

# MSDS

## Material Safety Data Sheet

### 50/50 ANTIFREEZE

#### SUPPLIER

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#### INGREDIENTS

MATERIAL	CAS #	% BY VOL	PEL (OSHA)	TLV (ACGIH)
Ethylene Glycol	107-21-1	48%	50 ppm	50 ppm
Diethylene Glycol	111-46-6	0-5	None	None
Dipotassium Phosphate	7758-11-4	1-2	None	None
Dionized Water		48%		

#### HAZARDS IDENTIFICATION

Slight odor

Can be fatal if swallowed.

Vapors can cause eye irritation.

LOWEST KNOWN LD50 (ORAL)	107-21-1	5840 mg/kg (Rats)
LOWEST KNOWN LD50 (SKIN)	107-21-1	9530 mg/kg (Rabbits)

#### NFPA Hazard Rating System:

HEALTH: 1

FLAMMABILITY: 1

REACTIVITY: 0

Key: 0 - Minimal    1 - Slight    2 - Moderate    3 - Serious    4 - Severe

Inhalation: Immediately remove victim to fresh air and *call emergency medical care*. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Ingestion: If swallowed give 2 glasses of water and immediately *call physician*. Induce vomiting of conscious patient by pressing finger down throat. Small amounts entering mouth should be rinsed out for 5 minutes.

#### FIRE FIGHTING MEASURES

##### Flammable properties:

Flash Point: 119/C (247/F)

Method Used: Setaflash

Autoignition Temperature: Autoignition temperature for ethylene glycol is 398/C (748/F)

**Flammability limits:** % of vapor concentration at which product can ignite in presence of spark.

Lower flammability limit: 3.2%

Upper flammability limit: 22%

**Hazardous combustion products:**

Hazardous combustion products may include and are not limited to carbon monoxide, carbon dioxide, and trace amounts of aldehydes and organic acids. When available oxygen is limited, as in a fire or when heated to very high temperatures by a hot wire or plate, carbon monoxide and other hazardous compounds such as aldehydes might be generated.

**Extinguishing media:**

Water fog or fine spray. Alcohol resistant foams (ATC Type) are preferred if available. General purpose synthetic foams or protein foams may function, but much less effectively. Carbon Dioxide. Dry chemical. Do not use direct water stream. May spread fire.

**Fire fighting instructions:**

No fire and explosion hazards expected under normal storage and handling conditions (i.e. ambient temperatures). However, ethylene glycol or solutions of ethylene glycol and water can form flammable vapors with air if heated sufficiently. Keep people away. Isolate fire area and deny unnecessary entry.

**Protective equipment for fire fighters:**

Wear positive-pressure, self-contained breathing apparatus (SCBA) and protective fire fighting clothing (includes fire-fighting helmet, coat, pants, boots, and gloves).

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**ACCIDENTAL RELEASE MEASURES****Protect people:**

Material is moderately toxic when ingested. Take adequate precautions to keep people, especially children away from spill site. PVC-coated rubber gloves and monogoggles or face shield can be used during cleanup of spill site.

**Protect the environment:**

Do not dump used product or diluted material into sewers, on the ground, or into any body of water.

**Cleanup:**

Small spills: Soak up with absorbent material. Large spills: Dike and pump into suitable containers for disposal. Ensure compliance with all applicable statutes that require notification of appropriate government officials.

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**HANDLING AND STORAGE**

Product on surfaces can cause slippery conditions. Practice reasonable care and cleanliness. Avoid breathing spray mists if generated. Keep out of reach of children. Product may become a solid at temperatures below -22 C (-8 F). Do not store near food, foodstuffs, drugs or portable water supplies.

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**EXPOSURE CONTROLS / PERSONAL PROTECTION****Respiratory protection:**

Respiratory protection is required if airborne concentration exceeds TLV. At any detectable concentration, any self-contained breathing apparatus with a full facepiece and operated in a pressure-demand or other positive pressure mode or any supplied-air respirator with a full facepiece and operated in a pressure-demand or other positive pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode. **Escape:** Any air-purifying full face piece respirator (gas mask) with a chin-style or front- or back-mounted organic vapor canister or any appropriate escape-type self-contained breathing apparatus.

**Skin protection:**

Protective gloves recommended when prolonged skin contact can not be avoided. Polyethylene; Neoprene; Nitrile; Polyvinyl alcohol; Natural Rubber, Butyl Rubber. Safety shower should be available.

**Eye protection:**

Safety goggles and face shield. Emergency eyewash should be available. Contact lenses should not be worn when working with this chemical.

**Engineering controls:**

Use general or local exhaust ventilation to meet TLV requirements.

