SIGMA-ALDRICH

Material Safety Data Sheet

Version 3.0
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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : **Ethylene glycol**

Product Number : 102466
Brand : 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 : C2H6O2
Molecular Weight : 62.07 g/mol

CAS-No.	EC-No.	Index-No.	Concentration [%]
Ethylene glycol			
107-21-1	203-473-3	603-027-00-1	-

3. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards
Delayed target organ effects
Mild eye irritant
Teratogen
Reproductive hazard

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

HMIS Classification
Health Hazard: 1
Chronic Health Hazard: *
Flammability: 1
Physical hazards: 0

NFPA Rating
Health Hazard: 1
Fire 1
Reactivity Hazard 0

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 May be 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.

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/m3	1995-05-23	US. American Conference of Governmental and Industrial Hygienists

					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

Sensitization

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.

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	May be 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. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN-No.: 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
Delayed target organ effects, Mild eye irritant, Teratogen, Reproductive hazard

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

	CAS-No.	Revision Date
Ethylene glycol	107-21-1	1987-01-01

SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Ethylene glycol	107-21-1	1987-01-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Ethylene glycol	107-21-1	1987-01-01

New Jersey Right To Know Components

	CAS-No.	Revision Date
Ethylene glycol	107-21-1	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
 The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Co., shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale.