

# Safety Data Sheet

acc. to OSHA HCS

Printing date 07/02/2018

Reviewed on 07/02/2018

## 1 Identification

- **Product identifier**
- **Trade name: 2-Mercaptoethanol**
- **Catalog or product number:** 1610710, 1610710EDU, 1610710XTU
- **CAS Number:**  
60-24-2
- **EC number:**  
200-464-6
- **Application of the substance / the mixture** Laboratory chemicals
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
Bio-Rad Laboratories, Life Science Group  
2000 Alfred Nobel Drive  
Hercules, California 94547 (510)741-1000
- **Information department:** lsg\_techserv\_us@bio-rad.com
- **Emergency telephone number:**  
1(800)424-9300 Use only in the event of a CHEMICAL EMERGENCY involving a SPILL, LEAK, FIRE, EXPLOSION or ACCIDENT.  
510-741-1000

## 2 Hazard(s) identification

- **Classification of the substance or mixture**  
Flam. Liq. 4 H227 Combustible liquid.  
Acute Tox. 3 H301 Toxic if swallowed.  
Acute Tox. 2 H310 Fatal in contact with skin.  
Acute Tox. 3 H331 Toxic if inhaled.  
Skin Irrit. 2 H315 Causes skin irritation.  
Eye Dam. 1 H318 Causes serious eye damage.  
Skin Sens. 1 H317 May cause an allergic skin reaction.  
STOT RE2 H373 May cause damage to the liver and the heart through prolonged or repeated exposure. Route of exposure: Oral.

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



GHS05 GHS06 GHS07 GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**  
2-mercaptoethanol
- **Hazard statements**  
H227 Combustible liquid.  
H301+H331 Toxic if swallowed or if inhaled.  
H310 Fatal in contact with skin.

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- H315 Causes skin irritation.
- H318 Causes serious eye damage.
- H317 May cause an allergic skin reaction.
- H373 May cause damage to the liver and the heart through prolonged or repeated exposure. Route of exposure: Oral.

**Precautionary statements**

- P301+P310 If swallowed: Immediately call a poison center/doctor.
- P321 Specific treatment (see on this label).
- P330 Rinse mouth.
- P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
- P405 Store locked up.
- P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**Emergency overview:**

**Routes of exposure:**

- Ingestion
- Inhalation
- Skin

**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

**Additional information:** For the wording of the listed risk phrases refer to section 15.

**4 First-aid measures**

**Description of first aid measures**

**General information**

Immediately remove any clothing soiled by the product.  
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.  
In case of unconsciousness place patient stably in side position for transportation.

**After skin contact**

Immediately wash with water and soap and rinse thoroughly.  
Immediately rinse with water.

**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.

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Rinse mouth with water. Seek medical attention and appropriate follow-up.

- **Information for doctor**
- **Most important symptoms and effects, both acute and delayed** Breathing difficulty
- **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

**5 Fire-fighting measures**

- **Extinguishing media**
- **Suitable extinguishing agents**  
CO2, 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:**  
Mount respiratory protective device.  
Wear self-contained respiratory protective device.

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures**  
Mount respiratory protective device.  
Wear protective equipment (See section 8). Keep unprotected persons away.  
Wear protective clothing.
- **Environmental precautions:**  
Prevent seepage into sewage system, workpits and cellars.  
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).  
Use neutralizing agent.  
Dispose contaminated material as waste according to item 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**

· <b>PAC-1:</b>	0.6 ppm
· <b>PAC-2:</b>	3.5 ppm
· <b>PAC-3:</b>	29 ppm

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**7 Handling and storage**

- **Handling**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
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**
- **Requirements to be met by storerooms and receptacles:** According to product specification
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **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 item 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.  
Avoid contact with the eyes.  
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.
- **Material of gloves** Synthetic gloves
- **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:**  
Safety glasses

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Tightly sealed goggles.

