2-MERCAPTOETHANOL

1. Product Identification

Synonyms: Thioglycol; 2-Thioethanol, 2-Hydroxyethyl mercaptan; Monothioethylene glycol
CAS No.: 60-24-2
Molecular Weight: 78.14
Chemical Formula: HSCH2CH2OH
Product Codes: 4049

2. Composition/Information on Ingredients

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CAS No.</th>
<th>Percent</th>
<th>Hazardous</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol, 2-mercaptop-</td>
<td>60-24-2</td>
<td>100%</td>
<td>Yes</td>
</tr>
</tbody>
</table>

3. Hazards Identification

Emergency Overview

DANGER! MAY BE FATAL IF ABSORBED THROUGH SKIN. HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. COMBUSTIBLE LIQUID AND VAPOR.

SAF-T-DATA(®) Ratings (Provided here for your convenience)

- Health Rating: 3 - Severe (Poison)
- Flammability Rating: 2 - Moderate
- Reactivity Rating: 1 - Slight
- Contact Rating: 3 - Severe (Life)
- Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES; CLASS B EXTINGUISHER
- Storage Color Code: Red (Flammable)

Potential Health Effects

- **Inhalation:**
  Vapors irritate the mucous membranes and respiratory tract. Symptoms may include coughing, sore throat, shortness of breath.
- **Ingestion:**
  Toxic. Harmful if swallowed. Sore throat, abdominal pain and vomiting may occur.
- **Skin Contact:**
  Toxic. Causes skin irritation and may be absorbed in the body in toxic quantities.
- **Eye Contact:**
  Vapors irritate the eyes with redness and pain. Splashes may cause severe irritation.
- **Chronic Exposure:**
  No information found.
- **Aggravation of Pre-existing Conditions:**
  No information found.

4. First Aid Measures

- **Inhalation:**
  Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
- **Ingestion:**
  No specific information provided.
Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention.

**Skin Contact:**
Remove any contaminated clothing. Wash skin with soap or mild detergent and water for at least 15 minutes. Get medical attention if irritation develops or persists.

**Eye Contact:**
Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

---

5. **Fire Fighting Measures**

**Fire:**
- Flash point: 74°C (165°F) OC
- Flammable limits in air % by volume:
  - lcl: 2.3; ucl: 18
- Combustible Liquid and Vapor!

**Explosion:**
Above flash point, vapor-air mixtures are explosive within flammable limits noted above.

**Fire Extinguishing Media:**
- Water spray, dry chemical, alcohol foam, or carbon dioxide. Water may be ineffective.

**Special Information:**
- In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode. Vapors can flow along surfaces to distant ignition source and flash back.

---

6. **Accidental Release Measures**

Ventilate area of leak or spill. Remove all sources of ignition. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Contain and recover liquid when possible. Use non-sparking tools and equipment. Collect liquid in an appropriate container or absorb with an inert material (e.g., vermiculite, dry sand, earth), and place in a chemical waste container. Do not use combustible materials, such as saw dust. Do not flush to sewer!

---

7. **Handling and Storage**

- Protect against physical damage. Outside or detached storage is preferred. Inside storage should be in a standard flammable liquids storage room or cabinet.
- Separate from oxidizing materials. Storage and use areas should be No Smoking areas. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

---

8. **Exposure Controls/Personal Protection**

**Airborne Exposure Limits:**
- AIHA Workplace Environmental Exposure Level (WEEL): 0.2ppm, 8 hr.TWA; skin contact can invalidate ceiling limit.

**Ventilation System:**
A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

**Personal Respirators (NIOSH Approved):**
- If the exposure limit is exceeded and engineering controls are not feasible, wear a supplied air, full-facepiece respirator, airlined hood, or full-facepiece self-contained breathing apparatus. Breathing air quality must meet the requirements of the OSHA respiratory protection standard (29CFR1910.134). This substance has questionable warning properties.

**Skin Protection:**
- Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

**Eye Protection:**
- Use chemical safety goggles and/or a full face shield where splashing is possible. Maintain eye wash fountain and quick-drench facilities in work area.

---

9. **Physical and Chemical Properties**

**Appearance:**
- Clear, colorless liquid.

**Odor:**
- Disagreeable odor.

**Solubility:**
- Miscible in water.

**Specific Gravity:**
- 1.114

**pH:**
- No information found.

**% Volatiles by volume @ 21°C (70°F):**
- 100

**Boiling Point:**
- 157°C (315°F) @ 742 mm Hg; decomposes

**Melting Point:**
- -10°C (-14°F)

**Vapor Density (Air=1):**
10. Stability and Reactivity

Stability:
Stable under ordinary conditions of use and storage. Decomposes under the influence of moisture, water and acids, forming toxic and combustible gas (hydrogen sulfide).

Hazardous Decomposition Products:
Burning may produce sulfur oxides.

