

# SAFETY DATA SHEET

**MOLTOX®**  
Molecular Toxicology, Inc.

NAME OF PRODUCT 2-mercaptopropanol

## SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

### Product/Catalog Number(s):

22-149

**Product name:** 2-mercaptopropanol

**Synonyms:** Thioethylene glycol, 2-hydroxyethylmercaptan, BME, β-mercaptopropanol, Thioglycol

**Manufacturer:** Molecular Toxicology Inc.

**Address:** 157 Industrial Park Drive, Boone, North Carolina, 28607

**Phone:** (1) 828 264 9099 (8:30 – 17:00 EST)

**Fax:** 828 264 0103

**Emergency contact (Chemtrec):** Contact 1800-424-9300 (USA) or 703 527 3887 (International) at other times  
Email: [chemtrec@chemtrec.com](mailto:chemtrec@chemtrec.com); <http://www.chemtrec.com/>

**Recommended use:** Laboratory, For Research Only

**Restrictions on use:** Not for clinical use

## SECTION 2. HAZARDS IDENTIFICATION

### Classification of the substance or mixture per GHS and EU Directive 1272/2008



### Danger

#### Physical hazards

Flammable liquids (Category 4)

#### Health hazards

Acute toxicity, Oral (Category 3)

Acute toxicity, Inhalation (Category 3)

Acute toxicity, Dermal (Category 2)

Skin irritation (Category 2)

Serious eye damage (Category 1)

Skin sensitization (Category 1)

Specific organ toxicity-repeated exposure, Oral (Category 2)

Target organs: Liver, heart

Acute aquatic toxicity (Category 1)

Chronic aquatic toxicity (Category 1)

#### Environmental hazards

See eco-toxicity section 12.

#### Labelling

#### Hazard Statements

H227 Combustible liquid

H301+331 Toxic if swallowed or if inhaled

H310 Fatal in contact with skin

H315 Causes skin irritation

H317 May cause an allergic reaction

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H318 Causes serious eye damage  
H373 May cause damage to organs (Liver, heart) through prolonged or repeated exposure if swallowed  
H410 Very toxic to aquatic life with long-lasting effects

<b>Precautionary Statements</b>	P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking P260 Do not breathe dust/fumes/gas/mist/vapors/spray P262 Do not get in eyes, on skin, or on clothing P264 Wash skin thoroughly after handling P270 Do not eat, drink, or smoke while using this product P271 Use only outdoors or in a well-ventilated area P272 Contaminated clothing should not be allowed out of the workplace P273 Avoid release into the environment P280 Wear protective gloves/protective clothing/eye protection/face protection P301+310+330 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Rinse mouth. P302+350+310 IF ON SKIN: Gently wash with plenty of soap and water. Immediately call a POISON CENTER or doctor/physician. P304+340+311 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician P305+351+338+310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. P314 Get medical advice/attention if you feel unwell P333+313 If skin irritation or rash occurs: Get medical attention/advice P362 Take off contaminated clothing and wash before reuse P370+378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish P391 Collect spillage P403+233+235 Store in a well-ventilated place. Keep container tightly closed. Keep cool. P405 Store locked up P501 Dispose of contents/container to an approved waste disposal plant
<b>Other hazards</b>	Stench. Rapidly absorbed through skin

## SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

### Substance

Component	Purpose	CAS-No	EC-No.	Weight %
2-mercptoethanol C <sub>2</sub> H <sub>6</sub> OS	Reduce disulfide bonds, antioxidant	60-24-2	200-464-6	100%

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## SECTION 4. FIRST AID MEASURES

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### Description of first aid measures

Eye Contact	Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.
Skin Contact	Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
Ingestion	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Inhalation	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Protection of first-aiders	Not required

### General advice

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

### Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in Section 2 and Section 11.

### Indication of any immediate medical attention and special treatment needed

No data available.

