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megaloid.ca



**Responsible Care®**  
Our commitment to sustainability.



**Responsible Distribution Canada**  
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## 1. PRODUCT IDENTIFICATION

**Name:** *Ethylene Glycol – all grades*

**Synonyms:** *1,2-ethanediol, 1,2-dihydroxyethane, ethylene dehydrate*

**CAS#** 107-21-1

**Product Uses:** *antifreeze in heat transfer fluids, humectant, plasticiser, hydraulic fluid, solvent*

**Supplier Identifier:** *Megaloid Laboratories Limited  
5515 North Service Road, Suite 306  
Burlington, Ontario, Canada  
L7L 6G4  
Phone: 905-337-7411 / Fax: 905-337-1686*

**EMERGENCY INFORMATION** Call CHEMTREC - (800) 424-9300 (CCN # 693764)

## 2. HAZARDS

<b>GHS Class</b> <i>(category)</i>	<b>Acute oral</b> <i>(4)</i>	<b>STOT</b> <i>(2)</i>	
<b>Signal Words</b>	<b>WARNING</b>		
<b>Hazard Statements</b>	<i>Harmful if swallowed</i>  <i>(H302)</i>	<i>May cause damage to organs through prolonged or repeated exposure</i>  <i>(H373)</i>	

### GHS Precautionary Statements for Labelling

<b>Prevention</b>	
<b>P264</b>	Wash hands thoroughly after handling.
<b>P270</b>	Do not eat, drink or smoke when using this product.
<b>Response</b>	
<b>P301, P310</b>	IF SWALLOWED: Immediately call a POISON CENTRE or doctor.
<b>Storage</b>	
<b>P405</b>	Store locked up.
<b>Disposal</b>	
<b>P501</b>	Dispose of contents and container in accordance with local, regional, national and international regulations.

### 3. COMPOSITION

Chemical Name:	CAS No.	%	Other Identifiers
<i>Ethylene Glycol</i>	107-21-1	100	EC # 203-473-3

### 4. FIRST AID

#### Inhalation

*Remove from contaminated area promptly. CAUTION: Rescuer must not endanger himself! If breathing stops, administer artificial respiration and seek medical aid promptly.*

#### Skin Contact

*Wash with plenty of water. Remove contaminated clothing and do not reuse until thoroughly laundered.*

#### Eye Contact

*Wash eyes with plenty of water, holding eyelids open. Seek medical assistance if there is any irritation.*

#### Ingestion

*Give plenty of water to dilute product. Do not induce vomiting (NOTE below). Keep victim quiet. If vomiting occurs, lower victim's head below hips to prevent inhalation of vomited material. Seek medical help promptly.*

#### **First-aid Comments**

*Inadvertent inhalation of vomited material may seriously damage the lungs. The danger of this is greater than the risk of poisoning through absorption of this relatively low-toxicity substance. The stomach should only be emptied under medical supervision, and after the installation of an airway to protect the lungs.*

***NOTE TO DOCTOR: Following gastric lavage, oral ethanol & calcium gluconate help reduce toxicity. If kidney function is normal, administer 4 litres of water daily to speed glycol excretion. If renal function is poor, dialysis should be used to help remove glycol.***

### 5. FIRE FIGHTING & FLAMMABILITY

#### Extinguishing Media

##### **Suitable Extinguishing Media**

*Alcohol-resistant foam, water fog or water spray.*

#### Combustion Products

*Carbon monoxide, nitrogen oxides, smoke, part oxidized hydrocarbon fragments  
Cannot accumulate a static charge on agitation or pumping.*

#### Special Protective Equipment and Precautions for Fire-fighters

*Firefighters must wear SCBA. Fire-fighters may enter the area if positive pressure SCBA and full Bunker Gear is worn.*

### 6. ACCIDENTAL RELEASE MEASURES

#### Personal Precautions, Protective Equipment, and Emergency Procedures

*Evacuate the area immediately. Isolate the hazard area. Keep out unnecessary and unprotected personnel. Eliminate all ignition sources. Use grounded, explosion-proof equipment. Increase ventilation to area or move leaking container to a well-ventilated and secure area.*

#### Environmental Precautions

If the spill is inside a building, prevent product from entering drains, ventilation systems and confined areas.

### Methods and Materials for Containment and Cleaning Up

*Leak Precaution: dyke to control spillage and prevent environmental contamination*

*Handling Spill: Ventilate contaminated area; recover free liquid with suitable pumps; absorb residue on an inert sorbent, sweep & pick up using plastic or aluminium shovel, & store in closed containers for recycling or disposal.*

### Other Information

*Report spills to local health, safety and environmental authorities, as required.*

## 7. HANDLING & STORAGE

### Precautions for Safe Handling

*Avoid breathing product vapour / mist. Use with adequate ventilation.*

*Never cut, drill, weld or grind on or near this container. Avoid contact with skin & wash work clothes frequently. An eye bath must be available near the workplace.*

*WARNING: Ethylene Glycol has a sweet taste. It is an "attractive" drink for pets & children. Ensure spills are dealt with promptly to avoid inadvertent poisoning.*

### Conditions for Safe Storage

*Store & use in a cool, dry environment, away from sources of ignition & oxidizing agents. This product absorbs moisture from the air. Ensure that containers are tightly sealed. Bulk storage tanks should have moisture traps on their vents.*

## 8. EXPOSURE CONTROL & PERSONAL PROTECTION

**Ontario TWAEV** 40ppm / 100mg/m<sup>3</sup> (aerosol only)

**AGGIH TLV** 40ppm / 100mg/m<sup>3</sup> (aerosol only)

**OSHA PEL** 50ppm / 125mg/m<sup>3</sup>

**Ontario STEV** not listed

**ACGIH STEL** C 100 mg/m<sup>3</sup>(H)

**OSHA STEL** not listed

**Ventilation** *Mechanical ventilation may be required to maintain airborne titre.*

**Hands** *Not required, if used as directed.*

**Eyes** *Safety glasses with side shields – always protect the eyes*

**Clothing** *No special protective clothing required*

## 9. PHYSICAL PROPERTIES

**Appearance** *Colourless. Absorbs moisture from the air.*

**Odour** *Odourless*

**Odour threshold** *Not available*

**pH** *Neutral*

**Melting Point/Freezing Point** *-13 °C (9 °F) (freezing)*

**Initial Boiling Point/Range** *198 °C (388 °F)*

<b>Flash Point</b>	111 °C (232 °F)
<b>Evaporation Rate</b>	Not Available
<b>Flammability ( Solid, Gas)</b>	Not Available
<b>Upper/Lower Flammability or Explosive Limit</b>	Not available
<b>Vapour Pressure</b>	0.05mmHg / 0.007kPa (20oC / 68oF)
<b>Vapour Density (air = 1)</b>	2
<b>Relative Density (water = 1)</b>	1.114 at 20 °C (68 °F)
<b>Solubility</b>	Soluble in water; Soluble in all proportions in common organic solvents.
<b>Partition Coefficient, n-Octanol/Water (Log Kow)</b>	-1.36
<b>Auto-ignition Temperature</b>	398 °C (748 °F)
<b>Conversion Factor</b>	1 ppm = 2.53 mg/m <sup>3</sup>
<b>Viscosity</b>	21centipoise (25°C / 77°F)
<b>Physical State</b>	Liquid
<b>Molecular Weight</b>	62 grams per mole
<b>Molecular Formula</b>	C2-H6-O2

## 10. REACTIVITY

**Dangerously Reactive** with strong oxidising agents; perchloric acid, strong alkalis.  
**Also Reactive** with strong acids.

### Chemical Stability

Stable; will not polymerize

### Possibility of Hazardous Reactions

None known.

### Hazardous Decomposition Products

None apart from Hazardous Combustion Products.

### Mechanical Impact

Not sensitive

## 11. TOXICITY

**NOTE:** Mammals metabolize EG into oxalic acid. Renal crystallization of oxalic acid salts is responsible for (delayed) kidney failure & lethality. Ethylene glycol is considerably more toxic to humans than to the laboratory animals used in LD<sub>50</sub> testing.

