

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : 2-Mercaptoethanol

Product Number : M3148

Brand : Sigma

Company : Sigma-Aldrich
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SAINT LOUIS MO 63103
USA

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2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Combustible Liquid, Toxic by inhalation., Toxic by ingestion, Highly toxic by skin absorption, Skin sensitiser, Corrosive, Mutagen

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H227 Combustible liquid

H301 Toxic if swallowed.

H310 + H330 Fatal in contact with skin or if inhaled.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P273 Avoid release to the environment.

P280 Wear protective gloves/eye protection/face protection.

P284 Wear respiratory protection.

P302 + P350 IF ON SKIN: Gently wash with plenty of soap and water.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER or doctor/physician.

P501 Dispose of contents/container to an approved waste disposal plant.

HMIS Classification

Health hazard: 3

Chronic Health Hazard: *

Flammability: 2

Physical hazards: 0

NFPA Rating

Health hazard: 3

Fire: 2
Reactivity Hazard: 0

Potential Health Effects

Inhalation Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin Causes skin burns. May be fatal if absorbed through skin.
Eyes Causes eye burns.
Ingestion Toxic if swallowed. Causes burns.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Thioethylene glycol
2-Hydroxyethylmercaptan
BME
β-Mercaptoethanol

Formula : C₂H₆OS
Molecular Weight : 78.13 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
2-Mercaptoethanol			
60-24-2	200-464-6	-	-

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. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Continue rinsing eyes during transport to hospital. 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

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

Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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.

Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Value	Control parameters	Update	Basis
2-Mercaptoethanol	60-24-2	TWA	0.2 ppm	2008-01-01	USA. Workplace Environmental Exposure Levels (WEEL)
Remarks	Skin				

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

Tightly fitting safety goggles. Faceshield (8-inch minimum).

Skin and body protection

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

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	liquid
Colour	colourless yellow
Odour	Stench.

Safety data

pH	4.5 - 6 at 500 g/l at 20 °C (68 °F)
Melting point	< -50 °C (< -58 °F)
Boiling point	157 °C (315 °F)
Flash point	68 °C (154 °F)
Ignition temperature	295 °C (563 °F) at 1,013 hPa (760 mmHg)
Lower explosion limit	2.3 %(V)
Upper explosion limit	18 %(V)
Vapour pressure	0.76 hPa (0.57 mmHg) at 20 °C (68 °F) 4.67 hPa (3.50 mmHg) at 40 °C (104 °F)

Density	1.114 g/mL at 25 °C (77 °F)
Water solubility	soluble
Partition coefficient: n-octanol/water	log Pow: -0.326 log Pow: -0.056 at 25 °C (77 °F)
Relative vapour density	2.70 - (Air = 1.0)

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Conditions to avoid

no data available

Materials to avoid

Metals, Oxidizing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulphur oxides

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - 244 mg/kg

LD50 Oral - rat - 98 - 162 mg/kg

LC50 Inhalation - rat - 4 h - 625 ppm

LD50 Dermal - rabbit - 168 - 200 mg/kg

LD50 Dermal - rabbit - 112 - 224 mg/kg

Skin corrosion/irritation

Skin - rabbit - Irritating to skin. - Draize Test

Serious eye damage/eye irritation

Eyes - rabbit - Risk of serious damage to eyes.

Respiratory or skin sensitization

Maximisation Test - guinea pig - OECD Test Guideline 406 - May cause sensitization by skin contact.

Germ cell mutagenicity

Experiments showed mutagenic effects in cultured bacterial cells.

Carcinogenicity

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.

Reproductive toxicity

no data available

Specific target organ toxicity - single exposure (GHS)

no data available

Specific target organ toxicity - repeated exposure (GHS)

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation	Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion	Toxic if swallowed. Causes burns.
Skin	Causes skin burns. May be fatal if absorbed through skin.
Eyes	Causes eye burns.

Signs and Symptoms of Exposure

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Weakness, Unconsciousness, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema

Additional Information

RTECS: KL5600000

12. ECOLOGICAL INFORMATION**Toxicity**

Toxicity to fish	LC50 - Leuciscus idus (Golden orfe) - 46 - 100 mg/l - 96.0 h
Toxicity to daphnia and other aquatic invertebrates.	EC50 - Daphnia - 1.52 mg/l - 48 h
	EC50 - Daphnia - 0.89 mg/l - 48 h Method: OECD Test Guideline 202
Toxicity to algae	EC50 - Desmodesmus subspicatus (green algae) - 12 mg/l - 72 h
Toxicity to bacteria	LC50 - Bacteria - 125 mg/l - 17 h

Persistence and degradability

Biodegradability	Result: < 30.0 % - Not readily biodegradable.
	Result: 6 % - Not readily biodegradable.
	aerobic
	Result: < 10 % - Not readily biodegradable.

Bioaccumulative potential

Does not accumulate in organisms.

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

Biochemical Oxygen Demand (BOD)	105 mg/g
Chemical Oxygen Demand (COD)	1.894 mg/g

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

13. DISPOSAL CONSIDERATIONS

Product

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. 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: 2966 Class: 6.1 Packing group: II
 Proper shipping name: Thioglycol
 Marine pollutant: No
 Poison Inhalation Hazard: No

IMDG

UN-Number: 2966 Class: 6.1 Packing group: II EMS-No: F-A, S-A
 Proper shipping name: THIOGLYCOL
 Marine pollutant: No

IATA

UN-Number: 2966 Class: 6.1 Packing group: II
 Proper shipping name: Thioglycol

15. REGULATORY INFORMATION**OSHA Hazards**

Combustible Liquid, Toxic by inhalation., Toxic by ingestion, Highly toxic by skin absorption, Skin sensitiser, Corrosive, Mutagen

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

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
2-Mercaptoethanol	60-24-2	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
2-Mercaptoethanol	60-24-2	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
2-Mercaptoethanol	60-24-2	1993-04-24

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 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.
