

Section 1. Product and Company Identification

Product Name Thiophenol
CAS Number 108-98-5

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Collect Calls Accepted

Section 2. Hazards Identification

Classification of the substance or mixture

Classification (EC 1272/2008)

Acute toxicity (oral): Category 2
Acute toxicity (skin): Category 2
Acute toxicity (inhalation): Category 1
Skin corrosion/Irritation: Category 2
Eye damage/Irritation: Category 2
Toxic to reproduction: Category 2

Specific target organ systemic toxicity (single exposure)

Category 2 (nervous system)
Category 3 (irritating to airway)

Specific target organ systemic toxicity (repeated exposure): Category 1 (kidney)

Hazardous to the aquatic environment (acute hazard): Category 1
Hazardous to the aquatic environment (chronic hazard): Category 1

Classification (67/548/EEC)

T+ Very toxic R24/25, R26, R36/38
N Dangerous for the environment R50/53

GHS Label Elements

Pictograms:



Signal word: DANGER



Hazard and precautionary statements

Hazard Statement

H300: Fatal if swallowed
H310: Fatal in contact with skin
H330: Fatal if inhaled
H315: Causes skin irritation
H319: Causes serious eye irritation
H361: Suspected of damaging fertility or the unborn child
H371: May cause damage to nervous system
H335: May cause respiratory irritation
H336: May cause drowsiness and dizziness
H372: Causes damage to kidney through prolonged or repeated exposure
H410: Very toxic to aquatic life with long lasting effects

Precautionary Statement

Prevention

P262: Do not get in eyes, on skin, or on clothing
P264: Wash hands thoroughly after handling.
P270: Do not eat, drink, or smoke when using this product.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P260: Do not breathe dust/fume/gas/mist/vapors/spray.
P271: Use only outdoors or in a well-ventilated area.
P284: Wear respiratory protection.
P201: Obtain special instructions before use.
P202: Do not handle until all safety precautions have been read and understood.
P281: Use personal protective equipment as required.
P273: Avoid release to the environment.

Response

P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P330: Rinse mouth
P302+P350: IF ON SKIN: Gently wash with plenty of soap and water.
P312: Call a POISON CENTER or doctor/physician if you feel unwell.
P310: Immediately call a POISON CENTER or doctor/physician.
P332+P313: If skin irritation occurs, seek medical advice/attention.
P361: Remove/Take off immediately all contaminated clothing.
P363: Wash contaminated clothing before reuse.
P305+P351 IF IN EYE: Rinse cautiously with water for several +P338 : minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337+P313: If eye irritation persists: Get medical advice/attention.
P308+P313: If exposed or concerned: Get medical attention/advice.
P309+P311: If exposed or if you feel unwell. Call a POISON CENTER or doctor/physician.
P304+P340: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P314: Get medical attention/advice if you feel unwell.
P391: Collect spillage



Storage

P403+P233: Store in well-ventilated place. Store container tightly closed.

P405: Store locked up.

Disposal

P501: Dispose contents/container in accordance with applicable local/regional/national/international regulation.

Label in according to 67/548EEC

Hazard Symbols

T+ Very toxic

N Dangerous for the environment

R-Phrases

R24/25: Toxic in contact with skin and if swallowed.

R26: Very toxic by inhalation.

R36/38: Irritating to eyes and skin.

R50/53: Very toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

S-Phrases

S9: Keep container in a well-ventilated place.

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.

S35: This material and its container must be disposed of in a safe way.

S36/37: Wear suitable protective clothing and gloves.

S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S57: Use appropriate container to avoid environmental contamination.

Other Hazards: This product does not contain any PBT or vPvB substances

Section 3. Composition / Information on Ingredients

Common Name	Thiophenol
Synonym(s)	Phenyl Mercaptan; Benzenethiol
Formula	C ₆ H ₆ S
CAS Number	108-98-5

COMPONENT	CAS NUMBER	CONCENTRATION
Thiophenol	108-98-5	> 98%



Section 4. First Aid Measures

Inhalation

P340: Remove victim to fresh air and keep at rest in a position comfortable for breathing

P310: Immediately call a POISON CENTER or doctor/physician.

