Safety Data Sheet

Cat. # BC98

ß-Mercaptoethanol

Size: 100ml
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

- **Product form:** Substance
- **Substance name:** 2-mercaptoethanol
- **EC-No.:** 200-464-6
- **CAS-No.:** 60-24-2
- **Product code:** P001_103M
- **Type of product:** Pure substance
- **Formula:** C₂H₆OS
- **Synonyms:** 1-ethanol-2-thiol / 1-hydroxy-2-mercaptoethane / 1-mercapto-2-hydroxyethane / 2-hydroxy-1-ethanethiol / 2-hydroxyethanethiol / 2-hydroxyethyl mercaptan / 2-ME / 2-mercapto-1-ethanol / 2-mercaptoethanol / 2-mercaptoethyl alcohol / 2-thioethanol / beta-hydroxyethanethiol / beta-hydroxyethylmercaptop / beta-mercaptoethanol / BME / emery 5791 / ethanol, 2-mercapto- / ethylene glycol, monothio- / ethylene thiyglycol / hydroxyethyl mercaptan / mercapto-2 ethanol / METH / monothioethyleneglycol / monothioglycol / thiethylene glycol / thioglycol / thiromonoglycol / USAF EK-4196
- **Product group:** Raw material
- **BIG No.:** 10274

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

1.2.1. Relevant identified uses

- Use of the substance/mixture: Solvent

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Geno Technology, Inc./ G-Biosciences
9800 Page Avenue
63132-1429 Saint Louis - United States
T 800-628-7730 - F 314-991-1504
technical@GBiosciences.com - www.GBiosciences.com

1.4. Emergency telephone number

Emergency number: Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887 (Intl)

<table>
<thead>
<tr>
<th>Country</th>
<th>Organisation/Company</th>
<th>Address</th>
<th>Emergency number</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Belfast Centre) Royal Victoria Hospital</td>
<td>Grosvenor Road BT12 6BA Belfast</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Birmingham Centre) City Hospital</td>
<td>Dudley Road B18 7QH Birmingham</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service (Cardiff Centre) Gwernwyn Ward, Llandough Hospital</td>
<td>Penarth CF64 2XX Cardiff</td>
<td>0344 892 0111</td>
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<tr>
<td>United Kingdom</td>
<td>National Poisons Information Service Edinburgh Royal Infirmary of Edinburgh</td>
<td>Little France Crescent EH16 4SA Edinburgh</td>
<td>0344 892 0111</td>
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<tr>
<td>United Kingdom</td>
<td>Guy's &amp; St Thomas' Poisons Unit Medical Toxicology Unit, Guy's &amp; St Thomas' Hospital Trust</td>
<td>Avonley Road SE14 5ER London</td>
<td>+44 20 7188 7188</td>
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<td>United Kingdom</td>
<td>National Poisons Information Service (Newcastle Centre) Regional Drugs and Therapeutics Centre, Wolfson Unit</td>
<td>Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle</td>
<td>0344 892 0111</td>
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</tbody>
</table>
2-mercaptoethanol
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Acute toxicity (oral), Category 3
Acute toxicity (dermal), Category 3
Acute toxicity (inhal.), Category 3
Acute toxicity (inhalation:dust,mist) Category 4
Skin corrosion/irritation, Category 2
Serious eye damage/eye irritation, Category 1
Skin sensitisation, category 1A
Specific target organ toxicity — Repeated exposure, Category 2
Hazardous to the aquatic environment — Acute Hazard, Category 1
Hazardous to the aquatic environment — Chronic Hazard, Category 1

Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

May cause damage to organs through prolonged or repeated exposure. Toxic in contact with skin. Toxic if inhaled. Harmful if inhaled. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Very toxic to aquatic life with long lasting effects.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP):

<table>
<thead>
<tr>
<th>GHS05</th>
<th>GHS06</th>
<th>GHS08</th>
<th>GHS09</th>
</tr>
</thead>
</table>

CLP Signal word : Danger

Hazard statements (CLP):

| H301+H311+H331 - Toxic if swallowed, in contact with skin or if inhaled. |
| H315 - Causes skin irritation. |
| H317 - May cause an allergic skin reaction. |
| H318 - Causes serious eye damage. |
| H332 - Harmful if inhaled. |
| H373 - May cause damage to organs through prolonged or repeated exposure. |
| H410 - Very toxic to aquatic life with long lasting effects. |

Precautionary statements (CLP):

| P260 - Do not breathe dust/fume/gas/mist/vapours/spray. |
| P264 - Wash hands, forearms and face thoroughly after handling. |
| P270 - Do not eat, drink or smoke when using this product. |
| P271 - Do not breathe dust/fume/gas/mist/vapours/spray. |
| P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor. |
| P302+P352 - IF ON SKIN: Wash with plenty of water. |
| P304+P340 - IF INHALED: Remove person to fresh air and keep 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. |
| P310 - Immediately call a POISON CENTER or doctor. |
| P312 - Call a POISON CENTRE or doctor if you feel unwell. |
| P321 - Specific treatment (see supplemental first aid instruction on this label). |
| P330 - Rinse mouth. |
| P332+P313 - If skin irritation occurs: Get medical advice/attention. |
| P333+P313 - If skin irritation or rash occurs: Get medical advice/attention. |
| P361+P364 - Take off immediately all contaminated clothing and wash it before reuse. |
| P362+P364 - Take off contaminated clothing and wash it before reuse. |
| P391 - Collect spillage. |
| P403+P233 - Store in a well-ventilated place. Keep container tightly closed. |
| P405 - Store locked up. |
| P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. |

