

Material Safety Data Sheet

Version 4.1

Revision Date 01/17/2012

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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Ethylene glycol
 Product Number : 102486
 Brand : Sigma-Aldrich
 Supplier : Sigma-Aldrich
 3050 Spruce Street
 SAINT LOUIS MO 63103
 USA
 Telephone : +1 800-325-5832
 Fax : +1 800-325-5052
 Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555
 Preparation Information : Sigma-Aldrich Corporation
 Product Safety - Americas Region
 1-800-621-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Target Organ Effect, Harmful by ingestion., Irritant, Teratogen

Target Organs

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

GHS Classification

Acute toxicity, Oral (Category 4)

Eye irritation (Category 2B)

GHS Label elements, including precautionary statements

Pictogram



Signal word

Warning

Hazard statement(s)

H302

Harmful if swallowed.

H320

Causes eye irritation.

Precautionary statement(s)

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMS Classification

Health hazard:

2

Chronic Health Hazard:

*

Flammability:

1

Physical hazards:

0

NFPA Rating

Health hazard:

2

Fire:

1

Reactivity Hazard:

0

Potential Health Effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Skin	Harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.
Ingestion	Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms	: 1,2-Ethanediol
Formula	: C ₂ H ₆ O ₂
Molecular Weight	: 62.07 g/mol

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

4. FIRST AID MEASURES

General advice

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

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. FIREFIGHTING MEASURES

Conditions of flammability

Not flammable or combustible.

Suitable extinguishing media

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

Special protective equipment for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

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 and materials for containment and 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

Precautions for safe handling

Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Conditions for safe 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	Basis
Ethylene glycol	107-21-1	C	50 ppm 125 mg/m ³	USA, OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000
		C	100 mg/m ³	USA, ACGIH Threshold Limit Values (TLV)
Remarks	Eye & Upper Respiratory Tract irritation Not classifiable as a human carcinogen			
	See Appendix D - Substances with No Established RELs			

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. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin and body protection

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

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/freezing 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)
Autoignition temperature	no data available
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
Relative vapour density	2.14 - (Air = 1.0)
Odour	no data available
Odour Threshold	no data available
Evaporation rate	1

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

no data available

Conditions to avoid

no data available

Materials to avoid

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

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides

Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50

LD50 Oral - rat - 4,700 mg/kg

Inhalation LC50

no data available

Dermal LD50

LD50 Dermal - rabbit - 10,626 mg/kg

Other information on acute toxicity

no data available

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

Eyes - rabbit - Mild eye irritation - 24 h

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

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.
- 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.

Reproductive toxicity

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

Teratogenicity

Laboratory experiments have shown teratogenic effects.

Specific target organ toxicity - single exposure (Globally Harmonized System)

no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation	May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion	Harmful if swallowed.
Skin	Harmful if absorbed through skin. Causes skin irritation.
Eyes	Causes eye irritation.

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.

Synergistic effects

no data available

Additional Information

RTECS: KW2975000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - <i>Oncorhynchus mykiss</i> (rainbow trout) - 18,500 mg/l - 96 h
	LC50 - <i>Leuciscus idus</i> (Golden orfe) - > 10,000 mg/l - 48 h
	NOEC - <i>Pimephales promelas</i> (fathead minnow) - 32,000 mg/l - 7 d
	NOEC - <i>Pimephales promelas</i> (fathead minnow) - 39,140 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - <i>Daphnia magna</i> (Water flea) - 74,000 mg/l - 24 h
	NOEC - <i>Daphnia</i> - 24,000 mg/l - 48 h
	LC50 - <i>Daphnia magna</i> (Water flea) - 41,000 mg/l - 48 h

Persistence and degradability

no data available

Bioaccumulative potential

Does not bioaccumulate.

Bioaccumulation

other fish - 61 d

Bioconcentration factor (BCF): 0.60

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. 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 number: 3082 Class: 9

Packing group: III

Proper shipping name: Environmentally hazardous substances, liquid, n.o.s.

Reportable Quantity (RQ): 5000 lbs

Marine pollutant: No

Poison Inhalation Hazard: No

IMDG

Not dangerous goods

IATA

Not dangerous goods

15. REGULATORY INFORMATION**OSHA Hazards**

Target Organ Effect, Harmful by Ingestion., Irritant, Teratogen

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

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Ethylene glycol	107-21-1	2007-07-01

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Ethylene glycol	107-21-1	2007-07-01

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Ethylene glycol	107-21-1	2007-07-01

New Jersey Right To Know Components

Ethylene glycol

CAS-No.
107-21-1

Revision Date
2007-07-01

California Prop. 65 Components

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

16. OTHER INFORMATION

Further Information

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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 Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

BASF Hannibal Plant

Certificate of Decontamination

This form is to certify that equipment that might have been contaminated with hazardous substances has been decontaminated before repair.

Section 1: Equipment

Equipment: 160-021 Plate Cooler

Usual Location: 1st Floor

Section 2: List of Substances In Contact With The Equipment

Substance name or type	Associated Hazards
Ethylene Glycol	Toxic, Irritant

Section 3: Method of Decontamination

Water and steam wash.

Section 4: Declaration

Date of Decontamination 11/26/2012

Carried out By (Print Name) Gary Leeds

Job Title: Operations Coordinator

Contact Details 573-769-8589

Signed

Gary Leeds

Date

11-29-12