Material Safety Data Sheet
Thiophenol

ACC# 13026

Section 1 - Chemical Product and Company Identification

MSDS Name: Thiophenol
Catalog Numbers: AC138870000, AC138870010, AC138870250, AC138875000, AC220040000, AC220040050 AC220040050, AC220040500, AC220045000
Synonyms: Benzenethiol; Mercaptobenzene; Phenol, thio-; Penyl mercaptan; Thiofenol.
Company Identification:

Acros Organics N.V.
One Reagent Lane
Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
108-98-5	Thiophenol	97-100	203-635-3

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: clear, colorless liquid. Flash Point: 50 deg C.
Danger! May be readily absorbed through the skin. May be fatal if inhaled, absorbed through the skin or swallowed. Poison! Causes eye, skin, and respiratory tract irritation. **Flammable liquid and vapor.** Stench. Methemoglobin former - can cause cyanosis. May cause central nervous system depression.
Target Organs: Kidneys, central nervous system, liver, spleen, respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes severe eye irritation and possible burns. May cause reversible inflammation and corneal injury with opacity.
Skin: May be fatal if absorbed through the skin. Causes severe skin irritation and possible burns. May cause severe dermatitis and burns. Substance is readily absorbed through the skin. May cause cyanosis of the extremities.
Ingestion: May be fatal if swallowed. May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns. May form methemoglobin which in sufficient concentration causes cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). May cause headache and dizziness.
Inhalation: Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Inhalation may produce burning sensation, coughing, wheezing, laryngitis, shortness of breath, headache, nausea, and vomiting. Causes severe respiratory tract irritation with possible burns. Inhalation at high concentrations may cause CNS depression and asphixiation. Causes irritation of the mucous membrane.
Chronic: Absorption into the body leads to the formation of methemoglobin which in sufficient concentrations causes cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). Prolonged exposure can injure liver, kidneys and lungs. This substance has caused adverse reproductive and fetal effects in laboratory animals.

Section 4 - First Aid Measures

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid imme diately. Do NOT allow victim to rub eyes or keep eyes closed.
Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Ingestion: Never give anything by mouth to an unconscious person. Get medical aid immediately. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.
Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Containers may explode when heated. Runoff from fire control or dilution water may cause pollution.
Extinguishing Media: Use water spray to cool fire-exposed containers. Use water spray, dry chemical, carbon dioxide, or chemical foam.
Flash Point: 50 deg C (122.00 deg F)
Autoignition Temperature: Not applicable.
Explosion Limits, Lower: Not available.
Upper: Not available.

NFPA Rating: (estimated) Health: 4; Flammability: 2; Instability: 0

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Cover with an activated carbon adsorbent and place into a closed container for disposal. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Keep container tightly closed. Keep away from heat, sparks and flame. Do not ingest or inhale. Use only in a chemical fume hood. Discard contaminated shoes. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.
Storage: Keep away from sources of ignition. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood. Use adequate general or local explosion-proof ventilation to keep airborne levels to acceptable levels.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Thiophenol	0.1 ppm TWA; Skin - potential significant contribution to overall exposure by the cutaneous r oute	none listed	none listed

OSHA Vacated PELs: Thiophenol: 0.5 ppm TWA; 2 mg/m3 TWA
Personal Protective Equipment
Eyes: Wear safety glasses and chemical goggles if splashing is possible.
Skin: Wear appropriate protective gloves and clothing to prevent skin exposure.
Clothing: Wear appropriate protective clothing to minimize contact with skin.
Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: clear, colorless
Odor: garlic-like odor - stench
pH: Not available.
Vapor Pressure: 1.6 mm Hg @ 25 C
Vapor Density: 3.8
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 167 - 169 deg C @ 760.00mm Hg
Freezing/Melting Point:-15 deg C
Decomposition Temperature: Not available.
Solubility: Insoluble.
Specific Gravity/Density:1.0780g/cm3
Molecular Formula:C6H6S
Molecular Weight:110.17

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. Oxidizes when exposed to air. Air sensitive. Can decompose at high temperatures forming gases, such as toxic sulfur oxides and toxic and flammable hydrogen sulfide.
Conditions to Avoid: Incompatible materials, ignition sources, exposure to air, excess heat.
Incompatibilities with Other Materials: Strong oxidizing agents, acids, strong bases, calcium hypochlorite, alkalies, air.
Hazardous Decomposition Products: Carbon monoxide, oxides of sulfur, carbon dioxide, hydrogen sulfide.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 108-98-5: DC0525000
LD50/LC50:
CAS# 108-98-5:
Draize test, rabbit, eye: 108 mg Severe;
Inhalation, mouse: LC50 = 28 ppm/4H;
Inhalation, rat: LC50 = 33 ppm/4H;

Oral, mouse: LD50 = 267 mg/kg;
Oral, mouse: LD50 = 266 mg/kg;
Oral, rat: LD50 = 46200 ug/kg;
Oral, rat: LD50 = 223 mg/kg;
Skin, rabbit: LD50 = 134 mg/kg;
Skin, rat: LD50 = 300 mg/kg;

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Carcinogenicity:
CAS# 108-98-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found
Teratogenicity: Oral, rat: TDLo = 500 mg/kg. (Female 6-15 days after conception--post-implantation mortality, effects on litter size, effects on embryo or fetus.)
Reproductive Effects: Oral, rat: TDLo = 500 mg/kg. (Female, 6-15 days after conception--maternal effects.)
Mutagenicity: No information found
Neurotoxicity: No information found
Other Studies:

Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.
Environmental: Under acidic soil and water conditions, may react w/heavy metals to form insoluble mercaptides. May be moderately mobile in soil under acidic conditions. May volatilize fairly rapidly from dry soil surfaces. Volatilization and biodegration from water are probably important fate processes. May adsorb moderately to suspended solids and sediments in acidic water conditions. Direct photolysis, chemical hydrolysis, and bioaccumulation are not expected to be important. Exists predominantly in vapor phase in the atmosphere. Dominant removal from atmosphere is by reaction w/hydroxy radicals.
Physical: Volatilization from model river, half-life = 5.8 days. Removal by reaction with hydroxy radicals in atmosphere, half-life = 8.8 hours.
Other: No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: CAS# 108-98-5: waste number P014.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	PHENYL MERCAPTAN	PHENYL MERCAPTAN
Hazard Class:	6.1	6.1(3)
UN Number:	UN2337	UN2337
Packing Group:	I	I

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 108-98-5 is listed on the TSCA inventory.
Health & Safety Reporting List
CAS# 108-98-5: Effective 1/26/94, Sunset 12/19/95; Effective 3/7/86, S unset 3/7/96 (Listed unde r Benzenethiol)
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
CAS# 108-98-5: 100 lb final RQ; 45.4 kg final RQ
SARA Section 302 Extremely Hazardous Substances
CAS# 108-98-5: 500 lb TPQ
SARA Codes
CAS # 108-98-5: immediate, delayed, fire.
Section 313 No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 108-98-5 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols:

T+

Risk Phrases:

R 10 Flammable.
R 26 Very toxic by inhalation.
R 36/37/38 Irritating to eyes, respiratory system and skin.
R 24/25 Toxic in contact with skin and if swallowed.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.
S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 28A After contact with skin, wash immediately with plenty of water.

WGK (Water Danger/Protection)

CAS# 108-98-5: 3

Canada - DSL/NDSL

CAS# 108-98-5 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of D1A, D2B, B3.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 108-98-5 is listed on the Canadian Ingredient Disclosure List.

Section 16 - Additional Information

MSDS Creation Date: 7/15/1999
Revision #4 Date: 10/03/2005