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**PHYSICAL PROPERTIES**

Boiling Range	171 - 175 C (339 - 348 F)
Freeze Point	-22 C (-8 F)
Specific Gravity (Water = 1)	1.12
Pounds/Gallons	9.3
Vapor Pressure (mm of Hg) @ 20 C	<0.1
Vapor Density (air = 1)	2.1
Water solubility	Complete
Evaporation rate (BuAc = 1)	Nil
% Volatile by volume	97.0
Appearance	Green
Odor	Mild

## STABILITY AND REACTIVITY

Stability:	Stable
Conditions to Avoid:	Isolate from oxidizers, heat, & open flame
Materials to Avoid:	Isolate from strong oxidizers such as permanganates, chromanates, & peroxides.
Hazardous Decomposition Products:	Carbon monoxide, carbon dioxide from burning.
Hazardous Polymerization:	Material is not known to polymerize.

## TOXICOLOGICAL INFORMATION

### **Skin:**

The dermal LD50 has not been determined.

### **Ingestion:**

The lethal dose in humans is estimated to be 100 ml (3 ounces). The oral LD50 for rats is in the 6000-13,000 mg/kg range.

### **Mutagenicity (The effects on genetic material):**

In vitro mutagenicity studies were negative. Animal mutagenicity studies were negative.

## ECOLOGICAL INFORMATION

### **Environmental fate:**

**MOVEMENT & PARTITIONING:** Bioconcentration potential is low (BCF less than 100 or Log Kow less than 3). Log octanol/water partition coefficient (log Kow) is -1.36. Henry's Law Constant (H) is 6.0E-08 atm-m<sup>3</sup>/mol. Bioconcentration factor (BCF) is 10 in golden orfe.

**DEGRADATION & TRANSFORMATION:** Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD greater than 40%). 5-Day biochemical oxygen demand (BOD5) is 0.78 p/p. 10-Day biochemical oxygen demand (BOD10) is 1.06 p/p. 20-Day biochemical oxygen demand (BOD20) is 1.15 p/p. Theoretical oxygen demand (ThOD) is calculated to be 1.29 p/p. Biodegradation may occur under both aerobic and anaerobic conditions (in either the presence or absence of oxygen). Inhibitory concentration (IC50) in OECD 'Activated Sludge, Respiration Inhibition Test' (Guideline # 209) is < 1000 mg/L. Degradation is expected in the atmospheric environment within days to weeks.

**ECOTOXICOLOGY:** Material is practically non-toxic to aquatic organisms on an acute basis (LC50 greater than 100

mg/L in most sensitive species). Acute LC50 for fathead minnow (*pimephales promelas*) is 51000 mg/L. Acute LC50 for water flea is 46300-51000 mg/L. Acute LC50 for the cladoceran *Ceriodaphnia dubia* is 10000-25800 mg/L. Acute LC50 for crayfish is 91430 mg/L. Acute LC50 for brine shrimp is 20000 mg/L. Acute LC50 for golden orfe is greater than 5000 mg/L. Acute LC50 for goldfish is greater than 5000 mg/L. Growth inhibition EC50 for green alga *Selenastrum capricornatum* is 9500-13000 mg/L.

## DISPOSAL CONSIDERATIONS

Do not discharge to sewer. Wear appropriate personal protection. Take up with sand, vermiculite, or similar inert material. Dispose in accordance with federal, state, and local regulations.

## TRANSPORTATION INFORMATION

Proper shipping name: Proprietary Antifreeze

Hazard Class: Not regulated

Label: Not regulated

ID No.: Not regulated

Packaging Group: Not regulated

## REGULATORY INFORMATION

This product contains components cited on the following regulations.

Chemical Name: Ethylene Glycom

CAS #: 107-21-1

### United States:

TCSA - Inventory	Listed	
Water Standards	No data available	
Atmospheric Standards	Clean Air Act(1990) - List of Hazardous Air Contaminants: listed	
CERCLA	Reportable Quantity (RQ): 5,000 pounds (532 gallons)	
SARA TITLE III:	Section 311/312 - Categories:	Acute hazard; chronic hazard
	Section 312 - Inventory Reporting:	Ethylene glycol is subject to Tier 1 and/or Tier II annual inventory reporting.
	Section 313 - Emission Reporting:	Ethylene glycol is subject to Form R reporting requirements.
	Section 302 - Extremely Hazardous Substances:	Ethylene glycol is not listed.

### State Right-to-know:

California - Exposure Limits - Ceilings:	vapor-50ppm ceiling; 125 mg/m3 ceiling
Director's List of Hazardous Substances:	listed
Florida - Hazardous Substances List:	listed
Massachusetts - Right-to-know List:	listed

Minnesota - Haz. Subs. List:	listed (particulate and vapor)
New Jersey - Right-to-know List (Total):	Present greater than 1.0%
Pennsylvania - Right-to-know List:	environmental hazard

**Canadian Regulations:**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required.

**WHMIS Information: D2A** - material has potential toxic effects.

Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program.

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**OTHER INFORMATION**

Contact: Technical Department  
Phone: (847) 559-2000

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