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type : Mono-constituent

5/11/2017
EN (English)
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<table>
<thead>
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<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
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<td>2-mercaptoethanol</td>
<td>(CAS-No.) 60-24-2</td>
<td>100</td>
<td>Acute Tox. 3 (Oral), H301</td>
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<td>(EC-No.) 200-464-6</td>
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<td>Acute Tox. 3 (Dermal), H311</td>
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<td>Acute Tox. 3 (Inhalation), H331</td>
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<td>Acute Tox. 4 (Inhalation:dust,mist), H332</td>
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<td>Skin Irrit. 2, H315</td>
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<td>Eye Dam. 1, H318</td>
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<td>Skin Sens. 1A, H317</td>
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<td>STOT RE 2, H373</td>
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<td>Aquatic Acute 1, H400</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Aquatic Chronic 1, H410</td>
</tr>
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</table>

Full text of H-statements: see section 16

3.2. Mixtures
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation: Remove the victim into fresh air. Immediately consult a doctor/medical service.

First-aid measures after skin contact: Wash immediately with lots of water. Do not apply (chemical) neutralizing agents. Remove clothing before washing. Consult a doctor/medical service.

First-aid measures after eye contact: Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Take victim to an ophthalmologist. Do not apply neutralizing agents.


4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after skin contact: Red skin. Tingling/irritation of the skin. ON CONTINUOUS EXPOSURE/CONTACT: Caustic burns/corrosion of the skin.

Symptoms/effects after eye contact: Corrosion of the eye tissue. Inflammation/damage of the eye tissue.


Chronic symptoms: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Skin rash/inflammation.

4.3. Indication of any immediate medical attention and special treatment needed
Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Unsuitable extinguishing media: Water (quick-acting extinguisher, reel); risk of puddle expansion. Water; risk of puddle expansion.

5.2. Special hazards arising from the substance or mixture
Fire hazard: DIRECT FIRE HAZARD. Material presenting a fire hazard. INDIRECT FIRE HAZARD: Temperature above flashpoint: higher fire/explosion hazard. Reactions involving a fire hazard: see "Reactivity Hazard".

Hazardous decomposition products in case of fire: Toxic fumes may be released.

5.3. Advice for firefighters
Precautionary measures fire: Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: seal off low-lying areas. Exposure to fire/heat: have neighbourhood close doors and windows.
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Firefighting instructions
: Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.

Protection during firefighting

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment

Emergency procedures

6.1.2. For emergency responders

Protective equipment
: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment

Methods for cleaning up
: Take up liquid spill into absorbent material, e.g.: dry sand/earth/vermiculite powdered limestone or saw dust. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Leftovers: neutralize with an aqueous solution of sodium hypochlorite. Damaged/cooled tanks must be emptied. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

Other information
: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling

Hygiene measures
: Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

Maximum storage period
: 24 months

Heat and ignition sources
: KEEP SUBSTANCE AWAY FROM: heat sources.

Information on mixed storage

Storage area

Special rules on packaging
: SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

7.3. Specific end use(s)

No additional information available
SECTION 8: Exposure controls/personal protection

8.1. Control parameters

2-mercaptoethanol (60-24-2)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>DNEL/DMEL (Workers)</td>
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<tr>
<td>Long-term - systemic effects, dermal</td>
<td>0.6 mg/kg bw/day</td>
</tr>
<tr>
<td>Long-term - systemic effects, inhalation</td>
<td>4 mg/m³</td>
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PNEC (Water)

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<th>Value</th>
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<td>PNEC aqua (freshwater)</td>
<td>0.0004 mg/l</td>
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<tr>
<td>PNEC aqua (marine water)</td>
<td>0.00004 mg/l</td>
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PNEC (Sediment)

<table>
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<td>PNEC sediment (freshwater)</td>
<td>0.0015 mg/kg dwt</td>
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<tr>
<td>PNEC sediment (marine water)</td>
<td>0.00015 mg/kg dwt</td>
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PNEC (Soil)

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<td>PNEC soil</td>
<td>0.0000637 mg/kg dwt</td>
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PNEC (STP)

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<tbody>
<tr>
<td>PNEC sewage treatment plant</td>
<td>60 mg/l</td>
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8.2. Exposure controls

Appropriate engineering controls:
Ensure good ventilation of the work station.

