



Health	2
Fire	3
Reactivity	0
Personal Protection	H

## Material Safety Data Sheet 1-Butanethiol MSDS

### Section 1: Chemical Product and Company Identification

**Product Name:** 1-Butanethiol

**Catalog Codes:** SLB4471

**CAS#:** 109-79-5

**RTECS:** EK6300000

**TSCA:** TSCA 8(b) inventory: 1-Butanethiol

**CI#:** Not available.

**Synonym:** Butyl Mercaptan; n-Butyl Mercaptan

**Chemical Name:** n-Butanethiol

**Chemical Formula:** C4-H10-S

**Contact Information:**

**Sciencelab.com, Inc.**  
14025 Smith Rd.  
Houston, Texas 77396

US Sales: **1-800-901-7247**  
International Sales: **1-281-441-4400**

Order Online: [ScienceLab.com](http://ScienceLab.com)

**CHEMTREC (24HR Emergency Telephone), call:**  
1-800-424-9300

**International CHEMTREC, call:** 1-703-527-3887

**For non-emergency assistance, call:** 1-281-441-4400

### Section 2: Composition and Information on Ingredients

**Composition:**

Name	CAS #	% by Weight
{1-}Butanethiol	109-79-5	100

**Toxicological Data on Ingredients:** 1-Butanethiol: ORAL (LD50): Acute: 1500 mg/kg [Rat]. 3000 mg/kg [Mouse]. VAPOR (LC50): Acute: 4020 ppm 4 hours [Rat]. 2500 ppm 4 hours [Mouse].

### Section 3: Hazards Identification

**Potential Acute Health Effects:** Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation.

**Potential Chronic Health Effects:**

Slightly hazardous in case of skin contact (sensitizer).

CARCINOGENIC EFFECTS: Not available.

MUTAGENIC EFFECTS: Not available.

TERATOGENIC EFFECTS: Not available.

DEVELOPMENTAL TOXICITY: Not available.

The substance may be toxic to kidneys, liver, central nervous system (CNS).

Repeated or prolonged exposure to the substance can produce target organs damage.

### Section 4: 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. Cold water may be used. Get medical attention.

**Skin Contact:**

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

**Serious Skin Contact:**

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

**Inhalation:**

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. **WARNING:** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention.

**Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

**Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

**Flammability of the Product:** Flammable.

**Auto-Ignition Temperature:** Not available.

**Flash Points:** CLOSED CUP: 1.6667°C (35°F). OPEN CUP: 3.3333°C (38°F).

**Flammable Limits:** LOWER: 1.4% UPPER: 11.3%

**Products of Combustion:** These products are carbon oxides (CO, CO<sub>2</sub>).

**Fire Hazards in Presence of Various Substances:** Highly flammable in presence of open flames and sparks, of heat.

**Explosion Hazards in Presence of Various Substances:**

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, soluble or dispersed in water.

SMALL FIRE: Use DRY chemical powder.

LARGE FIRE: Use alcohol foam, water spray or fog.

**Special Remarks on Fire Hazards:**

Vapors may form explosive mixtures with air.

Vapor may travel considerable distance to source of ignition and flash back.

**Special Remarks on Explosion Hazards:** Not available.

## Section 6: Accidental Release Measures

### Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

### Large Spill:

Flammable liquid.

Keep away from heat. Keep away from sources of ignition. 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.

## Section 7: Handling and Storage

### Precautions:

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, acids.

### Storage:

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

## Section 8: 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 stations and safety showers are proximal to the work-station location.

### Personal Protection:

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

### Exposure Limits:

TWA: 0.5 (ppm) from ACGIH (TLV) [United States]

TWA: 10 (ppm) from OSHA (PEL) [United States]

CEIL: 1.8 (mg/m<sup>3</sup>) from NIOSH [United States]

CEIL: 0.5 (ppm) from NIOSH [United States]

TWA: 35 (mg/m<sup>3</sup>) from OSHA (PEL) [United States]

TWA: 0.5 (ppm) [Canada]

TWA: 1.8 (mg/m<sup>3</sup>) [Canada]

Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

**Physical state and appearance:** Liquid.

### Odor:

Obnoxious. garlic-like, cabbage, or skunk-like

(Strong.)

