

# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
  	<p>Flammable material; avoid heat and sources of ignition.                      Irritating to skin, eyes, and the respiratory system.                      Harmful compound, minimize exposure.                      Stench -- do not inhale, use under a fume hood.                      This material is toxic to aquatic organisms and may cause long term adverse effects to the aquatic environment.                      Refrigerate and vent pressure slowly before opening.</p>	   

## Section I. Chemical Product and Company Identification

Chemical Name	<b>Ethyl Mercaptan</b>		
Catalog Number	E0036	Supplier	TCI America 9211 N. Harborside St. Portland OR 1-800-423-8616
Synonym	Ethaneithiol		
Chemical Formula	C <sub>2</sub> H <sub>5</sub> SH		
CAS Number	75-08-1	In case of Emergency Call	<b>Chemtrec®</b> <b>(800) 424-9300 (U.S.)</b> <b>(703) 527-3887 (International)</b>

## Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Ethyl Mercaptan	75-08-1	Min. 98.0(GC)	TLV-TWA: 0.5ppm OSHA PEL Ceiling: 10ppm	Rat LC <sub>50</sub> (inhalation) 4420ppm/4H Rat LD <sub>50</sub> (oral) 682mg/kg Mouse LC <sub>50</sub> (inhalation) 2770ppm/4H

## Section III. Hazards Identification

Acute Health Effects	<p>Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.                      Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death.                      This material produces an irritating stench. Do not inhale and always use under a fume hood. Inhalation can result in inflammation of the respiratory system, headaches, nausea, and vomiting. Always cover all exposed skin with an impermeable layer and use proper eye protection. A OSHA/MSHA approved dust and vapor respirator is required when working with this material.                      Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.</p>
Chronic Health Effects	<p><b>CARCINOGENIC EFFECTS</b> : Not available.  <b>MUTAGENIC EFFECTS</b> : Not available.  <b>TERATOGENIC EFFECTS</b> : Not available.  <b>DEVELOPMENTAL TOXICITY</b> Not available.                      Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.</p>

## Section IV. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
Skin Contact	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
Inhalation	If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.
Ingestion	INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

## Section V. Fire and Explosion Data

Flammability	Flammable.	Auto-Ignition	299°C (570.2°F)
Flash Points	-48°C (-54.4°F).	Flammable Limits	LOWER: 2.8% UPPER: 18.2%
Combustion Products	These products are toxic carbon oxides (CO, CO <sub>2</sub> ), sulfur oxides (SO <sub>2</sub> , SO <sub>3</sub> ...).		
Fire Hazards	Not available.		

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Emergency phone number (800) 424-9300

Explosion Hazards	Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available.
Fire Fighting Media and Instructions	Flammable liquid. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion. Consult with local fire authorities before attempting large scale fire-fighting operations.

### Section VI. Accidental Release Measures

Spill Cleanup Instructions	Flammable material. Irritating material. Harmful material. Stench material. Environmentally hazardous material. May develop pressure. Refrigerate material. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities. Consult federal, state, and/or local authorities for assistance on disposal.
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### Section VII. Handling and Storage

Handling and Storage Information	FLAMMABLE. IRRITANT. HARMFUL. STENCH. ENVIRONMENTAL HAZARD. MAY DEVELOP PRESSURE. REFRIGERATE. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. Do not breathe gas/fumes/ vapor/spray. Always store away from incompatible compounds such as oxidizing agents, metals.
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### Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.
	
Exposure Limits	TLV-TWA: 0.5ppm OSHA PEL Ceiling: 10ppm

### Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Colorless.)	Solubility	Soluble in alcohol, ether, acetone, and dilute alkali.
Specific Gravity	0.84 (water=1)		
Molecular Weight	62.13	Partition Coefficient	Not available.
Boiling Point	35°C (95°F)	Vapor Pressure	58.7 kPa (@ 20°C)
Melting Point	-144°C (-227.2°F)	Vapor Density	2.14 (Air = 1)
Refractive Index	1.420	Volatility	Not available.
Critical Temperature	Not available.	Odor	Strong skunk-like.
Viscosity	Not available.	Taste	Not available.

### Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with oxidizing agents, metals.

### Section XI. Toxicological Information

RTECS Number	KI9625000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Rat LC <sub>50</sub> (inhalation) 4420ppm/4H Rat LD <sub>50</sub> (oral) 682mg/kg Mouse LC <sub>50</sub> (inhalation) 2770ppm/4H
Chronic Toxic Effects	<b>CARCINOGENIC EFFECTS</b> : Not available. <b>MUTAGENIC EFFECTS</b> : Not available. <b>TERATOGENIC EFFECTS</b> : Not available. <b>DEVELOPMENTAL TOXICITY</b> Not available. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Acute Toxic Effects	Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. This material produces an irritating stench. Do not inhale and always use under a fume hood. Inhalation can result in inflammation of the respiratory system, headaches, nausea, and vomiting. Always cover all exposed skin with an impermeable layer and use proper eye protection. A OSHA/MSHA approved dust and vapor respirator is required when working with this material. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
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## Section XII. Ecological Information

Ecotoxicity	This material is toxic to aquatic organisms and may cause long term adverse effects to the aquatic environment.
Environmental Fate	Ethyl mercaptan occurs naturally in some vegetables (such as cabbage), mammalian excretion products, manure gas from domestic animal pens, in various crude oils and in natural gas; it is formed naturally by biological processes. Anthropogenic sources of environmental release include emissions from petroleum manufacture, waste treatment and pulp mills. If released to the atmosphere, ethyl mercaptan will exist primarily in the vapor-phase where it will degrade readily by reaction with photochemically produced hydroxyl radicals (estimated half-life of 8 hours) and night-time nitrate radicals (estimated half-life of 1 hr). If released to surface water, volatilization may be important. Volatilization half-lives of 2.5 and 29 hours can be estimated for a model river (1 meter deep) and model pond (2 meters deep), respectively. If released to soil, ethyl mercaptan may be transported by leaching, gas penetration, and surface evaporation. Insufficient data are available to assess the relative importance of biodegradation in soil or water. Occupational exposure to ethyl mercaptan occurs through dermal contact (both vapor and liquid) and inhalation of vapor. The general population is exposed through inhalation and oral consumption.

## Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.
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## Section XIV. Transport Information

DOT Classification	CLASS 3: Flammable liquid.
PIN Number	UN2363
Proper Shipping Name	Ethyl mercaptan.
Packing Group (PG)	I
DOT Pictograms	

## Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is <b>ON</b> the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
EINECS Number (EEC)	200-837-3
EEC Risk Statements	R10- Flammable. R18- In use, may form flammable/explosive vapor-air mixture. R20/21/22- Harmful by inhalation, in contact with skin and if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin. R50- Very toxic to aquatic organisms. R53- May cause long-term adverse effects in the aquatic environment.
Japanese Regulatory Data	Not available.

## Section XVI. Other Information

Version 1.0  
Validated on 6/20/2003.  
Printed 2/15/2005.

### Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained here. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazard properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safe laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.