



# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Date of issue: 02/05/2013

Version 1.0

## SECTION 1. Identification

### Product identifier

Product number 805740  
Product name 2-Mercaptoethanol for synthesis

### Relevant identified uses of the substance or mixture and uses advised against

Identified uses Chemical for synthesis

### Details of the supplier of the safety data sheet

Company EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821,  
United States of America | SDS Phone Support: +1-978-715-1335 |  
General Inquiries: +1-978-715-4321 | Monday to Friday, 9:00 AM to  
4:00 PM Eastern Time (GMT-5)  
  
e-mail: mm\_sds@merckgroup.com

Emergency telephone 800-424-9300 CHEMTREC (USA)  
+1-703-527-3887 CHEMTREC (International)  
24 Hours/day; 7 Days/week

## SECTION 2. Hazards identification

### GHS Classification

Acute toxicity, Category 2, Inhalation, H330  
Acute toxicity, Category 2, Dermal, H310  
Acute toxicity, Category 3, Oral, H301  
Skin irritation, Category 2, H315  
Serious eye damage, Category 1, H318  
Acute aquatic toxicity, Category 1, H400  
Chronic aquatic toxicity, Category 1, H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

#### Hazard pictograms



Signal Word  
Danger

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according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 805740  
Product name 2-Mercaptoethanol for synthesis

---

Version 1.0

## *Hazard Statements*

H301 Toxic if swallowed.  
H310 + H330 Fatal in contact with skin or if inhaled.  
H315 Causes skin irritation.  
H318 Causes serious eye damage.  
H410 Very toxic to aquatic life with long lasting effects.

## *Precautionary Statements*

P273 Avoid release to the environment.  
P280 Wear protective gloves/ protective clothing.  
P280 Wear eye protection.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P309 + P310 IF exposed or if you feel unwell: Immediately call a POISON CENTER or doctor/physician.

## **OSHA Hazards**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

## **Other hazards**

None known.

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## **SECTION 3. Composition/information on ingredients**

Formula	HSCH <sub>2</sub> CH <sub>2</sub> OH	C <sub>2</sub> H <sub>6</sub> OS (Hill)
CAS-No.	60-24-2	
Molar mass	78.13 g/mol	

## **Hazardous ingredients**

*Chemical Name ( Concentration)*

CAS-No.

*Mercaptoethanol ( >= 90 % - <= 100 % )*  
60-24-2

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## **SECTION 4. First aid measures**

### **Description of first-aid measures**

*General advice*

First aider needs to protect himself.

*Inhalation*

After inhalation: fresh air. If breathing stops: immediately apply artificial respiration, if necessary oxygen. Immediately call in physician.

*Skin contact*

After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. If available swab with polyethylene glycol 400. Call a physician immediately.

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## MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 805740  
Product name 2-Mercaptoethanol for synthesis

---

Version 1.0

### *Eye contact*

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

### *Ingestion*

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible.

Never give anything by mouth to an unconscious person.

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

irritant effects, Cough, Shortness of breath, narcosis, Nausea, Vomiting, collapse, Convulsions, CNS disorders  
Risk of corneal clouding.

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

No information available.

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## **SECTION 5. Fire-fighting measures**

### **Extinguishing media**

#### *Suitable extinguishing media*

Water, Carbon dioxide (CO<sub>2</sub>), Foam, Dry powder

#### *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### **Special hazards arising from the substance or mixture**

Combustible material

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of:

hydrogen sulfide, Sulfur oxides

### **Advice for firefighters**

#### *Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### *Further information*

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6. Accidental release measures**

### **Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapors, aerosols. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders: Protective equipment see section 8.

### **Environmental precautions**

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## MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 805740  
Product name 2-Mercaptoethanol for synthesis

---

Version 1.0

Do not empty into drains.

### Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills.

Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area. Do not inhale vapors.

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## SECTION 7. Handling and storage

### Precautions for safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

Observe label precautions.

### Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at +15°C to +25°C (+59°F to +77°F).

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## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

Contains no substances with occupational exposure limit values.

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

### *Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

### *Eye/face protection*

Tightly fitting safety goggles

### *Hand protection*

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

### *Other protective equipment:*

protective clothing

### *Respiratory protection*

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

MATERIAL SAFETY DATA SHEET  
according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 805740  
Product name 2-Mercaptoethanol for synthesis

Version 1.0

---

**SECTION 9. Physical and chemical properties**

Physical state	liquid
Color	colorless
Odor	characteristic
Odor Threshold	No information available.
pH	4.5 - 6 at 500 g/l 68 °F ( 20 °C)
Melting point	< -50 °C
Boiling point/boiling range	309 - 322 °F ( 154 - 161 °C) at 1,013 hPa
Flash point	154 °F ( 68 °C)
Evaporation rate	No information available.
Flammability (solid, gas)	not applicable
Lower explosion limit	2.3 %(V)
Upper explosion limit	18 %(V)
Vapor pressure	0.76 hPa at 68 °F ( 20 °C)
Relative vapor density	2.7
Relative density	1.12 g/cm <sup>3</sup> at 68 °F ( 20 °C)
Water solubility	at 68 °F ( 20 °C) soluble
Partition coefficient: n-octanol/water	log Pow: -0.056 ( 25 °C) (experimental) (IUCLID) Bioaccumulation is not expected (log Pow <1).
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	3.4 mPa.s at 68 °F ( 20 °C)

# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 805740  
Product name 2-Mercaptoethanol for synthesis

---

Version 1.0

Explosive properties Not classified as explosive.

