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MATERIAL SAFETY DATA SHEET (MSDS)

SECTION 1. Product identifiers

Product name: 2-Mercapto ethanol, GR 99%+ Product Code: M 1627 CAS No : 60-24-2

1.2. Relevant identified uses of the substance or mixture and uses advised against Use : Industrial. For professional use only.

1.3. Details of the supplier of the safety data sheet
Company identification
OTTO CHEMIE PVT LTD
101, Aarkay Ruby Industrial Estate(1B), Opp Shree Narayan Industrial Estate, Chinchpada, Vasai East, Waliv, Maharashtra 401208.
Email info@ottokemi.com

1.4. Emergency telephone number Phone no. : + 91 22 2207 0099 (9:00am - 6:00 pm).

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture H301: Toxic if swallowed. Acute toxicity, (Category 3) Acute toxicity, (Category 3) H331: Toxic if inhaled. Acute toxicity, (Category 2) H310: Fatal in contact with skin. Skin irritation, (Category 2) Serious eye damage, (Category H315: Causes skin irritation. H318: Causes serious eye damage. 1) Skin sensitization, (Sub-category H317: May cause an allergic skin reaction. 1A) Reproductive toxicity, (Category H361f: Suspected of damaging fertility. 2) Specific target organ toxicity -H373: May cause damage to organs repeated exposure, (Category 2), through prolonged or repeated exposure if Liver. Heart swallowed. Short-term (acute) aquatic H400: Very toxic to aquatic life. hazard, (Category 1) Long-term (chronic) aquatic H411: Toxic to aquatic life with long lasting hazard, (Category 2) effects. 2.2 Label elements Labelling according Regulation (EC) No 1272/2008 Pictogram Signal Word Danger Hazard Statements H301 + H331 Toxic if swallowed or if inhaled. H310 Fatal in contact with skin. H315 Causes skin irritation H317 May cause an allergic skin reaction. Causes serious eye damage. H318 H361f Suspected of damaging fertility May cause damage to organs (Liver, Heart) through prolonged H373 or repeated exposure if swallowed. Very toxic to aquatic life with long lasting effects. H410 **Precautionary Statements** P273 Avoid release to the environment. Wear protective gloves/ protective clothing/ eye protection/ face P280 protection. 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.

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rinsing.

Danger

protection.

rinsing.

none

Fatal in contact with skin.

Causes serious eye damage. Suspected of damaging fertility.

POISON CENTER/ doctor.

Toxic if swallowed or if inhaled.

May cause an allergic skin reaction.

none

IF INHALED: Remove person to fresh air and keep comfortable

Wear protective gloves/ protective clothing/ eye protection/ face

IF SWALLOWED: Immediately call a POISON CENTER/ doctor.

IF INHALED: Remove person to fresh air and keep comfortable

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue

IF ON SKIN: Wash with plenty of water. Immediately call a

for breathing. Call a POISON CENTER/ doctor.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue

for breathing. Call a POISON CENTER/ doctor.

P304 + P340 + P311

P305 + P351 + P338

Supplemental Hazard Statements Reduced Labeling (<= 125 ml) Pictogram Signal Word Hazard Statements H310 H317 H318 H361f H301 + H331 Precautionary Statements P280

P301 + P310 P302 + P352 + P310

P304 + P340 + P311

P305 + P351 + P338

Supplemental Hazard

Statements

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 | : 2-Hydroxyethylmercaptan β-Mercaptoethanol beta mercaptoethanol |
|--|--|
| | Thioethylene glycol BME |
| Formula Molecular weight CAS-No. EC-No. | : C2H6OS : 78,13 g/mol : 60-24-2 : 200-464-6 |

| Component | Classification | Concentration |
|-------------------------------------|--|---------------|
| Mercaptoethanol | | |
| CAS-No. 60-24-2 EC-No. 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 | <= 100 % |

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| Chronic 2; H301, H331, H310, H315, H318, H317, H361f, H373, H400, H411 M-Factor - Aquatic Acute: 1 | |
|--|--|
|--|--|

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

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

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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** 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)

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

Predicted No Effect Concentration (PNEC)

| 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 |
| 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