Materials for protective clothing:
GIVE GOOD RESISTANCE: neoprene, nitrile rubber, PVC, plastics, rubber

Hand protection:
Gloves

Eye protection:
Face shield

Skin and body protection:
Protective clothing

Respiratory protection:
High gas/vapour concentration: full face mask with filter type A

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

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<th>Property</th>
<th>Value</th>
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<td>Physical state</td>
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<tr>
<td>Appearance</td>
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<tr>
<td>Molecular mass</td>
<td>78.13 g/mol</td>
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<td>Colour</td>
<td>Colourless to light yellow.</td>
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<td>Odour</td>
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<td>Odour threshold</td>
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<td>pH</td>
<td>4.6 - 6.0 (50 %)</td>
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<td>Relative evaporation rate (butylacetate=1)</td>
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<tr>
<td>Melting point</td>
<td>&lt; -100 °C</td>
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<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>155.8 °C (1013.3 hPa)</td>
</tr>
<tr>
<td>Flash point</td>
<td>74 °C (Open cup, 1013.25 hPa)</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>295 °C</td>
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<tr>
<td>Decomposition temperature</td>
<td>157 °C</td>
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<tr>
<td>Flammability (solid, gas)</td>
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</tr>
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</table>
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Vapour pressure: 1.33 hPa (20 °C)
Vapour pressure at 50 °C: 11 hPa
Relative vapour density at 20 °C: 2.7
Relative density: 1.11 (20 °C)
Relative density of saturated gas/air mixture: 1
Density: 1110 kg/m³ (20 °C)
Water: 100 g/100ml (20 °C)
Log Pow: -0.056 (Experimental value, Equivalent or similar to OECD 107, 25 °C)
Viscosity, kinematic: 2.9 mm²/s (20 °C, Calculated)
Viscosity, dynamic: 0.322 mPa·s (20 °C)
Explosive properties: No data available
Oxidising properties: No data available
Explosive limits: 2.3 - 18 vol %
Lower explosive limit (LEL): 2.3 vol %
Upper explosive limit (UEL): 18 vol %

9.2. Other information
VOC content: 100 %
Other properties: Gas/vapour heavier than air at 20°C. Clear. Slightly volatile. Acid reaction.

SECTION 10: Stability and reactivity
10.1. Reactivity
Reacts violently with (strong) oxidizers: (increased) risk of fire. Reacts violently with many compounds e.g.: with (strong) bases and (strong) reducers. Decomposes slowly on exposure to water (moisture) with (some) acids.

10.2. Chemical stability
Unstable on exposure to moisture.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Hazardous decomposition products.

SECTION 11: Toxicological information
11.1. Information on toxicological effects
Acute toxicity (oral): Toxic if swallowed.
Acute toxicity (dermal): Toxic in contact with skin.
Acute toxicity (inhalation): Toxic if inhaled. Harmful if inhaled.

2-mercaptoethanol (60-24-2)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>98 - 168 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Weight of evidence, Oral)</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>112 - 224 mg/kg bodyweight (Other, 24 h, Rabbit, Male / female, Experimental value, Dermal)</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>2.03 mg/l (Other, 4 h, Rat, Male, Weight of evidence, Inhalation (vapours))</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Causes skin irritation.
ph: 4.6 - 6.0 (50 %)

Serious eye damage/irritation: Causes serious eye damage.
ph: 4.6 - 6.0 (50 %)

Respiratory or skin sensitisation: May cause an allergic skin reaction.

Germ cell mutagenicity: Not classified

Carcinogenicity: Not classified

Reproductive toxicity: Not classified

STOT-single exposure: Not classified

STOT-repeated exposure: May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard: Not classified
2-mercaptoethanol (60-24-2)

Viscosity, kinematic
2.9 mm²/s (20 °C, Calculated)

Potential adverse human health effects and symptoms:
Odour tolerance may develop. Toxic if swallowed. Fatal in contact with skin. Causes skin irritation. Toxic if inhaled. Causes serious eye damage. Caution! Substance is absorbed through the skin.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general: Dangerous for the environment.
Acute aquatic toxicity: Very toxic to aquatic life.
Chronic aquatic toxicity: Very toxic to aquatic life with long lasting effects.

2-mercaptoethanol (60-24-2)

LC50 fish 1
37 mg/l (DIN 38412-15, 96 h, Leuciscus idus, Static system, Fresh water, Experimental value)

EC50 Daphnia 1
0.4 mg/l (OECD 202: Daphnia sp. Acute Immobilisation Test, 48 h, Daphnia magna, Static system, Fresh water, Experimental value, GLP)

EC50 72h algae (1)
19 mg/l (OECD 201: Alga, Growth Inhibition Test, Desmodesmus subspicatus, Static system, Fresh water, Experimental value, GLP)

12.2. Persistence and degradability

2-mercaptoethanol (60-24-2)

Persistence and degradability:
Non degradable in the soil. Not readily biodegradable in water.

Biochemical oxygen demand (BOD)
0.105 g O₂/g substance

Chemical oxygen demand (COD)
1.894 g O₂/g substance

12.3. Bioaccumulative potential

2-mercaptoethanol (60-24-2)

Log Pow
-0.056 (Experimental value, Equivalent or similar to OECD 107, 25 °C)

Bioaccumulative potential
Not bioaccumulative.