Ignition temperature 563 °F ( 295 °C)  
Method: DIN 51794

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## SECTION 10. Stability and reactivity

### Reactivity

Vapor/air-mixtures are explosive at intense warming.

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

Violent reactions possible with:

Strong oxidizing agents

A risk of explosion and/or of toxic gas formation exists with the following substances:

Acids

### Conditions to avoid

Heating.

A range from approx. 15 Kelvin below the flash point is to be rated as critical.

Exposure to moisture.

### Incompatible materials

no information available

### Hazardous decomposition products

in the event of fire: See section 5.

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## SECTION 11. Toxicological information

### Information on toxicological effects

#### *Likely route of exposure*

Inhalation, Eye contact, Skin contact

#### *Acute oral toxicity*

LD50 rat: 98 - 162 mg/kg

OECD Test Guideline 401

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

absorption

#### *Acute inhalation toxicity*

LC50 rat: ca. 2 mg/l; 4 h (External MSDS)

Symptoms: mucosal irritations, Cough, Shortness of breath

absorption

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# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number  
Product name

805740  
2-Mercaptoethanol for synthesis

Version 1.0

## *Acute dermal toxicity*

LD50 rabbit: 112 - 224 mg/kg  
(External MSDS)

absorption

## *Skin irritation*

rabbit  
Result: Irritations  
(External MSDS)

Causes skin irritation.

## *Eye irritation*

rabbit  
Result: Severe irritations  
(External MSDS)

Risk of corneal clouding.

Causes serious eye damage.

## *Sensitization*

Sensitization test: guinea pig  
Result: positive  
Method: OECD Test Guideline 406

## *Genotoxicity in vitro*

Ames test  
Result: negative  
(Lit.)

## *Reproductive toxicity*

No impairment of reproductive performance suspected. (External MSDS)

## *Specific target organ systemic toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

## *Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

## *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## **Carcinogenicity**

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 805740  
Product name 2-Mercaptoethanol for synthesis

Version 1.0

ACGIH No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

## Further information

Systemic effects:

CNS disorders, Nausea, Vomiting

After uptake of large quantities:

Convulsions, narcosis, collapse

Other information

The following applies to mercaptans in general: offensive odor.

Further data:

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

## SECTION 12. Ecological information

### Ecotoxicity

*Toxicity to fish*

LC50 *Leuciscus idus* (Golden orfe): 46 - 100 mg/l; 96 h (IUCLID)

*Toxicity to daphnia and other aquatic invertebrates*

EC50 *Daphnia magna* (Water flea): 0.89 mg/l; 48 h

OECD Test Guideline 202

*Toxicity to algae*

IC50 *Desmodesmus subspicatus* (green algae): 12 mg/l; 72 h (IUCLID)

*Toxicity to bacteria*

EC50 *Pseudomonas putida*: 125 mg/l; 17 h (IUCLID)

### Persistence and degradability

*Biodegradability*

< 10 %; 28 d

OECD Test Guideline 301A

Not readily biodegradable.

*Biochemical Oxygen Demand (BOD)*

105 mg/g (5 d)

(IUCLID)

*Chemical Oxygen Demand (COD)*

1.894 mg/g

(IUCLID)

### Bioaccumulative potential

*Partition coefficient: n-octanol/water*

log Pow: -0.056 (25 °C)

(experimental)

(IUCLID) Bioaccumulation is not expected (log Pow <1).

### Mobility in soil

No information available.

### Other adverse effects

*Additional ecological information*

Discharge into the environment must be avoided.



# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 805740  
Product name 2-Mercaptoethanol for synthesis

Version 1.0

---

## SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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## SECTION 14. Transport information

### Land transport (DOT)

UN number	UN 2966
Proper shipping name	THIOGLYCOL
Class	6.1
Packing group	II
Environmentally hazardous	--

### Air transport (IATA)

UN number	UN 2966
Proper shipping name	THIOGLYCOL
Class	6.1
Packing group	II
Environmentally hazardous	--
Special precautions for user	no

### Sea transport (IMDG)

UN number	UN 2966
Proper shipping name	THIOGLYCOL
Class	6.1
Packing group	II
Environmentally hazardous	--
Special precautions for user	yes
EmS	F-A S-A

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## SECTION 15. Regulatory information

### United States of America

#### OSHA Hazards

Combustible Liquid  
Toxic by inhalation.  
Toxic by ingestion  
Highly toxic by skin absorption  
Skin irritant  
Corrosive to eyes

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number  
Product name

805740  
2-Mercaptoethanol for synthesis

Version 1.0

---

## **SARA 311/312 Hazards**

Fire Hazard  
Acute Health Hazard

## **SARA 313**

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 302**

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

## **Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

## **Massachusetts Right To Know**

*Ingredients*  
Mercaptoethanol

## **Pennsylvania Right To Know**

*Ingredients*  
Mercaptoethanol

## **New Jersey Right To Know**

*Ingredients*  
Mercaptoethanol

## **Notification status**

TSCA: On TSCA Inventory

DSL: All components of this product are on the Canadian DSL.

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## **SECTION 16. Other information**

### **Training advice**

Provide adequate information, instruction and training for operators.

# MATERIAL SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number 805740  
Product name 2-Mercaptoethanol for synthesis

---

Version 1.0

## Full text of H-Statements referred to under sections 2 and 3.

H301	Toxic if swallowed.
H310	Fatal in contact with skin.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H330	Fatal if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

## Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

Date of issue:02/05/2013

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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