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**9 Physical and chemical properties**

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

· **General Information**

· **Appearance:**

· <b>Form:</b>	Liquid
· <b>Color:</b>	Light yellow
· <b>Odor:</b>	Sulphurous
· <b>Odor threshold:</b>	Not determined.

· **pH-value:** Not determined.

· **Change in condition**

· <b>Melting point/Melting range:</b>	undetermined
· <b>Boiling point/Boiling range:</b>	157 °C

· **Flash point:** 74 °C

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

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Not determined.

· **Danger of explosion:** Product does not present an explosion hazard.

· **Explosion limits:**

· <b>Lower:</b>	Not determined.
· <b>Upper:</b>	Not determined.

· **Vapor pressure at 20 °C:** 3.6 hPa

· <b>Density at 20 °C:</b>	1.1143 g/cm <sup>3</sup>
· <b>Relative density</b>	Not determined.
· <b>Vapor density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.

· **Solubility in / Miscibility with**

· **Water:** Fully miscible

· **Partition coefficient (n-octanol/water):** Not determined.

· **Viscosity:**

· <b>dynamic:</b>	Not determined.
· <b>kinematic:</b>	Not determined.

· **Other information** 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

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- **Conditions to avoid** No further relevant information available.
- **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 for hazardous components per OSHA criteria:**

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

Oral	LD50	190 mg/kg (mouse)
Dermal	LD50	150 mg/kg (rab)
Inhalative	LC50/4 h	2 mg/l (Rat)

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

- **Target organs:**

Skin.  
Eye.  
Respiratory tract.

**12 Ecological information**

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **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 danger class 3 (Internal calculation) (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.

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- *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**  
*Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Dispose of waste in accordance to applicable national, regional, or local regulations.*
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

**14 Transport information**

- **UN-Number**
- **DOT, ADR, IMDG, IATA** UN2966
- **UN proper shipping name**
- **DOT, IMDG, IATA** THIOGLYCOL
- **ADR** 2966 THIOGLYCOL
- **Transport hazard class(es)**
- **DOT, ADR, IMDG, IATA**
- **Class** 6.1 Toxic substances
- **Label** 6.1
- **Packing group**
- **DOT, ADR, IMDG, IATA** II
- **Environmental hazards:**
- **Marine pollutant:** No
- **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** Void
- **Remarks:** Void  
ERG 153

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- **ADR**
- **Excepted quantities (EQ)**

Code: E4  
Maximum net quantity per inner packaging: 1 ml  
Maximum net quantity per outer packaging: 500 ml

- **IMDG**
- **Limited quantities (LQ)**
- **Excepted quantities (EQ)**

100 ml  
Code: E4  
Maximum net quantity per inner packaging: 1 ml  
Maximum net quantity per outer packaging: 500 ml

- **UN "Model Regulation":**

UN 2966 THIOGLYCOL, 6.1, II, ENVIRONMENTALLY HAZARDOUS

**15 Regulatory information**

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **SARA (Superfund Amendments and Reauthorization Act of 1986 - USA)**

- **Section 302/304 (40CFR355.30 / 40CFR355.40):**

Substance not listed.

- **Section 313 (40CFR372.65):**

Substance is not listed.

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

Substance is listed.

- **TSCA new (21st Century Act)**

ACTIVE/EXEMPT

- **California Proposition 65:**

Substance is not listed.

- **Chemicals known to cause cancer:**

Substance is not listed.

- **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.

- **MAK (German Maximum Workplace Concentration)**

Substance is not listed.

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

Substance is not listed.

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· **National regulations**

· **Technical instructions (air):**

Class	Share in %
I	50-100

- **Water hazard class:** Water danger class 3 (Assessment by list): extremely hazardous for water.
- **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:** Environmental Health and Safety.

· **Contact:**

Life Science Group, Environmental Health and Safety, 2000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 741-1000

Diagnostic Group, Environmental Health and Safety, 4000 Alfred Nobel Drive, Hercules, California, 94547: 1(510) 724-7000

· **Date of preparation / last revision** 07/02/2018 / -

· **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)

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

· **\* Data compared to the previous version altered.**