MATERIAL SAFETY DATA SHEET

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

Date of issue: 02/13/2013 Version 1.0

SECTION 1. Identification

Product identifier

Product number	814145
Product code	814145
Product name	Ethylene glycol bis-mercaptoacetate 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 4, Inhalation, H332
Acute toxicity, Category 4, Dermal, H312
Acute toxicity, Category 4, Oral, H302
Chronic aquatic toxicity, Category 2, H411

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

GHS-Labeling

Hazard pictograms



Signal Word
Warning

Hazard Statements
H302 + H312 + H332 Harmful if swallowed, in contact with skin or if inhaled.
H411 Toxic to aquatic life with long lasting effects.

Precautionary Statements
P273 Avoid release to the environment.
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

Other hazards
None known.

SECTION 3. Composition/information on ingredients

Formula	$(HSCH_2COOCH_2)_2$	$C_6H_{10}O_4S_2$ (Hill)
CAS-No.	123-81-9	
Molar mass	210.27 g/mol	

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: mouth-to-mouth breathing or artificial respiration. Oxygen if necessary. Immediately call in physician.

Skin contact
After skin contact: wash off with plenty of water. Remove contaminated clothing. Consult a physician.

Eye contact
After eye contact: rinse out with plenty of water.

Ingestion
After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed
Shortness of breath, muscular weakness, ataxia (impaired locomotor coordination), Tremors

Indication of any immediate medical attention and special treatment needed
No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media
Water, Carbon dioxide (CO2), 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.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air on intense heating.
Development of hazardous combustion gases or vapors possible in the event of fire.
Fire may cause evolution of:
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
Prevent fire extinguishing water from contaminating surface water or the ground water system.
Suppress (knock down) gases/vapors/mists with a water spray jet.

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
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. Chemizorb®). Dispose of properly. Clean up affected area.

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
Tightly closed.

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

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

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

Safety glasses

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.

SECTION 9. Physical and chemical properties

Physical state	liquid
Color	colorless
Odor	malodorous
Odor Threshold	No information available.
pH	No information available.
Melting point	No information available.
Boiling point/boiling range	279 - 282 °F (137 - 139 °C) at 2 hPa
Flash point	297 °F (147 °C) Method: DIN 51758

Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	No information available.
Relative vapor density	No information available.
Relative density	1.32 g/cm³ at 68 °F (20 °C)
Water solubility	20 g/l at 68 °F (20 °C)
Partition coefficient: n-octanol/water	log Pow: 1.2 (21 °C) OECD Test Guideline 107 Bioaccumulation is not expected (log Pow <1). (External MSDS)
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	No information available.

SECTION 10. Stability and reactivity

Reactivity
Forms explosive mixtures with air on intense heating.

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

Possibility of hazardous reactions
Violent reactions possible with:

Oxidizing agents

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

Incompatible materials
no information available

Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Target Organs
Eyes
Skin
Respiratory system

Acute oral toxicity
LD50 rat: 330 mg/kg (RTECS)

absorption

Acute inhalation toxicity
absorption
Symptoms: Shortness of breath

Acute dermal toxicity
absorption

Sensitization
Sensitization possible in predisposed persons.

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.

Further information

After absorption:
Systemic effects:
Tremors, muscular weakness, ataxia (impaired locomotor coordination)
The following applies to mercaptans in general: offensive odor.
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish
LC50 Leuciscus idus (Golden orfe): 4.85 mg/l; 48 h
DIN 38412 T15

Toxicity to bacteria
EC20 Bacteria: 7.8 mg/l; 30 min
DIN 38412

Persistence and degradability

Biodegradability
34 %; 28 d
OECD Test Guideline 301E
Not readily biodegradable.

Bioaccumulative potential
Partition coefficient: n-octanol/water
log Pow: 1.2 (21 °C)
OECD Test Guideline 107
Bioaccumulation is not expected (log Pow <1). (External MSDS)

Mobility in soil
No information available.

Other adverse effects

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.

SECTION 14. Transport information

Land transport (DOT)

UN number	UN 3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ETHYLENGLYCOL-BIS-MERCAPTOACETATE)
Class	9
Packing group	III
Environmentally hazardous	--

Air transport (IATA)

UN number	UN 3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ETHYLENGLYCOL-BIS-MERCAPTOACETATE)
Class	9
Packing group	III
Environmentally hazardous	--
Special precautions for user	no

Sea transport (IMDG)

UN number	UN 3082
Proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ETHYLENGLYCOL-BIS-MERCAPTOACETATE)
Class	9
Packing group	III
Environmentally hazardous	--
Special precautions for user	yes

EmS F-A S-F

SECTION 15. Regulatory information

United States of America

OSHA Hazards

Toxic by ingestion
Target organ effects
Highly toxic by inhalation
Toxic by skin absorption
Corrosive to skin
Corrosive to eyes
Corrosive by inhalation.

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.

SARA 311/312 Hazards

Acute Health Hazard
Chronic Health Hazard

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.

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Ingredients
ethylene glycol bis(thioglycolate)
Thioglycolic acid

Pennsylvania Right To Know

Ingredients
ethylene glycol bis(thioglycolate)
Thioglycolic acid

New Jersey Right To Know

Ingredients
ethylene glycol bis(thioglycolate)
Thioglycolic acid

Notification status

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

SECTION 16. Other information

Training advice
Provide adequate information, instruction and training for operators.

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

H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H411	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.

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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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