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## SECTION 5. FIREFIGHTING MEASURES

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### Extinguishing media

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

### Special hazards arising from the substance or mixture

Carbon oxides, Sulphur oxides

### Advice for firefighters

Fire-fighters should wear fully protective impervious protective equipment and self-contained breathing apparatus (SCBA).

### Further information

Use water spray to cool unopened containers.

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## SECTION 6. ACCIDENTAL RELEASE MEASURES

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### Personal precautions, protective equipment and emergency procedures

Wear respiratory protection. Avoid breathing vapors, mist, or gas. Remove all sources of ignition. Ensure adequate ventilation. Evacuate personnel to safe area. Use personal protective equipment. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

For personal protection see Section 8.

### Environmental precautions

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

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## Methods and material for containment and cleaning up

Contain spillage then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see Section 13). Keep in suitable, closed containers for disposal.

## Reference to other sections

Refer to Sections 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

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## SECTION 7. HANDLING AND STORAGE

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### Precautions for safe handling

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

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

For precautions see Section 2.

### Conditions for safe storage, including any incompatibilities

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

Recommended storage temperature: 2-8°C

Storage class (TRGS 510): Non-combustible, acute toxic Cat. 1 and 2/ very toxic hazardous materials.

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## SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

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### Control parameters

#### *Components with workplace control parameters*

60-24-2      2-mercaptoethanol      TWA    0.20000 ppm    Workplace Environmental Exposure Levels

Remarks: Skin

#### *Monitoring methods*

N/A

### Exposure controls

#### *Appropriate Engineering Controls*

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

#### *Personal protective equipment*

**Eye Protection:** Tight fitting safety goggles. Face shield (8-inch minimum). Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(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.

#### *Skin and body protection*

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Impervious clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

## *Respiratory Protection*

Exposure risk assessment must be performed by a qualified Industrial Hygienist. Where risk assessment shows air purifying respirators are appropriate use a dust mask type N95 (US) or type P1 (EN 143) respirator. NIOSH approved Respiratory Protection is required by EPA. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

*Hygiene Measures* - Handle in accordance with good industrial hygiene and safety practice. Wash hands, forearms and face thoroughly after handling chemical products, before smoking, eating and using lavatory, and at the end of the work period. Employ techniques to avoid contamination of clothing. Keep away from food, beverages, and feed.

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

## **Exposure limits**

Permissible Exposure Limits and Threshold Limit Values not specified by OSHA.

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## **SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

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### **Information on basic physical and chemical properties**

<b>Appearance</b>	Light Yellow Liquid
<b>Auto-ignition temperature</b>	295°C
<b>Boiling point</b>	157-158°C
<b>Decomposition temperature</b>	>157°C
<b>Flammable limits in air</b>	1.1%-2.7%
<b>Flash point</b>	73°C
<b>Formula</b>	C <sub>2</sub> H <sub>6</sub> OS
<b>Melting point</b>	-100°C
<b>Molecular weight</b>	78.13 g/mol
<b>Odor</b>	Stench
<b>Osmolality</b>	no data available
<b>Partition Coefficient</b>	Log Pow: -0.056
<b>pH</b>	no data available
<b>Relative Density</b>	1.110
<b>Solubility in water</b>	Soluble
<b>Specific gravity</b>	no data available
<b>Vapor density</b>	2.69
<b>Vapor pressure</b>	1 mmHg
<b>Viscosity</b>	3.43 cP

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**SECTION 10. STABILITY AND REACTIVITY**

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**Reactivity**

Not reactive.

**Chemical stability**

Stable under normal conditions. Decomposition will not occur if used and stored appropriately. Heat sensitive. Water reactive.

**Possibility of hazardous reactions**

No hazardous reactions known.

**Conditions to avoid**

Heat, flames, and sparks. Exposure to moist air or water.

**Incompatible materials**

Metals, oxidizing agents, strong acids, heavy metal salts.