Hazardous Polymerization:
Will not occur.

Incompatibilities:
Oxidizing agents, moisture. Avoid contact with metals.

Conditions to Avoid:
Heat, ignition sources, moisture, incompatibles.

11. Toxicological Information

Oral rat LD50: 244 mg/Kg; Skin rabbit LD50: 150 mg/Kg; Irritation data: eye, rabbit: 2 mg Severe; Investigated as a mutagen.

Environmental Fate:
When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material is expected to quickly evaporate. When released into water, this material may biodegrade to a moderate extent. This material has a log octanol-water partition coefficient of less than 3.0. This material has an estimated bioconcentration factor (BCF) of less than 100. Volatilization, adsorption and bioconcentration are not expected to be important environmental fate processes. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to exist in the aerosol phase with a short half-life. When released into the air, this material is expected to be readily removed from the atmosphere by wet deposition.

Environmental Toxicity:
No information found.

12. Ecological Information

Environmental Fate:
When released into the soil, this material may biodegrade to a moderate extent. When released into the soil, this material is expected to leach into groundwater. When released into the soil, this material is expected to quickly evaporate. When released into water, this material may biodegrade to a moderate extent. This material has a log octanol-water partition coefficient of less than 3.0. This material has an estimated bioconcentration factor (BCF) of less than 100. Volatilization, adsorption and bioconcentration are not expected to be important environmental fate processes. When released into the air, this material is expected to be readily degraded by reaction with photochemically produced hydroxyl radicals. When released into the air, this material is expected to exist in the aerosol phase with a short half-life. When released into the air, this material is expected to be readily removed from the atmosphere by wet deposition.

Environmental Toxicity:
No information found.

13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

Domestic (Land, D.O.T.)

----------
Proper Shipping Name: THIOGLYCOL
Hazard Class: 6.1
UN/NA: UN2966
Packing Group: II
Information reported for product/size: 500G

International (Water, I.M.O.)

----------
Proper Shipping Name: THIOGLYCOL
Hazard Class: 6.1
UN/NA: UN2966
Packing Group: II
Information reported for product/size: 500G

International (Air, I.C.A.O.)

----------
Proper Shipping Name: THIOGLYCOL
Hazard Class: 6.1
UN/NA: UN2966
Packing Group: II
## 15. Regulatory Information

### Chemical Inventory Status - Part 1

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>TSCA</th>
<th>EC</th>
<th>Japan</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol, 2-mercapto- (60-24-2)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Chemical Inventory Status - Part 2

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Korea</th>
<th>DSL</th>
<th>NDSL</th>
<th>Phil.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol, 2-mercapto- (60-24-2)</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Federal, State & International Regulations - Part 1

#### SARA 302 - SARA 313

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>RQ</th>
<th>TPQ</th>
<th>List</th>
<th>Chemical Catg.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol, 2-mercapto- (60-24-2)</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

### Federal, State & International Regulations - Part 2

#### RCRA - TSCA

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>CERCLA</th>
<th>261.33</th>
<th>8(d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol, 2-mercapto- (60-24-2)</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

Chemical Weapons Convention: No  
TSCA 12(b): No  
CDTA: No  
SARA 311/312: Acute: Yes  
Chronic: No  
Fire: Yes  
Pressure: No  
Reactivity: No  
(Pure / Liquid)  

### Australian Hazchem Code: 2X

Poison Schedule: None allocated.

WHMIS:
This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:**  
Health: 2  
Flammability: 2  
Reactivity: 0

**Label Hazard Warning:**
DANGER! MAY BE FATAL IF ABSORBED THROUGH SKIN. HARMFUL IF SWALLOWED OR INHALED. CAUSES IRRITATION TO SKIN, EYES AND RESPIRATORY TRACT. COMBUSTIBLE LIQUID AND VAPOR.

**Label Precautions:**
Do not breathe vapor.  
Do not get in eyes, on skin, or on clothing.  
Keep container closed.  
Use with adequate ventilation.  
Wash thoroughly after handling.  
Keep away from heat and flame.  
In case of eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician. In case of contact, immediately flush skin with plenty of water for at least 15 minutes. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. If swallowed, call a physician immediately.

**Product Use:**  
Laboratory Reagent.

**Revision Information:**
No Changes.

**Disclaimer:**
Mallinckrodt Baker, Inc. provides the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose.

MALLINCKRODT BAKER, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS. ACCORDINGLY, MALLINCKRODT BAKER, INC. WILL NOT BE RESPONSIBLE FOR DAMAGES RESULTING FROM USE OF OR RELIANCE UPON THIS INFORMATION.

**Prepared by:** Environmental Health & Safety  
Phone Number: (314) 654-1600 (U.S.A.)

---

http://www.jtbaker.com/msds/englishhtml/m1209.htm