

**SIGMA-ALDRICH**

## Material Safety Data Sheet

Version 3.3  
Revision Date 01/11/2008  
Print Date 12/23/2008

### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : **Ethylene glycol**  
Product Number : 293237  
Brand : Sigma-Aldrich  
Company : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA  
Telephone : +1 800-325-5832  
Fax : +1 800-325-5052  
Emergency Phone # : (314) 776-6555

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Formula : C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>  
Molecular Weight : 62.07 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
<b>Ethylene glycol</b>			
107-21-1	203-473-3	603-027-00-1	-

### 3. HAZARDS IDENTIFICATION

#### Emergency Overview

##### OSHA Hazards

Target Organ Effect  
Harmful by ingestion.  
Irritant

##### Target Organs

Liver, Cardiovascular system., Eyes, Kidney, Central nervous system

#### HMIS Classification

Health Hazard: 2  
Chronic Health Hazard: \*  
Flammability: 1  
Physical hazards: 1

#### NFPA Rating

Health Hazard: 2  
Fire: 1  
Reactivity Hazard: 1

#### Potential Health Effects

**Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.

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**Skin**  
**Eyes**  
**Ingestion**

May be harmful if absorbed through skin. May cause skin irritation.  
May cause eye irritation.  
Harmful if swallowed.

### 4. FIRST AID MEASURES

#### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

#### If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

#### In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

#### In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

#### If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

### 5. FIRE-FIGHTING MEASURES

#### Flammable properties

Flash point 111 °C (232 °F) - closed cup

Ignition temperature 400 °C (752 °F)

#### Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

#### Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

### 6. ACCIDENTAL RELEASE MEASURES

#### Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.

#### Environmental precautions

Do not let product enter drains.

#### Methods for cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

### 7. HANDLING AND STORAGE

#### Handling

Avoid inhalation of vapour or mist.  
Normal measures for preventive fire protection.

#### Storage

Keep container tightly closed in a dry and well-ventilated place.  
hygroscopic

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
Ethylene glycol	107-21-1	CEIL	100 mg/m <sup>3</sup>	1995-05-23	US. American Conference of Governmental and Industrial Hygienists

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Threshold Limit Values for Chemical Substances in the Work Environment; Annual Reports for the Year 2004:Committees on Threshold Limit Values (TLVs ) and Biological Exposure Indices (BEIs)

Remarks	See Notice of Intended Changes. Refers to Appendix A -- Carcinogens.				
	CEIL	50 ppm 125 mg/m3	1989-03-01	US. Department of Labor - Occupational Safety and Health Administration (OSHA) 29 CFR 1910.1000 Z-1-A	

#### Personal protective equipment

##### Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

##### Hand protection

Handle with gloves.

##### Eye protection

Safety glasses

##### Skin and body protection

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

##### Hygiene measures

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

#### Appearance

Form	liquid
Colour	colourless

#### Safety data

pH	no data available
Melting point	-13 °C (9 °F)
Boiling point	195 - 198 °C (383 - 388 °F) at 1,013 hPa (760 mmHg)
Flash point	111 °C (232 °F) - closed cup
Ignition temperature	400 °C (752 °F)
Lower explosion limit	3.2 %(V)
Upper explosion limit	15.3 %(V)
Vapour pressure	0.11 hPa (0.08 mmHg) at 20 °C (68 °F) 0.13 hPa (0.10 mmHg) at 20 °C (68 °F)
Density	1.1130 g/cm3

Water solubility	completely miscible soluble
Partition coefficient: n-octanol/water	log Pow: -1.36

## 10. STABILITY AND REACTIVITY

#### Storage stability

Stable under recommended storage conditions.

#### Materials to avoid

Strong acids, Strong oxidizing agents, Strong bases, Aldehydes, Aluminum

#### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

## 11. TOXICOLOGICAL INFORMATION

#### Acute toxicity

LD50 Oral - rat - 4,700 mg/kg

LD50 Dermal - rabbit - 10,626 mg/kg

#### Irritation and corrosion

Eyes - rabbit - Mild eye irritation - 24 h

#### Sensitisation

no data available

#### Chronic exposure

This product is or contains a component that is probably not carcinogenic based on its IARC, ACGIH, NTP, or EPA classification.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Laboratory experiments have shown teratogenic effects.

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

#### Signs and Symptoms of Exposure

When ingested early symptoms mimic alcohol inebriation and are followed by nausea, vomiting, abdominal pain, weakness, muscle tenderness, respiratory failure, convulsions, cardiovascular collapse, pulmonary edema, hypocalcemic tetany, and severe metabolic acidosis. Without treatment, death may occur in 8 to 24 hours. Victims who survive the initial toxicity period usually develop renal failure along with brain and liver damage., Exposure to and/or consumption of alcohol may increase toxic effects.

#### Potential Health Effects

**Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.

**Skin** May be harmful if absorbed through skin. May cause skin irritation.  
**Eyes** May cause eye irritation.  
**Ingestion** Harmful if swallowed.  
**Target Organs** Liver, Cardiovascular system., Eyes, Kidney, Central nervous system,

## 12. ECOLOGICAL INFORMATION

### Elimination information (persistence and degradability)

no data available

**Bioaccumulation** Remarks: Does not bioaccumulate.  
other fish - 61 d  
Bioconcentration factor (BCF): 0.60

### Ecotoxicity effects

**Toxicity to fish** LC50 - Oncorhynchus mykiss (rainbow trout) - 18,500 mg/l - 96 h  
LC50 - Leuciscus idus (Golden orfe) - > 10,000 mg/l - 48 h  
NOEC - Pimephales promelas (fathead minnow) - 32,000 mg/l - 7 d  
NOEC - Pimephales promelas (fathead minnow) - 39,140 mg/l - 96 h

**Toxicity to daphnia and other aquatic invertebrates.** EC50 - Daphnia magna (Water flea) - 74,000 mg/l - 24 h

NOEC - Daphnia - 24,000 mg/l - 48 h

LC50 - Daphnia magna (Water flea) - 41,000 mg/l - 48 h

### Further information on ecology

no data available

## 13. DISPOSAL CONSIDERATIONS

### Product

Observe all federal, state, and local environmental regulations. Contact a licensed professional waste disposal service to dispose of this material.

### Contaminated packaging

Dispose of as unused product.

## 14. TRANSPORT INFORMATION

### DOT (US)

UN-Number: 3082 Class: 9

Packing group: III

Proper shipping name: Environmentally hazardous substances, liquid, n.o.s. (Ethylene glycol)

### IMDG

Not dangerous goods

### IATA

Not dangerous goods

## 15. REGULATORY INFORMATION

### OSHA Hazards

Target Organ Effect, Harmful by ingestion., Irritant

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### TSCA Status

On TSCA Inventory

### DSL Status

All components of this product are on the Canadian DSL list.

### SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

### SARA 313 Components

Ethylene glycol

CAS-No.  
107-21-1

Revision Date  
1987-01-01

### SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

### Massachusetts Right To Know Components

Ethylene glycol

CAS-No.  
107-21-1

Revision Date  
1987-01-01

### Pennsylvania Right To Know Components

Ethylene glycol

CAS-No.  
107-21-1

Revision Date  
1987-01-01

### New Jersey Right To Know Components

Ethylene glycol

CAS-No.  
107-21-1

Revision Date  
1987-01-01

### California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth, or any other reproductive defects.

## 16. OTHER INFORMATION

### Further information

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