12.4. Mobility in soil

2-mercaptoethanol (60-24-2)

Log Koc
0.122 (log Koc, PCKOCWIN v1.66, Calculated value)

Ecology - soil
Highly mobile in soil.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods


Product/Packaging disposal recommendations:
Do not discharge into drains or the environment. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle by distillation. Remove to an authorized waste incinerator for solvents with energy recovery.

Additional information:

European List of Waste (LoW) code:
15 01 10* - packaging containing residues of or contaminated by dangerous substances
07 07 04* - other organic solvents, washing liquids and mother liquors
## SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

### 14.1. UN number

<table>
<thead>
<tr>
<th>UN-No. (ADR)</th>
<th>UN-No. (IMDG)</th>
<th>UN-No. (IATA)</th>
<th>UN-No. (ADN)</th>
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### 14.2. UN proper shipping name

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<th>Proper Shipping Name (ADR)</th>
<th>Proper Shipping Name (IMDG)</th>
<th>Proper Shipping Name (IATA)</th>
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***Transport document description***

<table>
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<th>IMDG</th>
<th>IATA</th>
<th>ADN</th>
<th>RID</th>
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<tbody>
<tr>
<td>UN 2966 Thioglycol, 6.1, II, (D/E), ENVIRONMENTALLY HAZARDOUS</td>
<td>UN 2966 thioglycol, 6.1, II, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS</td>
<td>UN 2966 Thioglycol, 6.1, II, ENVIRONMENTALLY HAZARDOUS</td>
<td>UN 2966 Thioglycol, 6.1, II, ENVIRONMENTALLY HAZARDOUS</td>
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### 14.3. Transport hazard class(es)

#### ADR

**Transport hazard class(es) (ADR):** 6.1  
**Danger labels (ADR):** 6.1

![ADR label](image)

#### IMDG

**Transport hazard class(es) (IMDG):** 6.1  
**Danger labels (IMDG):** 6.1

![IMDG label](image)

#### IATA

**Transport hazard class(es) (IATA):** 6.1  
**Hazard labels (IATA):** 6.1

![IATA label](image)

#### ADN

**Transport hazard class(es) (ADN):** 6.1  
**Danger labels (ADN):** 6.1

![ADN label](image)

#### RID

**Transport hazard class(es) (RID):** 6.1  
**Danger labels (RID):** 6.1

![RID label](image)
14.4. Packing group
Packing group (ADR) : II
Packing group (IMDG) : II
Packing group (IATA) : II
Packing group (ADN) : II
Packing group (RID) : II

14.5. Environmental hazards
Dangerous for the environment : Yes
Marine pollutant : Yes
Other information : No supplementary information available

14.6. Special precautions for user
Overland transport
Transport regulations (ADR) : Subject
Classification code (ADR) : T1
Hazard identification number (Kemler No.) : 60
Orange plates : 60
Tunnel restriction code (ADR) : D/E
EAC code : 2X

Transport by sea
Transport regulations (IMDG) : Subject
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-A

Air transport
Transport regulations (IATA) : Subject to the provisions

Inland waterway transport
Classification code (ADN) : T1
Carriage permitted (ADN) : T

Rail transport
Transport regulations (RID) : Subject
Classification code (RID) : T1

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

SECTION 15: Regulatory information
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations
No REACH Annex XVII restrictions
2-mercaptoethanol is not on the REACH Candidate List
2-mercaptoethanol is not on the REACH Annex XIV List
2-mercaptoethanol is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

VOC content : 100 %

15.1.2. National regulations
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. Chemical safety assessment
No chemical safety assessment has been carried out
### 2-mercaptoethanol
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

#### SECTION 16: Other information

<table>
<thead>
<tr>
<th>Full text of H- and EUH-statements:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute Tox. 3 (Dermal)</td>
</tr>
<tr>
<td>Acute Tox. 3 (Inhalation)</td>
</tr>
<tr>
<td>Acute Tox. 3 (Oral)</td>
</tr>
<tr>
<td>Acute Tox. 4 (Inhalation:dust,mist)</td>
</tr>
<tr>
<td>Aquatic Acute 1</td>
</tr>
<tr>
<td>Aquatic Chronic 1</td>
</tr>
<tr>
<td>Eye Dam. 1</td>
</tr>
<tr>
<td>Skin Irrit. 2</td>
</tr>
<tr>
<td>Skin Sens. 1A</td>
</tr>
<tr>
<td>STOT RE 2</td>
</tr>
<tr>
<td>H301</td>
</tr>
<tr>
<td>H311</td>
</tr>
<tr>
<td>H315</td>
</tr>
<tr>
<td>H317</td>
</tr>
<tr>
<td>H318</td>
</tr>
<tr>
<td>H331</td>
</tr>
<tr>
<td>H332</td>
</tr>
<tr>
<td>H373</td>
</tr>
<tr>
<td>H400</td>
</tr>
<tr>
<td>H410</td>
</tr>
</tbody>
</table>

**Safety Data Sheet applicable for regions**: GB - United Kingdom

SDS EU (REACH Annex II)

*This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.*
SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

