

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 7.6 Revision Date 01.03.2024 Print Date 10.05.2024

GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

1.1 Product identifiers

Product name : 2-Mercaptoethanol

Product Number : M6250 Brand : Aldrich

REACH No. : 01-2119517582-41-XXXX

CAS-No. : 60-24-2

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

SECTION 1: Identification of the substance/mixture and of the company/undertaking

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Merck Life Science S.r.l.

Via Monte Rosa 93 I-20149 MILANO

Telephone : +39 02 3341 7340 Fax : +39 02 3801 0737

E-mail address : serviziotecnico@merckgroup.com

1.4 Emergency telephone

Emergency Phone # : 800-789-767 (CHEMTREC Italia)

+39-02-4555-7031 (CHEMTREC chiamate

internazionali)

+39 02-6610-1029 (Centro Antiveleni

Niguarda Ca' Granda - Milano)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Acute toxicity, (Category 3) H301: Toxic if swallowed.

Acute toxicity, (Category 3) H331: Toxic if inhaled.

Acute toxicity, (Category 2) H310: Fatal in contact with skin.

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Skin irritation, (Category 2) H315: Causes skin irritation.

Serious eye damage, (Category H318: Causes serious eye damage.

Skin sensitization, (Sub-category H317: May cause an allergic skin reaction.

1A)

H361d: Suspected of damaging the unborn Reproductive toxicity, (Category

child.

Specific target organ toxicity repeated exposure, (Category 2),

Liver, Heart

H373: May cause damage to organs through prolonged or repeated exposure if swallowed.

H411: Toxic to aquatic life with long lasting

Short-term (acute) aquatic

hazard, (Category 1)

H400: Very toxic to aquatic life.

Long-term (chronic) aquatic

hazard, (Category 2) effects.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal Word Danger

Hazard Statements

H301 + H331Toxic if swallowed or if inhaled. H310 Fatal in contact with skin. H315 Causes skin irritation.

May cause an allergic skin reaction. H317

H318 Causes serious eye damage.

Suspected of damaging the unborn child. H361d

May cause damage to organs (Liver, Heart) through prolonged H373

or repeated exposure if swallowed.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face

IF SWALLOWED: Immediately call a POISON CENTER/ doctor. P301 + P310 P302 + P352 + P310 IF ON SKIN: Wash with plenty of water. Immediately call a

POISON CENTER/ doctor.

P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable

for breathing. Call a POISON CENTER/ doctor.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue

rinsing.

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Supplemental Hazard Statements none

Reduced Labeling (<= 125 ml)

Pictogram



Signal Word Danger

Hazard Statements

H310 Fatal in contact with skin.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

H361d Suspected of damaging the unborn child.

H301 + H331 Toxic if swallowed or if inhaled.

Precautionary Statements

P280 Wear protective gloves/ protective clothing/ eye protection/ face

protection.

P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

P302 + P352 + P310 IF ON SKIN: Wash with plenty of water. Immediately call a

POISON CENTER/ doctor.

P304 + P340 + P311 IF INHALED: Remove person to fresh air and keep comfortable

for breathing. Call a POISON CENTER/ doctor.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue

rinsing.

Supplemental Hazard

Statements

none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. Toxicological information:

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. Stench.

Stench., Rapidly absorbed through skin.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms : Thioethylene glycol

2-Hydroxyethylmercaptan

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BME

β-Mercaptoethanol

Formula : C2H6OS

Molecular weight : 78,13 g/mol

CAS-No. : 60-24-2

EC-No. : 200-464-6

	Classification	Concentration
60-24-2 200-464-6	Acute Tox. 3; Acute Tox. 2; Skin Irrit. 2; Eye Dam. 1; Skin Sens. 1A; Repr. 2; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 2; H301, H331, H310, H315, H318, H317, H361d, H373, H400, H411 M-Factor - Aquatic Acute: 1	<= 100 %
	** = : =	60-24-2 200-464-6 2; Skin Irrit. 2; Eye Dam. 1; Skin Sens. 1A; Repr. 2; STOT RE 2; Aquatic Acute 1; Aquatic Chronic 2; H301, H331, H310, H315, H318, H317, H361d, H373, H400, H411

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

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled

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

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

In case of eye contact

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

If swallowed

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.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Water Foam Carbon dioxide (CO2) Dry powder

Unsuitable extinguishing media

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

5.2 Special hazards arising from the substance or mixture

Carbon oxides

Sulfur oxides

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 vapours possible in the event of fire.