Acute Toxicity	
<b>LD<sub>50</sub> (oral)</b>	1650 & 2000mg/kg (cat); 4000-11,000mg/kg (rat), 5500mg/kg (mouse & dog), 6610mg/kg (guinea pig)
<b>LD<sub>50</sub> (skin)</b>	9530mg/kg (rabbit), >3500mg/kg (rabbit) – no mortality

**LC50 (inhalation)** 2725mg/m<sup>3</sup> (rat), >2500mg/m<sup>3</sup> (rat)

**Serious Eye Damage/Irritation**

*Not an eye irritant.*

**STOT (Specific Target Organ Toxicity) - Single Exposure**

**Inhalation**

*Mist becomes irritating above 127mg/m<sup>3</sup>; intolerable above 240mg/m<sup>3</sup> – inhalation is unlikely under industrial conditions due to low vapour pressure & elevated viscosity.*

**Skin Absorption**

*Not harmful.*

**Ingestion**

*Ethylene glycol is an alcohol producing similar intoxication/depression symptoms; high doses may cause convulsions & coma; survival may be followed by renal failure\* after 3 days & possible death.*

**STOT (Specific Target Organ Toxicity) - Repeated Exposure**

*Prolonged absorption may cause vision to deteriorate & damage kidneys..*

**Respiratory and/or Skin Sensitization**

*Not a skin sensitizer.*

**Carcinogenicity**

*Not a carcinogen. IARC: Not specifically listed. ACGIH®: A4 – Not classifiable as a human carcinogen. NTP: Not specifically listed. OSHA: Not specifically listed. Tumorigen in rodents receiving high but sub-lethal oral doses – not an expected route of industrial exposure*

**Reproductive Toxicity**

**Development of Offspring**

*Teratogen in rodents given high but sub-lethal oral doses; developmental abnormalities are reported in children of mothers exposed to EG & ethylene glycol monomethyl ether at a higher level of exposure than likely in North America*

**Germ Cell Mutagenicity**

*No known effect on humans or animals.*

**12. ECOLOGICAL INFORMATION**

<b>Bioaccumulation</b>	<i>Not a bioaccumulator.</i>
<b>Persistence and Degradability</b>	<b>Biodegradation -</b> <i>biodegrades readily &amp; rapidly in the presence of oxygen; essentially complete in 1-4 days</i>
	<b>Abiotic Degradation -</b> <i>reacts with atmospheric hydroxyl radicals; estimated ½-life in air is wide: 8 to 80hours</i>
<b>Mobility in soil, water</b>	<i>Sufficiently water soluble to move readily in soil &amp; water.</i>
<b>Aquatic Toxicity</b>	
<b>LC50 (Fish, 96hr)</b>	<i>&gt;10,000mg/litre (Lepomis macrochirus), 40,760mg/litre (Oncorhynchus mykiss), 16,000mg/litre (Poecilia reticulata) 49,000-57,000, 72,860mg/litre (Pimephales promelas)</i>
<b>EC50 (Crustacea, 48hr)</b>	<i>&gt;20,000mg/litre (Artemia salina), 41,000-57,600mg/litre (Daphnia magna).</i>
<b>EC50 (Algae)</b>	<i>6500-7500 &amp; 24,000mg/litre (Selenastrum capricornutum),</i>

	>10,000mg/litre ( <i>Scenedesmus quadricauda</i> ), 5600 & 13,000mg/kg ( <i>Pseudokirchnerella subcapitata</i> )
<b>EC50 (Bacteria)</b>	10,000mg/litre (domestic sewage sludge), 35,000mg/litre ( <i>Paramecium caudatum</i> ), >10,000mg/litre ( <i>Pseudomonas putida</i> ) 621mg/litre ( <i>Photobacterium phosphoreum</i> )
<b>Note:</b>	<i>Non-mammalian species metabolise ethylene glycol differently from mammals. Its toxicity to fish, crustacea, birds, reptiles, etc is very low.</i>