<table>
<thead>
<tr>
<th>Product form</th>
<th>Substance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance name</td>
<td>2-mercaptoethanol</td>
</tr>
<tr>
<td>EC-No.</td>
<td>200-464-6</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>60-24-2</td>
</tr>
<tr>
<td>Product code</td>
<td>P001_103M</td>
</tr>
<tr>
<td>Type of product</td>
<td>Pure substance</td>
</tr>
<tr>
<td>Formula</td>
<td>C₂H₆OS</td>
</tr>
</tbody>
</table>

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

1.2.1. Relevant identified uses

<table>
<thead>
<tr>
<th>Use of the substance/mixture</th>
<th>Solvent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pesticide: intermediate product</td>
<td></td>
</tr>
</tbody>
</table>

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

<table>
<thead>
<tr>
<th>Organisation/Company</th>
<th>Address</th>
<th>Emergency number</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Poisons Information Service (Belfast Centre) Royal Victoria Hospital</td>
<td>Grosvenor Road BT12 6BA Belfast</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>National Poisons Information Service (Birmingham Centre) City Hospital</td>
<td>Dudley Road B18 7QH Birmingham</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>National Poisons Information Service (Cardiff Centre) Gwent Hospital, Llandough Hospital</td>
<td>Penarth CF64 2XX Cardiff</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>National Poisons Information Service Edinburgh Royal Infirmary of Edinburgh</td>
<td>Little France Crescent EH16 4SA Edinburgh</td>
<td>0344 892 0111</td>
<td></td>
</tr>
<tr>
<td>Guy's &amp; St Thomas' Poisons Unit Medical Toxicology Unit, Guy's &amp; St Thomas' Hospital Trust</td>
<td>Avondale Road SE14 5ER London</td>
<td>+44 20 7188 7188</td>
<td></td>
</tr>
<tr>
<td>National Poisons Information Service (Newcastle Centre) Regional Drugs and Therapeutics Centre, Wolfson Unit</td>
<td>Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle</td>
<td>0344 892 0111</td>
<td></td>
</tr>
</tbody>
</table>

Emergency number: Chemtrec 1-800-424-9300 (USA/Canada), +1-703-527-3887 (Intl)
2-mercaptoethanol
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

<table>
<thead>
<tr>
<th>Classification</th>
<th>Category</th>
<th>H Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (oral), Category 3</td>
<td>H301</td>
<td></td>
</tr>
<tr>
<td>Acute toxicity (dermal), Category 3</td>
<td>H311</td>
<td></td>
</tr>
<tr>
<td>Acute toxicity (inhal.), Category 3</td>
<td>H331</td>
<td></td>
</tr>
<tr>
<td>Acute toxicity (inhalation:dust,mist) Category 4</td>
<td>H332</td>
<td></td>
</tr>
<tr>
<td>Skin corrosion/irritation, Category 2</td>
<td>H315</td>
<td></td>
</tr>
<tr>
<td>Serious eye damage/eye irritation, Category 1</td>
<td>H318</td>
<td></td>
</tr>
<tr>
<td>Skin sensitisation, category 1A</td>
<td>H317</td>
<td></td>
</tr>
<tr>
<td>Specific target organ toxicity — Repeated exposure, Category 2</td>
<td>H373</td>
<td></td>
</tr>
<tr>
<td>Hazardous to the aquatic environment — Acute Hazard, Category 1</td>
<td>H400</td>
<td></td>
</tr>
<tr>
<td>Hazardous to the aquatic environment — Chronic Hazard, Category 1</td>
<td>H410</td>
<td></td>
</tr>
</tbody>
</table>

Full text of H statements: see section 16

Adverse physicochemical, human health and environmental effects
May cause damage to organs through prolonged or repeated exposure. Toxic in contact with skin. Toxic if inhaled. Harmful if inhaled. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Very toxic to aquatic life with long lasting effects.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP):

<table>
<thead>
<tr>
<th>GHS Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GHS05</td>
<td></td>
</tr>
<tr>
<td>GHS06</td>
<td></td>
</tr>
<tr>
<td>GHS08</td>
<td></td>
</tr>
<tr>
<td>GHS09</td>
<td></td>
</tr>
</tbody>
</table>

CLP Signal word: Danger

Hazard statements (CLP):

- H301 + H311 + H331 - Toxic if swallowed, in contact with skin or if inhaled.
- H315 - Causes skin irritation.
- H317 - May cause an allergic skin reaction.
- H318 - Causes serious eye damage.
- H332 - Harmful if inhaled.
- H373 - May cause damage to organs through prolonged or repeated exposure.
- H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements (CLP):

- P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
- P264 - Wash hands, forearms and face thoroughly after handling.
- P270 - Do not eat, drink or smoke when using this product.
- P271 - Use only outdoors or in a well-ventilated area.
- P272 - Contaminated work clothing should not be allowed out of the workplace.
- P273 - Avoid release to the environment.
- P280 - Wear protective gloves/protective clothing/eye protection/face protection.
- P301+P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor.
- P302+P352 - IF ON SKIN: Wash with plenty of water.
- P304+P340 - IF INHALED: Remove person to fresh air and keep 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.
- P310 - Immediately call a POISON CENTER or doctor.
- P312 - Call a POISON CENTRE or doctor if you feel unwell.
- P321 - Specific treatment (see supplemental first aid instruction on this label).
- P330 - Rinse mouth.
- P332+P313 - If skin irritation occurs: Get medical advice/attention.
- P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
- P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.
- P362+P364 - Take off contaminated clothing and wash it before reuse.
- P391 - Collect spillage.
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
- P405 - Store locked up.
- P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type: Mono-constituent