**Taste:** Bitter.

**Molecular Weight:** 90.19 g/mole

**Color:** Colorless.

**pH (1% soln/water):** Not available.

**Boiling Point:** 98.4 (209.1°F) @ 760 mm Hg

**Melting Point:** -115.7°C (-176.3°F)

**Critical Temperature:** Not available.

**Specific Gravity:** 0.8337 (Water = 1)

**Vapor Pressure:** 6.1 kPa (@ 20°C)

**Vapor Density:** 3.1 (Air = 1)

**Volatility:** 100% (v/v).

**Odor Threshold:** 0.0001 to 1 ppm

**Water/Oil Dist. Coeff.:** The product is more soluble in oil;  $\log(\text{oil/water}) = 2.3$

**Ionicity (in Water):** Not available.

**Dispersion Properties:** See solubility in water, diethyl ether.

**Solubility:**

Easily soluble in diethyl ether.

Soluble in cold water.

Very soluble in alcohol, liquid hydrogen sulfide.

Solubility in water: 595 mg/1 liter water @ 25 deg. C.

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Heat, ignition sources (sparks, flames), incompatible materials

**Incompatibility with various substances:** Reactive with oxidizing agents, acids.

**Corrosivity:** Not available.

**Special Remarks on Reactivity:** Not available.

**Special Remarks on Corrosivity:** Not available.

**Polymerization:** Will not occur.

## Section 11: Toxicological Information

**Routes of Entry:** Absorbed through skin. Eye contact. Inhalation. Ingestion.

**Toxicity to Animals:**

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE.

Acute oral toxicity (LD50): 1500 mg/kg [Rat].

Acute toxicity of the vapor (LC50): 2500 4 hours [Mouse].

**Chronic Effects on Humans:** May cause damage to the following organs: kidneys, liver, central nervous system (CNS).

**Other Toxic Effects on Humans:** Hazardous in case of skin contact (irritant), of ingestion, of inhalation.

**Special Remarks on Toxicity to Animals:** Not available.

**Special Remarks on Chronic Effects on Humans:** May cause adverse reproductive effects and birth defects (teratogenic) based on animal test data

**Special Remarks on other Toxic Effects on Humans:**

Skin: Causes slight to moderate skin irritation.

Eyes: Causes slight to moderate eye irritation.

Inhalation: Can cause respiratory tract (nose, throat, lung) irritation with coughing, lacrimation, and wheezing.

Inhaling high concentrations (50-500 ppm) can also affect respiration, behavior/central nervous system, gastrointestinal system, and cause shortness of breath or increased respiration or respiratory stimulation, suffocation, respiratory paralysis, somnolence, tremors, sedation, narcosis, incoordination, weakness, dizziness, confusion, unconsciousness with cyanosis, headaches, nausea, and vomiting.

Ingestion: May cause gastrointestinal tract irritation with nausea and vomiting. May affect respiration and behavior/central nervous system and cause respiratory depression, temors, sedation, narcosis, coma, incoordination, and other central nervous system effects similar to acute inhalation. Liver and kidney effects may also be seen with near lethal ingestions. If swallowed, it may be aspirated resulting in inflammation and possible fluid accumulation in the lungs.

Chronic Potential Health Effects:

Inhalation: Prolonged or repeated exposures via inhalation may affect the kidneys (renal failure, acute tubular necrosis), and metabolism (weight loss).

Skin: Repeated skin contact can cause skin rash.

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

**Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are less toxic than the product itself.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

**Waste Disposal:**

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**DOT Classification:** CLASS 3: Flammable liquid.

**Identification:** : Butyl Mercaptan UNNA: 2347 PG: II

**Special Provisions for Transport:** Not available.

## Section 15: Other Regulatory Information

### Federal and State Regulations:

Connecticut hazardous material survey.: 1-Butanethiol  
Illinois toxic substances disclosure to employee act: 1-Butanethiol  
Rhode Island RTK hazardous substances: 1-Butanethiol  
Pennsylvania RTK: 1-Butanethiol  
Minnesota: 1-Butanethiol  
Massachusetts RTK: 1-Butanethiol  
Massachusetts spill list: 1-Butanethiol  
New Jersey: 1-Butanethiol  
California Director's List of Hazardous Substances: 1-Butanethiol  
TSCA 8(b) inventory: 1-Butanethiol

### Other Regulations:

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200).  
EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

### Other Classifications:

**WHMIS (Canada):** CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).

### DSCL (EEC):

R11- Highly flammable.  
S16- Keep away from sources of ignition - No smoking.  
S23- Do not breathe gas/fumes/vapour/spray  
S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.

### HMIS (U.S.A.):

**Health Hazard:** 2

**Fire Hazard:** 3

**Reactivity:** 0

**Personal Protection:** h

### National Fire Protection Association (U.S.A.):

**Health:** 2

**Flammability:** 3

**Reactivity:** 0

**Specific hazard:**

### Protective Equipment:

Gloves.  
Lab coat.  
Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.  
Splash goggles.

## Section 16: Other Information

**References:** Not available.

**Other Special Considerations:** Not available.

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