

Printing date 07/02/2019

Reviewed on 07/02/2019

## 1 Identification

- **Product identifier**
- **Trade name:** *2-Mercaptoethanol, molecular biology reagent*
- **Article number:** 194834
- **CAS Number:**  
60-24-2
- **EC number:**  
200-464-6
- **Molecular Formula** C2 H6 O S
- **Molecular Weight** 78.13
- **Application of the substance / the mixture** For Research Use Only
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
MP Biomedicals, LLC  
29525 Fountain Parkway  
Solon, OH 44139  
United States  
www.mpbio.com
- **Information department:** Quality Control Department
- **Emergency telephone number:** CHEMTREC: 1-800-424-9300 (1-703-527-3887)

## 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS06 Skull and crossbones

Acute Tox. 3 H301 Toxic if swallowed.

Acute Tox. 2 H310 Fatal in contact with skin.

Acute Tox. 3 H331 Toxic if inhaled.



GHS08 Health hazard

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.



GHS05 Corrosion

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

Flam. Liq. 4 H227 Combustible liquid.

- **Label elements**

- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 2)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/02/2019

Reviewed on 07/02/2019

**Trade name: 2-Mercaptoethanol, molecular biology reagent**

(Contd. of page 1)

· **Hazard pictograms**



· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

2-mercaptoethanol

· **Hazard statements**

*Combustible liquid.*

*Toxic if swallowed or if inhaled.*

*Fatal in contact with skin.*

*Causes skin irritation.*

*Causes serious eye damage.*

*May cause an allergic skin reaction.*

*May cause damage to organs through prolonged or repeated exposure.*

· **Precautionary statements**

*Keep away from flames and hot surfaces. – No smoking.*

*Do not breathe dust/fume/gas/mist/vapors/spray.*

*Do not get in eyes, on skin, or on clothing.*

*Wash thoroughly after handling.*

*Do not eat, drink or smoke when using this product.*

*Use only outdoors or in a well-ventilated area.*

*Contaminated work clothing must not be allowed out of the workplace.*

*Wear protective gloves/protective clothing/eye protection/face protection.*

*If swallowed: Immediately call a poison center/doctor.*

*Specific treatment (see on this label).*

*Rinse mouth.*

*If on skin: Wash with plenty of water.*

*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*

*Call a poison center/doctor.*

*If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.*

*Continue rinsing.*

*Get medical advice/attention if you feel unwell.*

*Take off immediately all contaminated clothing and wash it before reuse.*

*If skin irritation or rash occurs: Get medical advice/attention.*

*In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.*

*Store in a well-ventilated place. Keep container tightly closed.*

*Store in a well-ventilated place. Keep cool.*

*Store locked up.*

*Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 4

Fire = 2

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**



Health = \*4

Fire = 2

Reactivity = 0

(Contd. on page 3)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/02/2019

Reviewed on 07/02/2019

**Trade name: 2-Mercaptoethanol, molecular biology reagent**

(Contd. of page 2)

- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**  
60-24-2 2-mercaptoethanol
- **Identification number(s)**
- **EC number:** 200-464-6

### 4 First-aid measures

- **Description of first aid measures**
- **General information:**  
Consult your Doctor. Show the safety data sheet to the Doctor. Away from the dangerous area. Remove breathing apparatus only after contaminated clothing have been completely removed. In case of irregular breathing or respiratory arrest provide artificial respiration.
- **After inhalation:**  
Supply fresh air or oxygen; call for doctor.  
If breathed in, supply fresh air. If not breathing, give artificial respiration. Consult a Doctor.
- **After skin contact:** Wash off with soap and plenty of water. Consult a Doctor.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Do not induce vomiting; immediately call for medical help.
- **Information for doctor**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Mount respiratory protective device.  
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**  
Dilute with plenty of water.  
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).

(Contd. on page 4)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/02/2019

Reviewed on 07/02/2019

**Trade name: 2-Mercaptoethanol, molecular biology reagent**

(Contd. of page 3)

Use neutralizing agent.

