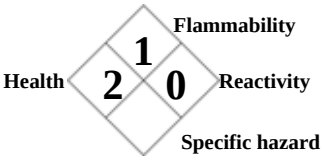
Section 15. Regulatory information

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.)	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 2/16/2009 ph.# 905-878-5544

Printed 2/16/2009.

Notice to reader

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.

MSDS are available at www.recochem.com

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	**Heavy duty Antifreeze/ Coolant purple 50-50**	**Associated Product's Item Code**	**WIP-16280-50**
Synonym	Not available.	**CAS #**	Not applicable.
Chemical family	Glycol.	**Validation date**	**2/16/2009.**
Chemical formula	Not applicable.	**Print date**	2/16/2009.
Manufacturer	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

MAY CAUSE TARGET ORGAN DAMAGE, BASED ON ANIMAL DATA.

May cause target organ damage, based on animal data.

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.

Continued on next page

Section 3. Composition, information on ingredients

Canada

Name	CAS number	%
ethanediol	107-21-1	50

There are no ingredients or additional 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	Immediately flush eyes with plenty of water for at least 60 minutes, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Skin contact	Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Inhalation	Move exposed person to fresh air. Keep person warm and at rest. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Ingestion	Wash out mouth with water. Remove dentures if any. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
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 oxides
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.

Continued on next page

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 or absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

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 breathe vapor or mist. Do not ingest. Avoid contact with eyes, skin and clothing. 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, gases 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

Product name	Exposure limits
Canada	
ethanediol	**ACGIH (Canada, 2003).** CEIL: 100 mg/m³ **CA Alberta Provincial (Canada, 10/2006).** 15 min OEL: 100 mg/m³ 15 minute(s). Form: aerosol **CA British Columbia Provincial (Canada, 7/2007).** STEL: 100 mg/m³ 15 minute(s). Form: Aerosol TWA: 10 mg/m³ 8 hour(s). Form: Particulate

Continued on next page

STEL: 20 mg/m³ 15 minute(s). Form: Particulate
STEL: 50 ppm 15 minute(s). Form: Vapour

CA Ontario Provincial (Canada, 3/2007).
CEV: 100 mg/m³

CA Quebec Provincial (Canada, 12/2006).
STEV: 50 ppm 15 minute(s). Form: vapour and mist
STEV: 127 mg/m³ 15 minute(s). Form: vapour and mist

United States

ethanediol

ACGIH TLV (United States, 1/2007).
C: 100 mg/m³ Form: Aerosol

OSHA PEL 1989 (United States, 3/1989).
CEIL: 50 ppm
CEIL: 125 mg/m³

Section 9. Physical and chemical properties

Physical State and Appearance	Clear viscous liquid.	**Odour**	Odourless.
Molecular weight	62.07 g/mole	**Taste**	Sweet.
pH	Not available.	**Colour**	Purple.
Boiling/condensation point	197°C (386.6°F)	**Volatility**	0% (w/w).
Melting/freezing point	-37°C (-34.6°F)	**Evaporation rate**	0.01 compared to Butyl acetate.
Relative density	1.12 to 1.15	**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	1115 (g/l).	**Other Properties**	Not available.

The product is:	May be combustible at high temperature.
Auto-ignition temperature	Not available.
Flash Point	Not applicable.
Flammable limits	Not available.
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

Continued on next page

Section 10. Stability and reactivity

Stability	The product is stable. Under normal conditions of storage and use, hazardous polymerization will not occur.
Conditions of instability	No additional remark.
Incompatibility with various substances	Reactive with oxidizing agents, acids, alkalis.
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
ethanediol	LD50 Dermal	Rabbit	9500 mg/kg	-
	LD50 Dermal	Rabbit	9530 uL/kg	-
	LD50 Intraperitoneal	Rat	5010 mg/kg	-
	LD50 Intravenous	Rat	3260 mg/kg	-
	LD50 Oral	Rat	4700 mg/kg	-
	LD50 Oral	Rat	4000 mg/kg	-
	LD50 Subcutaneous	Rat	2800 mg/kg	-
	LD50 Unreported	Rat	13 g/kg	-
	LDLo Intramuscular	Rat	3300 mg/kg	-
	LDLo Intravenous	Rat	2800 mg/kg	-
	LDLo Intramuscular	Rat	3300 mg/kg	-
	TDLo Oral	Rat	1110 mg/kg	-
	TDLo Oral	Rat	5000 mg/kg	-
	TDLo Oral	Rat	120 mg/kg	-
	TDLo Oral	Rat	1000 mg/kg	-
	TDLo Subcutaneous	Rat	3000 mg/kg	-

Conclusion/Summary : Toxic for humans or animal life.

Chronic toxicity

Conclusion/Summary : Not available.

Carcinogenicity

Conclusion/Summary : Exposure can cause dermatitis.

Classification

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

Mutagenicity

Conclusion/Summary : Not available.

Continued on next page

Teratogenicity

Conclusion/Summary : Not available.

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.

Environmental effects : This product shows a low bioaccumulation potential.

Canada

Aquatic ecotoxicity

Product/ingredient name	Test	Result	Species	Exposure
ethanediol	Daphnia.	Acute EC50 >100 mg/L	Daphnia	4 hours
	Algae.	Acute IC50 >100 mg/L	Algae	1 hours
	Fish.	Acute LC50 >100 mg/L	Fish	24 hours
	-	Acute LC50 27540 mg/L Fresh water	Fish - Lepomis macrochirus	96 hours
	-	Acute LC50 >100 ml/L Fresh water	Fish - Lepomis macrochirus	96 hours
	-	Acute LC50 41 to 47 ml/L Fresh water	Fish - Oncorhynchus mykiss	96 hours
	-	Acute LC50 16 to 18 ml/L Fresh water	Fish - Oncorhynchus mykiss	96 hours
	-	Acute LC50 >18500 mg/L Fresh water	Fish - Oncorhynchus mykiss	96 hours
	-	Acute LC50 10500000 to 12700000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 10000000 to 12300000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 >10000000 ug/L Fresh water	Fish - Pimephales promelas	96 hours
	-	Acute LC50 >10000000 ug/L Fresh water	Daphnia - Daphnia magna	48 hours
	-	Acute LC50 8050000 ug/L	Fish - Pimephales promelas	96 hours

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		Fresh water		
	-	Acute LC50 6900000 to 8800000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 49000000 to 60000000 ug/L Fresh water	Fish - Pimephales promelas	96 hours
	-	Acute LC50 22600000 to 26500000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 25500000 to 29800000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 13900000 to 16600000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Acute LC50 13140000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Chronic NOEC 11610000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours
	-	Chronic NOEC 24000000 ug/L Fresh water	Daphnia - Ceriodaphnia dubia	48 hours

Conclusion/Summary : Not available.

Biodegradability

Conclusion/Summary : Not available.

Section 13. Disposal considerations

Waste information The generation of waste should be avoided or minimized wherever possible. 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.

Continued on next page

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.

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.

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)
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.

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

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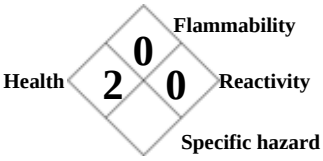
Section 15. Regulatory information

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.)	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	0
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 2/16/2009 ph.# 905-878-5544

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Notice to reader

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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.

MSDS are available at www.recochem.com