### 13. DISPOSAL

#### Water Disposal

**Do not flush to sewer**, recycle solvent if possible, local regulations may permit disposal in sanitary landfill, may be incinerated in approved facility after mixing with a suitable flammable waste

#### Containers

**Drums** should be reused. Recondition and pressure test by a licensed reconditioner prior to re-use.

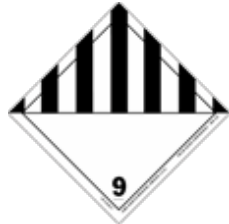
**Pails** must be vented and thoroughly dried prior to crushing and recycling.

**IBCs** (intermediate bulk containers): polyethylene bottle must be pressure tested & recertified at 30 months. Replace at 60 months (5yrs).

**Steel containers** must be inspected, pressure tested & recertified every 5 years.

**Never cut, drill, weld or grind on or near this container,  
even if empty**

### 14. TRANSPORT CLASSIFICATION

<b>Canada TDG</b>	<b>PIN</b>	Not regulated for transport	<b>US only</b>
<b>U.S.A. 49 CFR</b>	<b>PIN</b>	UN3082	
	<b>Shipping Name</b>	Environmentally Hazardous Substance, Liquid, n.o.s.	
	<b>Class &amp; Packing Group</b>	9, PG III	
<b>Marine Pollutant ERAP Required Reportable Quantity E R G No.</b>	Not a Marine Pollutant NO 5000 lbs 171		

### 15. REGULATIONS

<b>Canada DSL</b>	On Inventory
<b>U.S.A. TSCA</b>	On Inventory
<b>Europe EINECS</b>	On Inventory

#### Canadian Regulations

#### CEPA - National Pollutant Release Inventory (NPRI)

Part 1A.

#### U.S.A. Regulations

**Allowable Tolerances:** Residues of ethylene glycol are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest. Use: Encapsulating agent for pesticides being applied post-harvest as residual, and crack and crevice sprays in and around food and nonfood areas of residential and nonresidential structures, including food handling establishments. Limit: without limitation. Residues of ethylene glycol are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. Use: Antifreeze, deactivator for all pesticides used before crop emerges from soil and in herbicides before or after crop emerges. Limit: none. Residues of ethylene glycol are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. Use: Pesticide inert ingredient as a solvent, stabilizer and/or antifreeze. Limit: without limitation. Ethylene glycol as a component of pesticide formulations is exempt from the requirement of a tolerance when used in foliar applications to peanut plants.

**OSHA Standards:** Vacated 1989 OSHA PEL Ceiling value 50 ppm (125 mg/cu m) is still enforced in some states.

**NIOSH Recommendations:** NIOSH questioned whether the OSHA PEL proposed for ethylene glycol [ceiling 50 ppm] is adequate to protect workers from recognized health hazards.

**Threshold Limit Values:** Ceiling Limit: 100 mg/cu m (Aerosol only). A4; Not classifiable as a human carcinogen.

**Atmospheric Standards:** This action promulgates standards of performance for equipment leaks of Volatile Organic Compounds (VOC) in the Synthetic Organic Chemical Manufacturing Industry (SOCMI). The intended effect of these standards is to require all newly constructed, modified, and reconstructed SOCMI process units to use the best demonstrated system of continuous emission reduction for equipment leaks of VOC, considering costs, non air quality health and environmental impact and energy requirements. Ethylene glycol is produced, as an intermediate or a final product, by process units covered under this subpart. Listed as a hazardous air pollutant (HAP) generally known or suspected to cause serious health problems. The Clean Air Act, as amended in 1990, directs EPA to set standards requiring major sources to sharply reduce routine emissions of toxic pollutants. EPA is required to establish and phase in specific performance based standards for all air emission sources that emit one or more of the listed pollutants. Ethylene glycol is included on this list.