Pick up mechanically, dispose contaminated material as waste according to Section 13.

Ensure adequate ventilation.

**· Reference to other sections**

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

**· Protective Action Criteria for Chemicals**

**· PAC-1:**

0.6 ppm

**· PAC-2:**

3.5 ppm

**· PAC-3:**

29 ppm

## 7 Handling and storage

**· Handling:**

**· Precautions for safe handling**

Ensure good ventilation/exhaustion at the workplace. Avoid direct contact with skin and eyes.

Open and handle receptacle with care.

Prevent formation of aerosols.

**· Information about protection against explosions and fires:**

Keep ignition sources away - Do not smoke.

Keep respiratory protective device available.

**· Conditions for safe storage, including any incompatibilities**

**· Storage:** 15-30°C

**· Requirements to be met by storerooms and receptacles:** No special requirements.

**· Further information about storage conditions:**

**· Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

**· Additional information about design of technical systems:** No further data; see Section 7.

**· Control parameters**

**· Components with limit values that require monitoring at the workplace:**

**60-24-2 2-mercaptoethanol**

WEEL Long-term value: 0.2 ppm

Skin

**· Additional information:** The lists that were valid during the creation were used as basis.

**· Exposure controls**

**· Personal protective equipment:**

**· General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the skin.

(Contd. on page 5)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/02/2019

Reviewed on 07/02/2019

**Trade name: 2-Mercaptoethanol, molecular biology reagent**

(Contd. of page 4)

Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

## 9 Physical and chemical properties

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

· **General Information**

· **Appearance:**

<b>Form:</b>	Liquid
<b>Color:</b>	Colorless
<b>Odor:</b>	Indeterminate
<b>Odor threshold:</b>	Not determined.

· **pH-value:** Not determined.

· **Change in condition**

**Boiling point/Boiling range:** Undetermined.

· **Flash point:** ≤93 °C (≤199.4 °F)

· **Flammability (solid, gaseous):** Not applicable.

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Not determined.

· **Danger of explosion:** Not determined.

· **Explosion limits:**

<b>Lower:</b>	2.3 Vol %
<b>Upper:</b>	2.3 Vol %

· **Vapor pressure:** Not Applicable

(Contd. on page 6)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/02/2019

Reviewed on 07/02/2019

**Trade name: 2-Mercaptoethanol, molecular biology reagent**

(Contd. of page 5)

- |   |  |
|---|--|
| <b>· Density:</b>                                 | Not Applicable                             |
| <b>· Relative density</b>                         | Not determined.                            |
| <b>· Vapor density</b>                            | Not determined.                            |
| <b>· Evaporation rate</b>                         | Not determined.                            |
| <hr/>   |  |
| <b>· Solubility in / Miscibility with</b>         | Not Determined                             |
| <b>· Water:</b>                                   | Soluble.                                   |
| <hr/>   |  |
| <b>· Partition coefficient (n-octanol/water):</b> | Not determined.                            |
| <hr/>   |  |
| <b>· Viscosity:</b>                               |  |
| <b>Dynamic:</b>                                   | Not determined.                            |
| <b>Kinematic:</b>                                 | Not determined.                            |
| <b>VOC content:</b>                               | 0.00 %                                     |
|   | 0.0 g/l / 0.00 lb/gal                      |
| <b>· Other information</b>                        | No further relevant information available. |

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid**  
No further relevant information available.  
Avoid contact with acids. Contact liberates a toxic gas.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**

### ATE (Acute Toxicity Estimate)

Dermal	LD50	112 mg/kg (rabbit)
Inhalative	LC50/4 h	2 mg/L (rat)

### 60-24-2 2-mercaptoethanol

Oral	LD50	190 mg/kg (mouse)
		162 mg/kg (rat)
Dermal	LD50	112 mg/kg (rabbit)
Inhalative	LC50/4 h	13,200 mg/L (mouse)
		2 mg/L (rat)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:** Sensitization possible through skin contact.