5/11/2017 EN (English)
# 2-mercaptoethanol

## Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-mercaptoethanol</td>
<td>(CAS-No.) 60-24-2 (EC-No.) 200-464-6</td>
<td>100</td>
<td>Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation), H331 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1A, H317 STOT RE 2, H373 Aquatic Acute 1, H400 Aquatic Chronic 1, H410</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

### 3.2. Mixtures

Not applicable

## SECTION 4: First aid measures

### 4.1. Description of first aid measures


**First-aid measures after inhalation**: Remove the victim into fresh air. Immediately consult a doctor/medical service.

**First-aid measures after skin contact**: Wash immediately with lots of water. Do not apply (chemical) neutralizing agents. Remove clothing before washing. Consult a doctor/medical service.

**First-aid measures after eye contact**: Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Take victim to an ophthalmologist. Do not apply neutralizing agents.

**First-aid measures after ingestion**: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Do not induce vomiting. Immediately consult a doctor/medical service. Call Poison Information Centre (www.big.be/antigif.htm). Ingestion of large quantities: immediately to hospital.

### 4.2. Most important symptoms and effects, both acute and delayed


**Symptoms/effects after skin contact**: Red skin. Tingling/irritation of the skin. ON CONTINUOUS EXPOSURE/CONTACT: Caustic burns/corrosion of the skin.

**Symptoms/effects after eye contact**: Corrosion of the eye tissue. Inflammation/damage of the eye tissue.

**Symptoms/effects after ingestion**: Irritation of the gastric/intestinal mucosa. Nausea. Abdominal pain.

**Chronic symptoms**: ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Skin rash/inflammation.

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media


**Unsuitable extinguishing media**: Water (quick-acting extinguisher, reel); risk of puddle expansion. Water; risk of puddle expansion.

### 5.2. Special hazards arising from the substance or mixture

**Fire hazard**: DIRECT FIRE HAZARD. Material presenting a fire hazard. INDIRECT FIRE HAZARD: Temperature above flashpoint: higher fire/explosion hazard. Reactions involving a fire hazard: see "Reactivity Hazard".

**Hazardous decomposition products in case of fire**: Toxic fumes may be released.

### 5.3. Advice for firefighters

**Precautionary measures fire**: Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: seal off low-lying areas. Exposure to fire/heat: have neighbourhood close doors and windows.
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Firefighting instructions: Cool tanks/drum with water spray/remove them into safety. Do not move the load if exposed to heat. Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.


SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions
Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up
Methods for cleaning up: Take up liquid spill into absorbent material, e.g.: dry sand/earth/vermiculite powdered limestone or saw dust. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Leftovers: neutralize with an aqueous solution of sodium hypochlorite. Damaged/cool tanks must be emptied. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections
For further information refer to section 13.

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Precautions for safe handling: Use earthed equipment. Keep away from naked flames/heat. At temperature > flashpoint: use spark-/explosionproof appliances. In finely divided state: use spark-/explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Exhaust gas must be neutralised. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain.

Hygiene measures: Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Store in a well-ventilated place. Keep cool. Store locked up. Keep container tightly closed.
Maximum storage period: 24 months
Heat and ignition sources: KEEP SUBSTANCE AWAY FROM: heat sources.
Special rules on packaging: SPECIAL REQUIREMENTS: closing. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

7.3. Specific end use(s)
No additional information available

5/11/2017 EN (English) 4/10
### SECTION 8: Exposure controls/personal protection

#### 8.1. Control parameters

<table>
<thead>
<tr>
<th>Hazard Code</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>DNEL/DMEL</td>
<td>Long-term - systemic effects, dermal</td>
<td>0.6 mg/kg bw/day</td>
</tr>
<tr>
<td></td>
<td>Long-term - systemic effects, inhalation</td>
<td>4 mg/m³</td>
</tr>
<tr>
<td>PNEC (Water)</td>
<td>PNEC aqua (freshwater)</td>
<td>0.00004 mg/l</td>
</tr>
<tr>
<td></td>
<td>PNEC aqua (marine water)</td>
<td>0.00004 mg/l</td>
</tr>
<tr>
<td>PNEC (Sediment)</td>
<td>PNEC sediment (freshwater)</td>
<td>0.0015 mg/kg dwt</td>
</tr>
<tr>
<td></td>
<td>PNEC sediment (marine water)</td>
<td>0.00015 mg/kg dwt</td>
</tr>
<tr>
<td>PNEC (Soil)</td>
<td>PNEC soil</td>
<td>0.0000637 mg/kg dwt</td>
</tr>
<tr>
<td>PNEC (STP)</td>
<td>PNEC sewage treatment plant</td>
<td>60 mg/l</td>
</tr>
</tbody>
</table>

#### 8.2. Exposure controls

**Appropriate engineering controls:**

Ensure good ventilation of the work station.