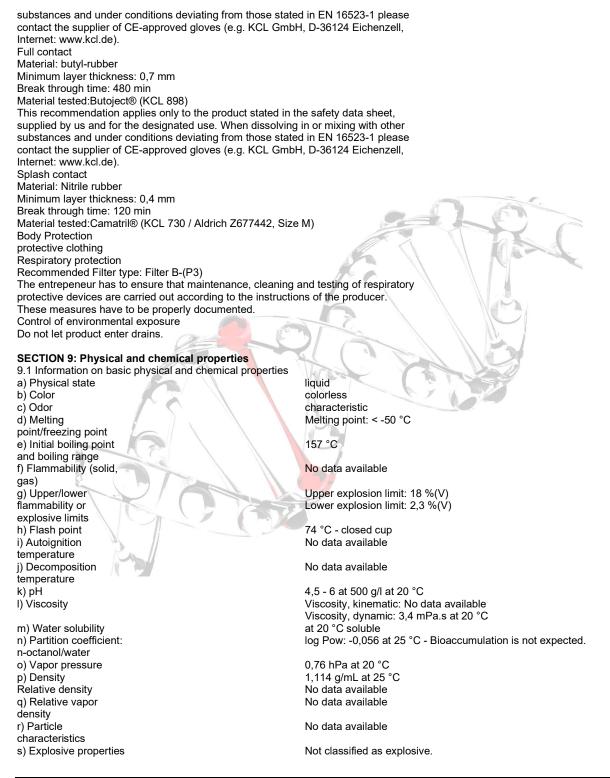
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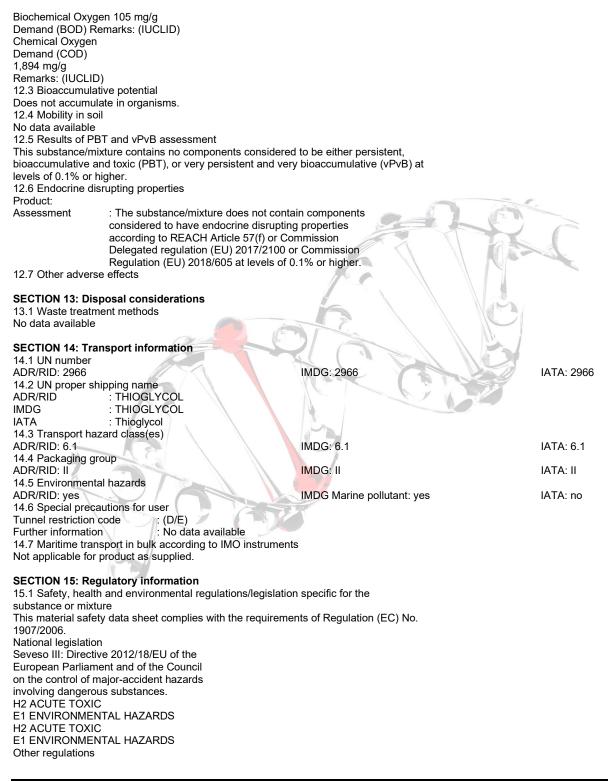
| t) Oxidizing properties 9.2 Other safety information Relative vapor density | none 2,70 - (Air = 1.0) | |
|---|----------------------------|--|
| SECTION 10: Stability and reactivity 10.1 Reactivity Forms explosive mixtures with air on intense heating. A range from approx. 15 Kelvin below the flash 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 | ne following substances: | |
| Acids 10.4 Conditions to avoid Strong heating. 10.5 Incompatible materials Metals, Oxidizing agents, Strong oxidizing agents 10.6 Hazardous decomposition products In the event of fire: see section 5 | A PAC | |
| SECTION 11: Toxicological information 11.1 Information on toxicological effects Routes of Entry: Absorbed through skin. Dermal contact. Eye contact, Toxicity to Animals: Oral LD50 Rat: 1500 mg/kg; Dermal LD50 Rabbit: 2000mg/kg Inhalation LC50 Rat: > 50mg/L. Chronic Effects on Humans: CARCINOGENIC EFFECTS: Classified None. by NTP, None. by OSHA, None. by NIOSH. Other Toxic Effects on Humans: Hazardous in case of skin contact (irritant), of inhalation (lung irritant). Special Remarks on Toxicity to Animals: Not available. Special Remarks on other Toxic Effects on Humans: Not available. Special Remarks on other Toxic Effects on Humans: Not available. | | |
| SECTION 12: Ecological information 12.1 Toxicity Toxicity to fish static test LC50 - Leuciscus idus (Golden orfer (DIN 38412 T15) Toxicity to daphnia | -) - 37 mg/l - 96 h | |
| and other aquatic invertebrates static test EC50 - Daphnia magna (Water flea) - 0,4 mg/l - 48 (OECD Test Guideline 202) Toxicity to algae static test ErC50 - Desmodesmus subspica | | |
| mg/l - 72 h (OECD Test Guideline 201) Toxicity to bacteria static test EC50 - Pseudomonas putida - (DIN 38 412 Part 8) Toxicity to daphnia and other aquatic invertebrates(Chronic taviait) | 125 mg/l - 17 h | |
| toxicity) semi-static test NOEC - Daphnia magna (Water flea) - > 0,06 - 21 d (OECD Test Guideline 211) 12.2 Persistence and degradability Biodegradability aerobic - Exposure time 60 d Result: 69 % - Not readily biodegradable. (OECD Test Guideline 310) Remarks: (ECHA) | 332 mg/l | |

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

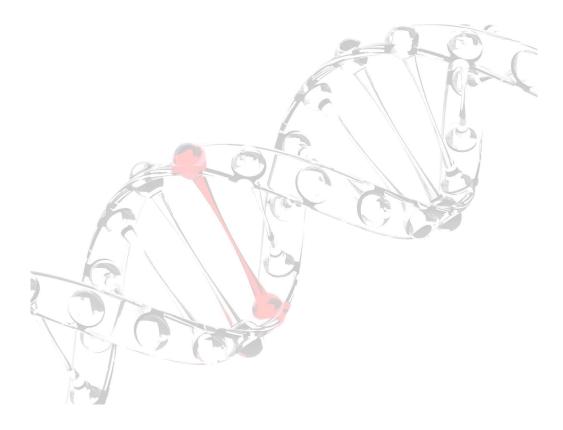
Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical Safety Assessment

A Chemical Safety Assessment has been carried out for this substance

SECTION 16: Other Information

This safety data sheet should be used in conjunction with technical sheets. It does not replace them. The information given is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products.



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