(Contd. on page 7)

US

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/02/2019

Reviewed on 07/02/2019

**Trade name: 2-Mercaptoethanol, molecular biology reagent**

(Contd. of page 6)

· **Additional toxicological information:**

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

## 12 Ecological information

· **Toxicity**

· **Aquatic toxicity:**

**ATE (Acute Toxicity Estimate)**

Oral LC50 / 96 h 46-100 mg/L (*Leuciscus idus*)

**60-24-2 2-mercaptoethanol**

Oral LC50 / 96 h 46-100 mg/L (*Leuciscus idus*)

· **Persistence and degradability** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential** No further relevant information available.

· **Mobility in soil** No further relevant information available.

· **Additional ecological information:**

· **General notes:**

Water hazard class 3 (Assessment by list): extremely hazardous for water

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Must not reach bodies of water or drainage ditch undiluted or unneutralized.

Danger to drinking water if even extremely small quantities leak into the ground.

· **Results of PBT and vPvB assessment**

· **PBT:** Not applicable.

· **vPvB:** Not applicable.

· **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

· **Waste treatment methods**

· **Recommendation:**

Can not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packagings:**

· **Recommendation:** Discard must be made according to official regulations.

· **Recommended cleansing agent:** Water, if necessary with cleaning agents.

## 14 Transport information

· **UN-Number**

· **DOT, ADR, IMDG, IATA**

UN2966

(Contd. on page 8)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/02/2019

Reviewed on 07/02/2019

Trade name: 2-Mercaptoethanol, molecular biology reagent

(Contd. of page 7)

· **UN proper shipping name**  
 · **DOT** Thioglycol  
 · **ADR** 2966 THIOGLYCOL, ENVIRONMENTALLY HAZARDOUS  
 · **IMDG** THIOGLYCOL, MARINE POLLUTANT  
 · **IATA** THIOGLYCOL

· **Transport hazard class(es)**

· **DOT**



· **Class** 6.1 Toxic substances  
 · **Label** 6.1

· **ADR, IMDG**



· **Class** 6.1 Toxic substances  
 · **Label** 6.1

· **IATA**



· **Class** 6.1 Toxic substances  
 · **Label** 6.1

· **Packing group**

· **DOT, ADR, IMDG, IATA** II

· **Environmental hazards:**

· **Marine pollutant:** No  
 Yes (DOT)  
 Symbol (fish and tree)  
 · **Special marking (ADR):** Symbol (fish and tree)

· **Special precautions for user**

Warning: Toxic substances  
 · **Danger code (Kemler):** 60  
 · **EMS Number:** F-A,S-A  
 · **Stowage Category** A

· **Transport in bulk according to Annex II of  
 MARPOL73/78 and the IBC Code**

Not applicable.

· **Transport/Additional information:**

· **DOT**

· **Quantity limitations**

On passenger aircraft/rail: 5 L  
 On cargo aircraft only: 60 L

· **Remarks:**

Special marking with the symbol (fish and tree).

(Contd. on page 9)



# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/02/2019

Reviewed on 07/02/2019

Trade name: 2-Mercaptoethanol, molecular biology reagent

(Contd. of page 8)

· <b>ADR</b>	
· <b>Excepted quantities (EQ)</b>	Code: E4 Maximum net quantity per inner packaging: 1 ml Maximum net quantity per outer packaging: 500 ml
<hr style="border-top: 1px dashed black;"/>	
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	100 ml
· <b>Excepted quantities (EQ)</b>	Code: E4 Maximum net quantity per inner packaging: 1 ml Maximum net quantity per outer packaging: 500 ml
· <b>UN "Model Regulation":</b>	UN 2966 THIOGLYCOL, 6.1, II, ENVIRONMENTALLY HAZARDOUS

## 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

- **Section 355 (extremely hazardous substances):**

Substance is not listed.

- **Section 313 (Specific toxic chemical listings):**

Substance is not listed.

- **TSCA (Toxic Substances Control Act):**

ACTIVE

- **Hazardous Air Pollutants**

Substance is not listed.

- **Proposition 65**

- **Chemicals known to cause cancer:**

Substance is not listed.