**Materials for protective clothing:**

Give GOOD RESISTANCE: neoprene, nitrile rubber, PVC, plastics, rubber

**Hand protection:**

Gloves

**Eye protection:**

Face shield

**Skin and body protection:**

Protective clothing

**Respiratory protection:**

High gas/vapour concentration: full face mask with filter type A

**Environmental exposure controls:**

Avoid release to the environment.

### SECTION 9: Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

- **Physical state:** Liquid
- **Appearance:** Liquid.
- **Molecular mass:** 78.13 g/mol
- **Colour:** Colourless to light yellow.
- **Odour:** Repulsive odour.
- **Odour threshold:** No data available
- **pH:** 4.6 - 6.0 (50 %)
- **Relative evaporation rate (butylacetate=1):** < 1
- **Melting point:** < -100 °C
- **Freezing point:** No data available
- **Boiling point:** 155.8 °C (1013.3 hPa)
- **Flash point:** 74 °C (Open cup, 1013.25 hPa)
- **Auto-ignition temperature:** 295 °C
- **Decomposition temperature:** 157 °C
- **Flammability (solid, gas):** Not applicable
2-mercaptoethanol
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Vapour pressure: 1.33 hPa (20 °C)
Vapour pressure at 50 °C: 11 hPa
Relative vapour density at 20 °C: 2.7
Relative density: 1.11 (20 °C)
Relative density of saturated gas/air mixture: 1
Density: 1110 kg/m³ (20 °C)
Water: 100 g/100ml (20 °C)
Log Pow: -0.056 (Experimental value, Equivalent or similar to OECD 107, 25 °C)
Viscosity, kinematic: 2.9 mm²/s (20 °C, Calculated)
Viscosity, dynamic: 0.322 mPa·s (20 °C)
Explosive properties: No data available
Oxidising properties: No data available
Explosive limits: 2.3 - 18 vol %
Lower explosive limit (LEL): 2.3 vol %
Upper explosive limit (UEL): 18 vol %

9.2. Other information
VOC content: 100 %
Other properties: Gas/vapour heavier than air at 20°C. Clear. Slightly volatile. Acid reaction.

SECTION 10: Stability and reactivity
10.1. Reactivity
Reactes violently with (strong) oxidizers: (increased) risk of fire. Reacts violently with many compounds e.g.: with (strong) bases and (strong) reducers. Decomposes slowly on exposure to water (moisture) with (some) acids.

10.2. Chemical stability
Unstable on exposure to moisture.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Hazardous decomposition products.

SECTION 11: Toxicological information
11.1. Information on toxicological effects
Acute toxicity (oral): Toxic if swallowed.
Acute toxicity (dermal): Toxic in contact with skin.
Acute toxicity (inhalation): Toxic if inhaled. Harmful if inhaled.

2-mercaptoethanol (60-24-2)

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>98 - 168 mg/kg bodyweight (OECD 401: Acute Oral Toxicity, Rat, Male / female, Weight of evidence, Oral)</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>112 - 224 mg/kg bodyweight (Other, 24 h, Rabbit, Male / female, Experimental value, Dermal)</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>2.03 mg/l (Other, 4 h, Rat, Male, Weight of evidence, Inhalation (vapours))</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation: Causes skin irritation.
pH: 4.6 - 6.0 (50 %)

Serious eye damage/irritation: Causes serious eye damage.
pH: 4.6 - 6.0 (50 %)

Respiratory or skin sensitisation: May cause an allergic skin reaction.

Germ cell mutagenicity: Not classified
Carcinogenicity: Not classified
Reproductive toxicity: Not classified
STOT-single exposure: Not classified
STOT-repeated exposure: May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard: Not classified
2-mercaptoethanol
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

<table>
<thead>
<tr>
<th>2-mercaptoethanol (60-24-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity, kinematic</td>
</tr>
</tbody>
</table>

| Potential adverse human health effects and symptoms | Odour tolerance may develop. Toxic if swallowed. Fatal in contact with skin. Causes skin irritation. Toxic if inhaled. Causes serious eye damage. Caution! Substance is absorbed through the skin. |

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general: Dangerous for the environment.


Acute aquatic toxicity: Very toxic to aquatic life.

Chronic aquatic toxicity: Very toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

2-mercaptoethanol (60-24-2)

Persistence and degradability: Non degradable in the soil. Not readily biodegradable in water.

Biochemical oxygen demand (BOD): 0.105 g O₂/g substance

Chemical oxygen demand (COD): 1.894 g O₂/g substance

12.3. Bioaccumulative potential

2-mercaptoethanol (60-24-2)

Log Pow: -0.056 (Experimental value, Equivalent or similar to OECD 107, 25 °C)

Bioaccumulative potential: Not bioaccumulative.

12.4. Mobility in soil

2-mercaptoethanol (60-24-2)

Log Koc: 0.122 (log Koc, PCKOCWIN v1.66, Calculated value)

Ecology - soil: Highly mobile in soil.