Skin Contact

P361: Remove/Take off immediately all contaminated clothing.

P310: Immediately call a POISON CENTER or doctor/physician.

P352: Wash with plenty soap and water

P332+P313: If skin irritation occurs, get medical advice/attention.

P362: Take of contaminated clothing wash before reuse

P350: Gently wash with plenty soap and water

P363: Wash contaminated clothing before reuse.

Eye Contact

P351/P338: Rinse your cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313: If eye irritation persists: Get medical advice/attention.

P313: Get medical advice/attention.

Ingestion

P310: Immediately call a POISON CENTER OR doctor/physician.

P330: Rinse mouth. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed.

Inhalation: Cough, headache, nausea, and sore throat

Skin Contact: Possibility of absorption. Redness, pain.

Eye Contact: Redness, ache, bleary eyes

Ingestion: Refer to Inhalation

Indication of any immediate medical attention and special treatment needed:

General first aid, rest, and fresh air.

Section 5. Firefighting Measures

Extinguishing Media: In case of fire, use dry chemical, chemical foam, or CO₂. Use water spray to cool fire-exposed container.

Not-Suitable Extinguishing Media: Never direct a water jet in the container in order to prevent any splashing of the product which could cause spreading of the fire. Never use a solid water stream as it may scatter and spread fire.

Special hazards arising from the substance or mixture: It is extremely flammable and easily catches fire by heat, sparks, and flames. The container might explode by heating. It might emit corrosive, poisonous or toxic gas by fire. There is a possibility of vapor explosion inside or outside of building or in a drain sewer.



Advice for fire fighters

Specific Methods of Firefighting: The flash point is extremely low. Spray water to extinguish when extinguishing agents other than water is not effective in a big fire. If it is not dangerous, remove the containers from the fire area. Firefighting work should be done from the farthest place that is effectively-workable, using unmanned hose holders or nozzles with a monitor. In the case of a fire, extinguish the fire by using unmanned hose holders and nozzles with a monitor. If this is not possible, evacuate from the place and let the fire burn freely. After the fire is extinguished, cool the container with plenty of water sufficiently.

Specific Equipment for the Protection of Firefighters: In the event of fire, wear self-contained breathing apparatus and use personal protective equipment.

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment, and Emergency Procedures

Personal Precautions: Do not touch leaked material or do not walk in the leaked area. Immediately isolate the area having a proper distance in all directions from the leakage point as the leakage area. Prohibit unauthorized persons to enter into the area. The workers should wear proper protective equipment (refer to Section 8). And avoid contact to eyes and skin, and inhalation. When the leakage is not accompanied by a fire, wear airtight impermeable protective clothing. Keep staying at a windward side. Leave and keep away from a low place. Ventilate the closed area before entering.

Environmental Precautions: Do not flush into surface water or sewer system and affect to Environment. Avoid release to the environment.

Methods and Material for Containment and Cleaning Up: In the case of small amount leakage, absorb the leakage with dry clay, sand, non-flammable materials or cover it, and recover it into a well-closed container. Afterward, dispose it properly. In the case of small amount leakage, use clean antistatic tools to collect the absorbed materials. In the case of small large leakage, prevent leakage by surrounding it with earth, lead it to a safe place, and recover it. In the case of large leakage, water spraying can reduce the vapor concentration. However, it might be impossible to depress combustion in a sealed place. Stop leakage, if it is not dangerous. When handling the leakage, all the equipment to be used should be earthed. Vapor suppression foam should be used to reduce the evaporation concentration.

Preventive Measures for Secondary Disasters: Remove all ignition sources promptly. (Prohibition of smoking, using sparks and fires near the leakage point.) Prevent flowing into draining trenches, drain sewers, basement, and closed place.

Reference to other sections: For waste disposal, see Section 13

Section 7. Handling and Storage

Technical Measures: For personal protection and ventilation system, see section 8.