5.3 Advice for firefighters

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

5.4 Further information

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

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 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 carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

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7.1 Precautions for safe handling

Advice on safe handling

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

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

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

Storage stabilityRecommended storage temperature

2 - 8 °C

Storage class

Storage class (TRGS 510): 6.1A: Combustible, acute toxic Cat. 1 and 2 / very toxic hazardous materials

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Derived No Effect Level (DNEL)

	<u> </u>		
Application Area	Routes of exposure	Health effect	Value
Worker DNEL, acute	inhalation	Systemic effects	0,17 mg/m3
Worker DNEL, longterm	inhalation	Systemic effects	0,17 mg/m3
Worker DNEL, longterm	dermal	Systemic effects	
Worker DNEL, acute	dermal	Systemic effects	

Predicted No Effect Concentration (PNEC)

redicted no Effect concentration (1 NEC)		
Compartment	Value	
Fresh water	0,0004 mg/l	
Sea water	0,00004 mg/l	
Aquatic intermittent release	0,004 mg/l	
Sewage treatment plant	60 mg/l	

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Fresh water sediment	0,0015 mg/kg
Sea sediment	0,00015 mg/kg
Soil	0,000063 mg/kg

8.2 Exposure controls

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: butyl-rubber

Minimum layer thickness: 0,7 mm Break through time: 480 min

Material tested:Butoject® (KCL 898)

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell,

Internet: www.kcl.de).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0,4 mm Break through time: 120 min

Material tested: Camatril® (KCL 730 / Aldrich Z677442, Size M)

Body Protection

protective clothing

Respiratory protection

Recommended Filter type: Filter B-(P3)

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains.

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SECTION 9: Physical and chemical properties

Information on basic physical and chemical properties

liquid a) Physical state

b) Color colorless

c) Odor characteristic

Melting point: < -50 °C d) Melting

point/freezing point

e) Initial boiling point and boiling range

157 °C - lit.

Flammability (solid, f)

No data available

gas)

g) Upper/lower flammability or explosive limits Upper explosion limit: 18 %(V) Lower explosion limit: 2,3 %(V)

h) Flash point 74 °C - closed cup Autoignition No data available i)

temperature

Decomposition j) temperature

No data available

k) pH 4,5 - 6 at 500 g/l at 20 °C

I) Viscosity Viscosity, kinematic: No data available Viscosity, dynamic: 3,4 mPa.s at 20 °C

at 20 °C soluble m) Water solubility

n) Partition coefficient: log Pow: -0,056 at 25 °C - Bioaccumulation is not expected.

n-octanol/water

0,76 hPa at 20 °C o) Vapor pressure

1,114 g/cm3 at 25 °C - lit. p) Density

Relative density No data available No data available Relative vapor

density

r) Particle

characteristics

s) Explosive properties

No data available

No data available

t) Oxidizing properties none

9.2 Other safety information

Relative vapor 2,70 - (Air = 1.0)density

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SECTION 10: Stability and reactivity

10.1 Reactivity

Forms explosive mixtures with air on intense heating.

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

10.2 Chemical stability

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

10.3 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

10.4 Conditions to avoid

Strong heating.

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

LD50 Oral - Mouse - 190 mg/kg

Remarks: (RTECS)

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

gastrointestinal tract.