**Hazardous decomposition products**

No data available

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**SECTION 11. TOXICOLOGICAL INFORMATION**

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**Information on toxicological effects****Acute toxicity**

LD <sub>50</sub>	oral, rat	244 mg/kg
LD <sub>50</sub>	dermal, rabbit	112-224 mg/kg
LC <sub>50</sub>	inhalation, rat	2mg/L 4 hours
LC <sub>50</sub>	inhalation, rat	625 ppm

**Skin corrosion/irritation**

Irritating to skin (Rabbit, Draize test))

**Serious eye damage/eye irritation**

Risk of serious damage to eyes (Rabbit)

**Respiratory or skin sensitization**

May cause sensitization by skin contact (Guinea pig, maximization test (GPMT))

**Germ cell mutagenicity**

Experiments have shown mutagenic effects in cultural bacterial cells.

**Carcinogenicity**

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

**Teratogenicity**

no data available

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

no data available

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

May cause damage to liver and heart through prolonged exposure.

**Aspiration hazard**

no data available

**Potential health effects**

Burning sensation, cough, wheezing, laryngitis, shortness of breath, vomiting, headache, nausea, weakness, unconsciousness. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Spasms, inflammation and edema of the larynx and bronchi, pneumonitis, pulmonary edema.

**Synergistic effects**

no data available

**Additional toxicological information:**

RTECS: KL5600000

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**SECTION 12. ECOLOGICAL INFORMATION**

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**Toxicity****Aquatic ecotoxicity:**

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

Component	Organism	Value
2-mercaptoethanol	Freshwater algae	12 mg/L EC <sub>50</sub> = 72 hours
	Freshwater fish	46-100 mg/L LC <sub>50</sub> = 96 hours
	Microtox	125 mg/L EC <sub>50</sub> = 17 hours
	Water flea	1.52 mg/L EC <sub>50</sub> = 48 hours

**Persistence and degradability:**

Soluble in water. Persistence is unlikely. Not readily biodegradable.

Biochemical Oxygen Demand (BOD): 105 mg/g

Chemical Oxygen Demand (COD): 1.894 mg/g

**Behavior in environment systems:** No data available.**Bioaccumulative potential:** Does not accumulate in organisms.**Mobility in soil:** Will likely be mobile.**Additional ecological information:** No data available**General notes:**

Do not allow undiluted product or large quantities of it to reach ground water, water course, or sewage system.

**Results of PBT and vPvB Assessment****PBT:** Not applicable**vPvB:** Not applicable

**Other adverse effects:** An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

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## SECTION 13. DISPOSAL CONSIDERATIONS

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### Product

Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. This combustible material can be burned in a chemical incinerator equipped with an afterburner and scrubber.

### Contaminated packaging

Dispose of as unused product.

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## SECTION 14. TRANSPORT INFORMATION

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### DOT (US) regulations:

UN: 2966      Class: 6.1      Packing Group: II

Proper shipping name: Thioglycol

Reportable Quantity (RQ): Not available

Poison Inhalation Hazard: No

### IMDG

UN: 2966      Class: 6.1      Packing Group: II      EMS-No. F-A, S-A

Proper shipping name: Thioglycol

Marine pollutant: Yes

### IATA

UN: 2966      Class: 6.1      Packing Group: II

Proper shipping name: Thioglycol

### Further information

Transport in accordance with local, state, and federal regulations. When sold in quantities of less than 1 mL, or 1 g, with an Excepted Quantity Code of E1, E2, E4, or E5, this item meets the De Minimis Quantities exemption, per IATA 2.6.10. Therefore packaging does not have to be labeled as Dangerous Goods/Excepted Quantity.

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## SECTION 15. REGULATORY INFORMATION

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### 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

60-24-2      2-mercaptoethanol

### Pennsylvania Right To Know Components

60-24-2      2-mercaptoethanol

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## New Jersey Right To Know Components

60-24-2      2-mercaptoethanol

## California Prop. 65 Components

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

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## SECTION 16. OTHER 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 applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Molecular Toxicology, Inc. shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.moltox.com](http://www.moltox.com) and/or the invoice or packing slip for additional terms and conditions of sale.