Prevention of User Exposure: Acquire the instruction manual before starting use of it. Do not



start handling it before you read and understand all the safe precautions. Prohibit use of high-temperature materials, sparks, and fires around the area. Do not handle the container in such ways as tumbling, dropping, giving shock, or dragging. Do not let it contact to eyes, skin or clothes. Exhaust air for ventilation to keep the concentration in the air lower than the exposure limit. Do not contact, inhale and ingest it. Use it exclusively outdoor or in an area with good ventilation. Do not eat, drink, or smoke while handling the product. Wash hands thoroughly after use. Avoid discharge to the environment.

Condition to Avoid: Avoid contact with head, sparks and flame. Keep away from oxidizing agents and strongly acid or alkaline materials.

Conditions for Safe Storage, including any Incompatibilities

Storage Conditions: Keep locked up in an area accessible only to qualified or authorized persons. Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Containers which are opened must be carefully released and kept upright to prevent leakage. Keep in an area equipped with solvent resistant flooring. Keep away from heat, sparks, and flame.

Engineering Measures: The walls, posts, and floors of the storage building should be of fireproof structure and the beams should be made of non-combustible materials. All roof structure of the storage building should be made of fireproof materials and metal plates or other light non-combustible materials should be used as roof boards. No ceiling should be installed. The floor of the storage should be of such structure as not to let water intrude or penetrate into the floor. While making the storage floor in such a structure not to let the hazardous materials penetrate, proper gradient and proper water storage should be provided. Necessary natural lighting, electrical lighting, and ventilation equipment to store and handle the hazardous materials should be provided to storage place.

Storage Conditions: Store it, keeping away from such fire sources as heat, sparks, and open flame. - No smoking. Store it, keeping away from oxidizing agents. The containers should be stored, avoiding direct sun light and fire. Shut tight the containers and stored them in a cool well-ventilated place. Store it locked.

Incompatible Materials: Refer to Section 10.

Containers/Packaging Materials: Use the containers specified in the UN Transport Rules.

Further Information: Keep away from food, drink and animal feeding stuffs. Keep away from oxidizing agents and strongly acid or alkaline materials.

Section 8. Exposure Controls / Personal Protection

Control Parameters

Engineer Measures to Reduce Exposure: Provide sufficient air exchange and/or exhaust in working space.

Control Parameters: ACGIH (2009) TLV-TWA 0.1 ppm, skin

Exposure Controls

Personal Protective Equipment

Respiratory Protection: Self-contained breathing apparatus (EN 133)

Eye/Face Protection: Wear eye/face protection (e.g. goggles). Ensure that eyewash stations and safety showers are close to the workstation location.

Hand Protection: Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer.

Skin and Body Protection: Wear suitable protective clothing. Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Specific Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice. General industrial hygiene practice. Avoid breathing vapors, mist or gas. Avoid contact with skin, eyes and clothing. When using, do not eat, drink, or smoke. Wash hands before breaks and at the end of workday. Follow the skin protection plan. Wash contaminated clothing before reuse.

Section 9. Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Physical State: Liquid

Color: Colorless to slightly yellow

Odor: Characteristic odor

Melting Point: -15°C

Boiling Point: 169°C

Flash Point: 61°C (76°C (Tag closed-cup))

Explosion Range: Lower limit 1.2 vol%

Vapor Pressure: 0.21 kPa (1.6mmHg) at 25°C

Vapor Density: 3.8 (Air=1)

Density: 1.078 g/cm³ at 20°C

Solubility: Insoluble in water; Readily soluble in alcohol. Miscible in ether, benzene, carbon disulfide

Octanol/Water Partition Coefficient: log Pow = 2.52

Other Information: No data available

Section 10. Stability and Reactivity

Reactivity: Oxidizes when exposed to air. Air sensitive.

Chemical Stability: Stable at cool and under nitrogen.

Possibility of Hazardous Reactions: Reacts with acids to generate poisonous sulfur oxides. Reacts with strongly oxidizing reagent and alkali.

Condition to Avoid: Incompatible materials, ignition sources, exposure to air, and excess heat.

Incompatible Materials: Strongly oxidizing agents, acids and strong bases

Hazardous Decomposition Products: Hydrogen sulfide, sulfur oxides, carbon monoxide, carbon dioxide, and unburned hydrocarbons (smoke).