**Federal Drinking Water Guidelines:** EPA 14,000 ug/L.

**State Drinking Water Guidelines:** Arizona 5500 ug/l California 14,000 ug/l Florida 14,000 ug/l Massachusetts 14,000 ug/l Minnesota 10000 ug/l New Hampshire 7000 ug/l New Jersey 290 ug/l.

**CERCLA Reportable Quantities:** Persons in charge of vessels or facilities are required to notify the National Response Centre immediately, when there is a release of this designated hazardous substance, in an amount equal to or greater than its reportable quantity of 5000 lb or 2270 kg. The toll free number of the NRC is (800) 424-8802. The rule for determining when notification is required is stated in 40 CFR 302.4 (section IV.D.3.b).

**FIFRA Requirements:** Residues of ethylene glycol are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops or to raw agricultural commodities after harvest. Use: Encapsulating agent for pesticides being applied post-harvest as residual, and crack and crevice sprays in and around food and nonfood areas of residential and nonresidential structures, including food handling establishments. Limit: without limitation. Residues of ethylene glycol are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. Use: Antifreeze, deactivator for all pesticides used before crop emerges from soil and in herbicides before or after crop emerges. Limit: none. Residues of ethylene glycol are exempted from the requirement of a tolerance when used in accordance with good agricultural practice as inert (or occasionally active) ingredients in pesticide formulations applied to growing crops only. Use: Pesticide inert ingredient as a solvent, stabilizer and/or antifreeze. Limit: without limitation. Ethylene glycol as a component of pesticide formulations is exempt from the requirement of a tolerance when used in foliar applications to peanut plants. As the federal pesticide law FIFRA directs, EPA is conducting a comprehensive review of older pesticides to consider their health and environmental effects and make decisions about their continued use. Under this pesticide



reregistration program, EPA examines newer health and safety data for pesticide active ingredients initially registered before November 1, 1984, and determines whether the use of the pesticide does not pose unreasonable risk in accordance to newer safety standards, such as those described in the Food Quality Protection Act of 1996. Pesticides for which EPA had not issued Registration Standards prior to the effective date of FIFRA '88 were divided into three lists based upon their potential for human exposure and other factors, with List B containing pesticides of greater concern than those on List C, and with List C containing pesticides of greater concern than those on List D. Ethylene glycol is found on List D. Case No: 4033; Pesticide type: insecticide, fungicide, antimicrobial; Case Status: No products containing the pesticide are actively registered ... The case /is characterized/ as "cancelled." Under FIFRA, pesticide producers may voluntarily cancel their registered products. EPA also may cancel pesticide registrations if registrants fail to pay required fees or make/meet certain reregistration commitments, or if EPA reaches findings of unreasonable adverse effects.; Active ingredient (AI): Ethylene glycol; AI Status: The active ingredient is no longer contained in any registered pesticide products ... cancelled."

**FDA Requirements:** Ethylene glycol is an indirect food additive for use only as a component of adhesives.

## 15. OTHER INFORMATION

<b>NFPA RATING</b>	<b>Health 1</b>	<b>Flammability 1</b>	<b>Instability 0</b>
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**Prepared for** Megaloid Laboratories Limited **by** Richard Koscher  
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<b>Key to Abbreviations</b>	ACGIH® = American Conference of Governmental Industrial Hygienists AIHA® = AIHA® Guideline Foundation HSDB® = Hazardous Substances Data Bank IARC = International Agency for Research on Cancer NFPA = National Fire Protection Association NIOSH = National Institute for Occupational Safety and Health NTP = National Toxicology Program OSHA = US Occupational Safety and Health Administration RTECS® = Registry of Toxic Effects of Chemical Substances
<b>References</b>	CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS). HSDB® database. US National Library of Medicine. Available from Canadian Centre for Occupational Health and Safety (CCOHS). NIOSH Pocket Guide database. National Institute for Occupational Safety and Health. Available from Canadian Centre for Occupational Health and Safety (CCOHS). Registry of Toxic Effects of Chemical Substances (RTECS®) database. Dassault Systèmes/BIOVIA ("BIOVIA"). Available from Canadian Centre for Occupational Health and Safety (CCOHS).
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