







# Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
 	<p><b>Toxic compound, do not ingest or inhale. Avoid all contact with this material.</b>  <b>Hygroscopic -- keep container tightly sealed.</b>  <b>Stench -- do not inhale, use under a fume hood.</b>  <b>Irritating to skin, eyes, and the respiratory system.</b>  <b>Combustible material; avoid heat and sources of ignition.</b></p>	   

## Section I. Chemical Product and Company Identification

Chemical Name	<b>2-Mercaptoethanol</b>		
Catalog Number	M0058	Supplier	TCl America 9211 N. Harborgate St. Portland OR 1-800-423-8616
Synonym	1-Ethanol-2-thiol; Thioglycol		
Chemical Formula	HSCH <sub>2</sub> CH <sub>2</sub> OH		
CAS Number	60-24-2	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
2-Mercaptoethanol	60-24-2	Min. 98.0 (GC)	Not available.	Rat LD <sub>50</sub> (oral) 244mg/kg Rabbit LD <sub>50</sub> (dermal) 150µl/kg Guinea Pig LD <sub>50</sub> (dermal) 300µl/kg

## Section III. Hazards Identification

Acute Health Effects	<p>Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death.</p> <p>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.</p> <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.</p> <p>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. SEEK IMMEDIATE MEDICAL ATTENTION in case of ingestion of a radioactive material.

## Section V. Fire and Explosion Data

Flammability	Combustible.	Auto-Ignition	Not available.
Flash Points	74°C (165.2°F).	Flammable Limits	LOWER: 2.3% UPPER: 18%
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.		

Continued on Next Page

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	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.


### Section VI. Accidental Release Measures

Spill Cleanup Instructions	Toxic material. Hygroscopic material. Stench material. Irritant material. Combustible material. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Consult federal, state, and/or local authorities for assistance on disposal.
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### Section VII. Handling and Storage

Handling and Storage Information	TOXIC. HYGROSCOPIC. STENCH. IRRITANT. COMBUSTIBLE. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents, moisture.
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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. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
	
Exposure Limits	Not available.

### Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Water-white mobile.)	Solubility	Miscible with water, alcohol, ether, benzene. Completely soluble with most organic solvents.
Specific Gravity	1.115 (water=1)		
Molecular Weight	78.13	Partition Coefficient	Not available.
Boiling Point	157°C (314.6°F)	Vapor Pressure	1.00mm Hg (@ 20°C)
Melting Point	<-50°C (-58°F)	Vapor Density	2.69 (Air = 1)
Refractive Index	1.4996 @ 20°C	Volatility	Not available.
Critical Temperature	Not available.	Odor	Disagreeable. (Strong.)
Viscosity	Dynamic: 3.43 cP	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 strong oxidizing agents, moisture.

### Section XI. Toxicological Information

RTECS Number	KL5600000
Routes of Exposure	Eye Contact. Ingestion. inhalation. Skin contact.
Toxicity Data	Rat LD <sub>50</sub> (oral) 244mg/kg Rabbit LD <sub>50</sub> (dermal) 150µl/kg Guinea Pig LD <sub>50</sub> (dermal) 300µl/kg
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	Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness 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. 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. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.
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## Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	2-Mercaptoethanol is formed through the decomposition of naturally occurring products such as swine manure and proteins (produced by marine algae and other marine plants). Human sources of releases may include solvent evaporation. If released to air, 2-mercaptoethanol will degrade relatively rapidly by reaction with photochemically produced hydroxyl radicals (estimated half-life of 8.7 hr). Physical removal from air via wet deposition is possible since it is miscible in water. If released to water or soil, 2-mercaptoethanol may biodegrade. Although the results on soil degradation study have indicated that 2-mercaptoethanol is biodegradable, insufficient data are available to predict the relative importance or rate of microbial degradation. Leaching in soil is expected based upon 2-mercaptoethanol can evaporate to air from solid surface. Occupational exposure to 2-mercaptoethanol may occur through inhalation of vapor and dermal contact.

## 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 6.1: Poisonous material.
PIN Number	UN2966
Proper Shipping Name	Thioglycol
Packing Group (PG)	II
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-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
EINECS Number (EEC)	200-464-6
EEC Risk Statements	R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin.
Japanese Regulatory Data	Not available.

## Section XVI. Other Information

**Version 1.0**  
**Validated on 4/24/2001.**  
**Printed 2/28/2005.**

### Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, household, 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 herein. 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 hazardous 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 safety, 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, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.