Section 11. Toxicological Information

Acute Toxicity

Oral	Rat	LD50	46mg/kg
Skin	Rat	LD50	134mg/kg
Inhalation	Rat	LC0	3300m/4hr

Skin Corrosion/Irritation: Considering the following skin irritation test results using animals. It is considered to have skin irritation. Severe irritation. Application of it caused inflammatory reaction, which disappeared in 24 to 48 hours.

Eye Damage/Irritation: Considering the following description of the eye irritation test results using rabbits, it is considered to have strong irritation. It has serious irritation and causes conjunctival irritation and corneal damage. Moderate to severe redness, conjunctival edema and secretions continue for 3 or 4 days. The group of all rabbits recovered to be clear by the 16th day. From 16 to 19th day, corneal opacity progressed. Afterwards, in 1.5 to 2 months, it was cured gradually.

Sensitization: No data available

Germ Cell: No data available.

Mutagenicity

Carcinogenicity: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Reproductive Toxicity: It is observed external symptoms of infant animal by maternal-dose that represents a general toxicity in a teratogenic study.

Specific Target Organ Toxicity (Single Exposure): Considering the following description, it is considered to have respiratory tract irritation and the specific target organ is supposed to be nerve system. For human beings, "choking sensation, irritation to eyes and nose, and headache appeared." For test animals, "somnolence, coma, breathing difficulty", "respiratory irritation", "motor incoordination", "loss of muscle strength, motor incoordination, cyanosis" and others appeared.

Specific Target Organ Toxicity (Repeated Exposure): Considering the following description, the specific target organ is supposed to be kidney. For test animals, "renal tubular degeneration was observed at 9.18 mg/kg"

Aspiration Hazard: No available data

Section 12. Ecological Information

Toxicity: Daphnia magna 48hr/ EC50 = 0.0044 mg/L

Persistence and Degradability: Not rapidly degradable (Degradation by BOD: 0%)

Bio accumulative Potential: Estimated to be lowly bio-accumulative (log Pow = 2.52)

Mobility in soil: No information available.

Results of PBT and PvB Assessment: This product does not contain any PBT or vPvB substances.

Other Adverse Effects: Harmful to aquatic life, may cause adverse effects in the aquatic environment. See Section 12.1.

Section 13. Disposal Considerations

Waste Treatment Methods: Dispose of product and contaminated packaging in accordance with all local, state, and federal environmental control regulations.

Section 14. Transport Information

ADR

UN No.: 2337

Description of the Goods: Phenyl Mercaptan

Class: 6.1 (3)

Packaging Group: I

Classification Code: TF1

Hazard Identification No.: 663

Label: 6.1 (3)

Limited Quantity: -

Tunnel Restriction Code: (C/D)

Environmentally Hazardous: Yes

RID

UN No.: 2337

Description of the Goods: Phenyl Mercaptan

Class: 6.1 (3)

Packaging Group: I

Classification Code: TF1

Hazard Identification No.: 663

Label: 6.1 (3)

Limited Quantity: -

Environmentally Hazardous: Yes

IATA

UN No.: 2337

Class: 6.1 (3)

Not permitted for transport

IMDG

UN No.: 2337

Description of the Goods: Phenyl Mercaptan

Class: 6.1 (3)

Packing Group: I

Label: 6.1 (3)

EmS No. 1: F-E

EmS No. 2: S-D



Marine Pollutant: Yes

Environmental Hazards

Environmentally Hazardous Substance/Marine Pollutant: Yes.

Regulation (EC) No. 1272/2008: It is classified in Acute Aquatic Hazard Category 1. It is classified in Chronic Aquatic Hazard Category 1.

Special precautions for user: Refer to section 7. Follow all regulations in your country.

Transport in bulk according to Annex II of MARPOL73/78 and IBC Code: No applicable

Section 15. Regulatory Information

Safety, Health, and Environmental Regulations/Legislation Specific for the Substance

Seveso Directive (96/82/EC)	Quantity 1	Quantity 2
Very toxic	5 t	20 t
Dangerous for the environment	100 t	200 t

National legislation: Other regulations Take note of Dir 97/33/EC on the protection of young people at work.

Chemical Safety Assessment: No data available

Section 16. Other Information

Disclaimer: The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.

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