LC50 Inhalation - Rat - male - 4 h - 2,05 mg/l - vapor

Remarks: (ECHA)

Symptoms: Possible damages:, mucosal irritations, Cough, Shortness of breath

LD50 Dermal - Rabbit - male and female - 112 - 224 mg/kg

Remarks: (ECHA)

Skin corrosion/irritation

Skin - Rabbit Result: Irritations

(OECD Test Guideline 404)

Serious eye damage/eye irritation

Eyes - Rabbit

Result: Severe irritations

(Draize Test)

Remarks: (External MSDS)

Remarks: Risk of corneal clouding.

Respiratory or skin sensitization

Maximization Test - Guinea pig

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Result: positive

(OECD Test Guideline 406)

Germ cell mutagenicity

Test Type: Chromosome aberration test

Species: Mouse

Cell type: Bone marrow

Application Route: Intraperitoneal Method: OECD Test Guideline 474

Result: negative

Carcinogenicity

No data available

Reproductive toxicity

Suspected of damaging the unborn child. Suspected of damaging fertility.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Ingestion - May cause damage to organs through prolonged or repeated exposure. - Liver, Heart

Aspiration hazard

No data available

11.2 Additional Information

Endocrine disrupting properties

Product:

Assessment The substance/mixture does not contain

components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Repeated dose toxicity - Rat - male and female - Oral - 49 d - NOAEL (No observed adverse effect level) - 15 mg/kg - LOAEL (Lowest observed adverse effect level) - 50 mg/kg

RTECS: KL5600000

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting, Weakness, Unconsciousness, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Systemic effects:

CNS disorders Nausea

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Vomiting Convulsions narcosis

The following applies to mercaptans in general: offensive odour.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

SECTION 12: Ecological information

12.1 Toxicity

Toxicity to fish static test LC50 - Leuciscus idus (Golden orfe) - 37 mg/l - 96 h

(DIN 38412 T15)

Toxicity to daphnia and other aquatic invertebrates

static test EC50 - Daphnia magna (Water flea) - 0,4 mg/l - 48 h

(OECD Test Guideline 202)

Toxicity to algae static test ErC50 - Desmodesmus subspicatus (green algae) - 19

mg/l - 72 h

(OECD Test Guideline 201)

Toxicity to bacteria static test EC50 - Pseudomonas putida - 125 mg/l - 17 h

(DIN 38 412 Part 8)

Toxicity to daphnia semi-static test NOEC - Daphnia magna (Water flea) - > 0,0632 mg/l

and other aquatic - 21 d

invertebrates(Chronic (OECD Test Guideline 211)

toxicity)

12.2 Persistence and degradability

Biodegradability Result: > 70 % - rapidly biodegradable

Remarks: (ECHA)

Biochemical Oxygen 105 mg/g

Demand (BOD) Remarks: (IUCLID)

Chemical Oxygen 1,894 mg/g

Demand (COD) Remarks: (IUCLID)

12.3 Bioaccumulative potential

Does not accumulate in organisms.

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

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12.6 Endocrine disrupting properties

Product:

Assessment : The substance/mixture does not contain components

considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14: Transport information

14.1 UN number

ADR/RID: 2966 IMDG: 2966 IATA: 2966

14.2 UN proper shipping name

ADR/RID: THIOGLYCOL IMDG: THIOGLYCOL IATA: Thioglycol

14.3 Transport hazard class(es)

ADR/RID: 6.1 IMDG: 6.1 IATA: 6.1

14.4 Packaging group

ADR/RID: II IMDG: II IATA: II

14.5 Environmental hazards

ADR/RID: yes IMDG Marine pollutant: yes IATA: no

14.6 Special precautions for user

Tunnel restriction code : (D/E)

Further information : No data available

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

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This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

H2 ACUTE TOXIC

E1 ENVIRONMENTAL HAZARDS

H2 ACUTE TOXIC

E1 ENVIRONMENTAL HAZARDS

Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information

Full text of H-Statements

H301	Toxic if swallowed.
H310	Fatal in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H331	Toxic if inhaled.
H361d	Suspected of damaging the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure if swallowed.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.

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Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM -American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS -Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx -Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS -Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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