



Health	3
Fire	2
Reactivity	0
Personal Protection	H

Material Safety Data Sheet Thiophenol MSDS

Section 1: Chemical Product and Company Identification

Product Name: Thiophenol

Catalog Codes: SLT2605

CAS#: 108-98-5

RTECS: DC0525000

TSCA: TSCA 8(b) inventory: Thiophenol

CI#: Not available.

Synonym: Phenyl Mercaptan; Mercaptobenzene

Chemical Name: Benzenethiol

Chemical Formula: C₆H₆S

Contact Information:

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International Sales: **1-281-441-4400**

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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
Thiophenol	108-98-5	100

Toxicological Data on Ingredients: Thiophenol: ORAL (LD50): Acute: 46.2 mg/kg [Rat]. 267 mg/kg [Mouse]. DERMAL (LD50): Acute: 134 mg/kg [Rabbit]. VAPOR (LC50): Acute: 33 ppm 4 hours [Rat]. 28 ppm 4 hours [Mouse].

Section 3: Hazards Identification

Potential Acute Health Effects:

Very hazardous in case of skin contact (permeator), of ingestion, of inhalation. Hazardous in case of skin contact (irritant), of eye contact (irritant). Severe over-exposure can result in death.

Potential Chronic Health Effects:

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, lungs, liver. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

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. Get medical attention.

Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

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 immediately.

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 immediate medical attention.

Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: Not available.

Flash Points: CLOSED CUP: 50°C (122°F).

Flammable Limits: Not available.

Products of Combustion: These products are carbon oxides (CO, CO₂).

Fire Hazards in Presence of Various Substances:

Flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

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. Explosive in presence of heat.

Fire Fighting Media and Instructions:

Flammable liquid, insoluble in water. **SMALL FIRE:** Use DRY chemical powder. **LARGE FIRE:** Use water spray or fog. Never direct a water jet in the container in order to prevent any splashing of the product which could cause spreading of the fire. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

Special Remarks on Fire Hazards: May form explosive mixtures with air. Vapor may travel considerable distance to source of ignition and flash back.

Special Remarks on Explosion Hazards:

Vapors may form explosive mixtures with air. Containers may explode when heated.

Section 6: Accidental Release Measures

Small Spill: Absorb with an inert material and put the spilled material in an appropriate waste disposal.

Large Spill:

Toxic flammable liquid, insoluble or very slightly soluble in water. Poisonous 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 get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal.

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 acids, alkalis.

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 from ACGIH (TLV) [United States] Consult local authorities for acceptable exposure limits.

Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.

Odor: Repulsive. Garlic. Penetrating

Taste: Not available.

Molecular Weight: 110.17 g/mole

Color: Not available.

pH (1% soln/water): Not applicable.

Boiling Point: 168.3°C (334.9°F) @ 760 mm Hg

Melting Point: -14.8°C (5.4°F)

Critical Temperature: Not available.

Specific Gravity:

1.0766 @ 20 deg. C (ACGIH, 1991) (Water = 1) 1.0728 @ 25 deg. C (Budavari,S. (ed.). The Merck Index) 1.075 @ 25 deg. C (Lewis, 1997)

Vapor Pressure: 0.2 kPa (@ 20°C)

Vapor Density: 3.8 (Air = 1)

Volatility: Not available.

Odor Threshold: Not available.

Water/Oil Dist. Coeff.: The product is more soluble in oil; $\log(\text{oil/water}) = 2.5$

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether.

Solubility:

Miscible with diethyl ether. Insoluble in cold water. Very soluble in alcohol. Miscible with benzene, carbon disulfide. It is soluble in oxygenated and aromatic solvents. Solubility in water: 836 mg/l @ 25 deg. C. (HSDB, 2000) Thiophenol sinks and is insoluble in water (Budavari, 1996; CHRIS, 2000)

Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources, incompatible materials, air

Incompatibility with various substances: Reactive with acids, alkalis.

