

Ethanethiol MSDS

Important Note: This document provides safety information for Ethanethiol. It is intended for use by trained personnel and is not a substitute for professional safety training or consultation. Always handle chemical products in accordance with established safety protocols.

1. Product Name and Identification

- **Product Name:** [Ethanethiol](#)
- **CAS Number:** 75-08-1
- **Other Identifiers:** Ethyl Mercaptan, Thioethanol, Mercaptoethane
- **Chemical Formula:** C₂H₅SH

2. Composition/Ingredients

- **Component:** Ethanethiol
- **Purity:** Typically found in concentrations of 99% or greater.
- **Hazardous Component:** Yes

3. Hazards Identification

- **Physical Dangers:** Extremely flammable liquid and vapor. Vapors are denser than air and can travel to an ignition source, causing flashback. Can form explosive air-vapor mixtures.
- **Health Dangers:** Toxic upon inhalation. Harmful if swallowed or absorbed through the skin. Causes irritation to the skin, eyes, and respiratory system. Exposure to high concentrations can depress the central nervous system, leading to headaches, dizziness, and unconsciousness. The potent odor is a key warning property, but sensory fatigue can occur, diminishing its effectiveness as a warning.
- **Environmental Dangers:** Considered harmful to aquatic organisms. Prevent spillage into drains and water systems.

4. First Aid Measures

- **Inhalation:** Relocate the individual to fresh air at once. If the person has difficulty breathing, provide oxygen. If breathing ceases, begin artificial respiration. Contact emergency medical services immediately.
- **Skin Contact:** Promptly remove all contaminated attire. Rinse the affected skin area with soap and a large volume of water for a minimum of 15 minutes. Get medical help if skin irritation develops or continues.
- **Eye Contact:** Immediately rinse eyes with a continuous stream of water for at least 15 minutes, holding eyelids open to ensure thorough flushing. If contact lenses are worn, remove them if possible. Seek immediate medical evaluation.

- **Ingestion:** Do not attempt to induce vomiting. If the person is conscious, have them rinse their mouth with water. Do not give any liquids to an unconscious individual. Obtain emergency medical assistance without delay.

5. Handling and Storage

- **Handling:** All operations should be conducted in a well-ventilated space, preferably within a chemical fume hood. Prohibit access to heat, sparks, open flames, and any other potential ignition sources. Ground all equipment and containers to prevent static discharge. Use tools that do not produce sparks. Prevent inhalation of vapors and contact with skin and eyes. Wear suitable protective gear.
- **Storage:** Keep in a cool, dry, well-ventilated location designated for flammable materials. Containers must be kept tightly sealed and correctly labeled. Store separately from incompatible substances like oxidizing agents, strong bases, and reactive metals.

6. Exposure Controls/Personal Protection

- **Occupational Exposure Limits:** Adhere to all federal, state, and local regulations regarding airborne exposure limits.
- **Engineering Controls:** A local exhaust ventilation system is required to maintain airborne concentrations below established limits. Safety showers and eyewash fountains must be readily accessible in the immediate work area.
- **Personal Protective Equipment (PPE):**
 - **Eye/Face Protection:** Chemical-resistant safety glasses or goggles are mandatory. A face shield may be necessary for splash protection.
 - **Skin Protection:** Wear impervious gloves (e.g., nitrile rubber), a lab coat, or a chemical-resistant apron to avoid skin contact.
 - **Respiratory Protection:** When exposure limits may be exceeded, use a NIOSH-approved air-purifying respirator equipped with organic vapor cartridges.

7. Physical and Chemical Properties

- **Appearance:** Clear, colorless liquid
- **Odor:** Extremely strong and disagreeable, often described as resembling rotten cabbage or garlic
- **Boiling Point:** 35 °C (95 °F)
- **Melting Point:** -147 °C (-233 °F)
- **Flash Point:** -45 °C (-49 °F) (Closed Cup)
- **Vapor Density:** 2.14 (Air = 1)
- **Water Solubility:** Slightly soluble
- **Specific Gravity:** 0.839 g/cm³

8. Stability and Reactivity

- **Chemical Stability:** Considered stable when stored under proper conditions.
- **Reactivity:** Can react violently with strong oxidizers, acids, and bases.
- **Conditions to Avoid:** Exposure to ignition sources (heat, sparks, flames), incompatible materials, and static electricity.
- **Incompatible Materials:** Strong oxidizing agents, calcium hypochlorite, alkali metals, and strong bases.
- **Hazardous Decomposition Products:** When heated to decomposition, it emits toxic fumes of sulfur oxides (SO_x), carbon monoxide (CO), and carbon dioxide (CO₂).

9. Toxicological Information

- **Acute Toxicity:**
 - **Inhalation:** High vapor concentrations are toxic and can cause respiratory paralysis and central nervous system effects including lethargy, incoordination, and potential coma.
 - **Dermal:** Causes skin irritation. Can be absorbed through the skin, contributing to systemic toxicity.
 - **Ocular:** Causes serious eye irritation, with potential for significant damage.
 - **Oral:** Harmful if ingested. Can cause irritation of the digestive tract.
- **Chronic Toxicity:** Repeated or prolonged exposure can potentially affect the liver, kidneys, and blood. The ability to smell the substance can diminish over time (olfactory fatigue), increasing the risk of overexposure.

10. Disposal Considerations

- **Waste Disposal:** This chemical and its container must be disposed of as hazardous waste. All disposal practices must comply with applicable federal, state, provincial, and local laws and regulations. Do not discharge into sewers or aquatic environments. Engage a certified hazardous waste disposal company. Because of its high flammability, special care must be taken. Contaminated packaging should be handled with the same precautions as the product itself.