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods


Product/Packaging disposal recommendations: Do not discharge into drains or the environment. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle by distillation. Remove to an authorized waste incinerator for solvents with energy recovery.


European List of Waste (LoW) code: 15 01 10* - packaging containing residues of or contaminated by dangerous substances 07 07 04* - other organic solvents, washing liquids and mother liquors
2-mercaptoethanol
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according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

<table>
<thead>
<tr>
<th>UN-No. (ADR)</th>
<th>UN-No. (IMDG)</th>
<th>UN-No. (IATA)</th>
<th>UN-No. (ADN)</th>
<th>UN-No. (RID)</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN 2966</td>
<td>UN 2966</td>
<td>UN 2966</td>
<td>UN 2966</td>
<td>UN 2966</td>
</tr>
</tbody>
</table>

14.2. UN proper shipping name

| Proper Shipping Name (ADR) | : Thioglycol |
| Proper Shipping Name (IMDG) | : thioglycol |
| Proper Shipping Name (IATA) | : Thioglycol |
| Proper Shipping Name (ADN)  | : Thioglycol |
| Proper Shipping Name (RID)  | : Thioglycol |

Transport document description

<table>
<thead>
<tr>
<th>ADR</th>
<th>IMDG</th>
<th>IATA</th>
<th>ADN</th>
<th>RID</th>
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<tbody>
<tr>
<td>UN 2966 Thioglycol, 6.1, II, (D/E), ENVIRONMENTALLY HAZARDOUS</td>
<td>UN 2966 thioglycol, 6.1, II, MARINE POLLUTANT/ENVIRONMENTALLY HAZARDOUS</td>
<td>UN 2966 Thioglycol, 6.1, II, ENVIRONMENTALLY HAZARDOUS</td>
<td>UN 2966 Thioglycol, 6.1, II, ENVIRONMENTALLY HAZARDOUS</td>
<td>UN 2966 Thioglycol, 6.1, II, ENVIRONMENTALLY HAZARDOUS</td>
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14.3. Transport hazard class(es)

<table>
<thead>
<tr>
<th>ADR</th>
<th>IMDG</th>
<th>IATA</th>
<th>ADN</th>
<th>RID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport hazard class(es) (ADR) : 6.1</td>
<td>Transport hazard class(es) (IMDG) : 6.1</td>
<td>Transport hazard class(es) (IATA) : 6.1</td>
<td>Transport hazard class(es) (ADN) : 6.1</td>
<td>Transport hazard class(es) (RID) : 6.1</td>
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<tr>
<td>Danger labels (ADR) : 6.1</td>
<td>Danger labels (IMDG) : 6.1</td>
<td>Danger labels (IATA) : 6.1</td>
<td>Danger labels (ADN) : 6.1</td>
<td>Danger labels (RID) : 6.1</td>
</tr>
</tbody>
</table>

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14.4. Packing group
Packing group (ADR) : II
Packing group (IMDG) : II
Packing group (IATA) : II
Packing group (ADN) : II
Packing group (RID) : II

14.5. Environmental hazards
Dangerous for the environment : Yes
Marine pollutant : Yes
Other information : No supplementary information available

14.6. Special precautions for user
Overland transport
Transport regulations (ADR) : Subject
Classification code (ADR) : T1
Hazard identification number (Kemler No.) : 60
Orange plates

Tunnel restriction code (ADR) : D/E
EAC code : 2X

Transport by sea
Transport regulations (IMDG) : Subject
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-A

Air transport
Transport regulations (IATA) : Subject to the provisions

Inland waterway transport
Classification code (ADN) : T1
Carriage permitted (ADN) : T

Rail transport
Transport regulations (RID) : Subject
Classification code (RID) : T1

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code
Not applicable

SECTION 15: Regulatory information
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations
No REACH Annex XVII restrictions
2-mercaptoethanol is not on the REACH Candidate List
2-mercaptoethanol is not on the REACH Annex XIV List
2-mercaptoethanol is not subject to REGULATION (EU) No 649/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 concerning the export and import of hazardous chemicals.

VOC content : 100 %

15.1.2. National regulations
Not listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. Chemical safety assessment
No chemical safety assessment has been carried out
2-mercaptoethanol
Safety Data Sheet
according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2015/830

SECTION 16: Other information

<table>
<thead>
<tr>
<th>Full text of H- and EUH-statements</th>
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</thead>
<tbody>
<tr>
<td>Acute Tox. 3 (Dermal)</td>
</tr>
<tr>
<td>Acute Tox. 3 (Inhalation)</td>
</tr>
<tr>
<td>Acute Tox. 3 (Oral)</td>
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<tr>
<td>Acute Tox. 4 (Inhalation:dust,mist)</td>
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<tr>
<td>Aquatic Acute 1</td>
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<td>Aquatic Chronic 1</td>
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<td>Eye Dam. 1</td>
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<td>Skin Irrit. 2</td>
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<td>Skin Sens. 1A</td>
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<td>STOT RE 2</td>
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</table>

Safety Data Sheet applicable for regions: GB - United Kingdom

SDS EU (REACH Annex II)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.