Corrosivity: Not available.

Special Remarks on Reactivity:

Incompatible with strong acids, strong bases, calcium hypochlorite, alkali metals (lithium, sodium, potassium, rubidium, cesium, or francium). Oxidizes in air, especially when dissolved in alcoholic ammonia, forming diphenyl disulfide. On contact with acids, thiophenol emits toxic fumes of oxides of sulfur.

Special Remarks on Corrosivity: It is mildly corrosive to carbon steel.

Polymerization: Will not occur.

Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. 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): 46.2 mg/kg [Rat]. Acute dermal toxicity (LD50): 134 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 28 4 hours [Mouse].

Chronic Effects on Humans: May cause damage to the following organs: kidneys, lungs, liver.

Other Toxic Effects on Humans:

Very hazardous in case of skin contact (permeator), of ingestion, of inhalation. Hazardous in case of skin contact (irritant).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: May cause adverse reproductive effects.

Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes skin irritation. It is absorbed through the skin. It may be fatal if absorbed through the skin. If absorbed through the skin may have systemic effects similar to that of inhalation and ingestion and affect respiration and behavior/central nervous system. Eyes: It causes severe eye irritation, moderate redness. It may cause chemosis of the conjunctiva with discharge, corneal opacity. It has a marked potential for causing eye changes. Inhalation: It causes respiratory tract (nose, throat) irritation, coughing, choking sensation, wheezing, and may affect respiration (labored breathing, respiratory stimulation or depression, dyspnea, cyanosis). It may be fatal if inhaled. Acute inhalation may also cause kidney damage, liver damage (fatty degeneration, and necrosis), hemorrhages in the lung, pulmonary edema, pneumonia,

spleen damage, and affect behavior/central nervous system (somnolence, lethargy, tremor, dizziness, incoordination, skeletal muscle paralysis, restlessness, irritability, headache, muscle weakness, ataxia, coma). Inhalation may also cause nausea, and vomiting. Ingestion: It may be fatal if swallowed. It affects the gastrointestinal tract and causes, nausea, vomiting, hypermotility, diarrhea. Exposure by ingestion may also affect behavior/central nervous system and respiration (symptoms similar to inhalation), and cause kidney, liver, spleen damage Chronic Potential Health Effects: Skin: Prolonged or repeated skin contact may cause severe dermatitis.

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 6.1: Poisonous material.

Identification: : Phenyl Mercaptan UNNA: 2337 PG: I

Special Provisions for Transport: Inhalation Hazard Zone B

Section 15: Other Regulatory Information

Federal and State Regulations:

Connecticut hazardous material survey.: Thiophenol Illinois toxic substances disclosure to employee act: Thiophenol Illinois chemical safety act: Thiophenol New York release reporting list: Thiophenol Rhode Island RTK hazardous substances: Thiophenol Pennsylvania RTK: Thiophenol Minnesota: Thiophenol Massachusetts RTK: Thiophenol Massachusetts spill list: Thiophenol New Jersey: Thiophenol New Jersey spill list: Thiophenol Louisiana RTK reporting list: Thiophenol Louisiana spill reporting: Thiophenol California Director's List of Hazardous Substances: Thiophenol TSCA 8(b) inventory: Thiophenol SARA 302/304/311/312 extremely hazardous substances: Thiophenol CERCLA: Hazardous substances.: Thiophenol: 100 lbs. (45.36 kg)

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-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). CLASS D-2B: Material causing other toxic effects (TOXIC).

DSCL (EEC):

R10- Flammable. R24/25- Toxic in contact with skin and if swallowed. R26- Very toxic by inhalation. R36/38- Irritating to eyes and skin. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S28- After

contact with skin, wash immediately with plenty of water. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). S46- If swallowed, seek medical advice immediately and show this container or label.

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 2

Reactivity: 0

Personal Protection: h

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

Health: 3

Flammability: 2

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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