- **Chemicals known to cause reproductive toxicity for females:**

Substance is not listed.

- **Chemicals known to cause reproductive toxicity for males:**

Substance is not listed.

- **Chemicals known to cause developmental toxicity:**

Substance is not listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

Substance is not listed.

- **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 10)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/02/2019

Reviewed on 07/02/2019

**Trade name: 2-Mercaptoethanol, molecular biology reagent**

(Contd. of page 9)

· **Hazard pictograms**



· **Signal word** *Danger*

· **Hazard-determining components of labeling:**

*2-mercaptoethanol*

· **Hazard statements**

*Combustible liquid.*

*Toxic if swallowed or if inhaled.*

*Fatal in contact with skin.*

*Causes skin irritation.*

*Causes serious eye damage.*

*May cause an allergic skin reaction.*

*May cause damage to organs through prolonged or repeated exposure.*

· **Precautionary statements**

*Keep away from flames and hot surfaces. – No smoking.*

*Do not breathe dust/fume/gas/mist/vapors/spray.*

*Do not get in eyes, on skin, or on clothing.*

*Wash thoroughly after handling.*

*Do not eat, drink or smoke when using this product.*

*Use only outdoors or in a well-ventilated area.*

*Contaminated work clothing must not be allowed out of the workplace.*

*Wear protective gloves/protective clothing/eye protection/face protection.*

*If swallowed: Immediately call a poison center/doctor.*

*Specific treatment (see on this label).*

*Rinse mouth.*

*If on skin: Wash with plenty of water.*

*IF INHALED: Remove person to fresh air and keep comfortable for breathing.*

*Call a poison center/doctor.*

*If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.*

*Continue rinsing.*

*Get medical advice/attention if you feel unwell.*

*Take off immediately all contaminated clothing and wash it before reuse.*

*If skin irritation or rash occurs: Get medical advice/attention.*

*In case of fire: Use for extinction: CO<sub>2</sub>, powder or water spray.*

*Store in a well-ventilated place. Keep container tightly closed.*

*Store in a well-ventilated place. Keep cool.*

*Store locked up.*

*Dispose of contents/container in accordance with local/regional/national/international regulations.*

· **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

## 16 Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

· **Department issuing SDS:** *Quality Control Dept.*

· **Date of preparation / last revision** *07/02/2019 / -*

(Contd. on page 11)

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/02/2019

Reviewed on 07/02/2019

**Trade name: 2-Mercaptoethanol, molecular biology reagent**

(Contd. of page 10)

**· Abbreviations and acronyms:**

*ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)*  
*IMDG: International Maritime Code for Dangerous Goods*  
*DOT: US Department of Transportation*  
*IATA: International Air Transport Association*  
*ACGIH: American Conference of Governmental Industrial Hygienists*  
*EINECS: European Inventory of Existing Commercial Chemical Substances*  
*CAS: Chemical Abstracts Service (division of the American Chemical Society)*  
*NFPA: National Fire Protection Association (USA)*  
*HMIS: Hazardous Materials Identification System (USA)*  
*VOC: Volatile Organic Compounds (USA, EU)*  
*LC50: Lethal concentration, 50 percent*  
*LD50: Lethal dose, 50 percent*  
*PBT: Persistent, Bioaccumulative and Toxic*  
*vPvB: very Persistent and very Bioaccumulative*  
*NIOSH: National Institute for Occupational Safety*  
*OSHA: Occupational Safety & Health*  
*TLV: Threshold Limit Value*  
*PEL: Permissible Exposure Limit*  
*REL: Recommended Exposure Limit*  
*Flam. Liq. 4: Flammable liquids – Category 4*  
*Acute Tox. 3: Acute toxicity – Category 3*  
*Acute Tox. 2: Acute toxicity – Category 2*  
*Skin Irrit. 2: Skin corrosion/irritation – Category 2*  
*Eye Dam. 1: Serious eye damage/eye irritation – Category 1*  
*Skin Sens. 1: Skin sensitisation – Category 1*  
*STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2*

US