# Thiram -MATERIAL SAFETY DATA SHEET

**Manufacturer/information service:**

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Trade name**: Thiram 80% WP**

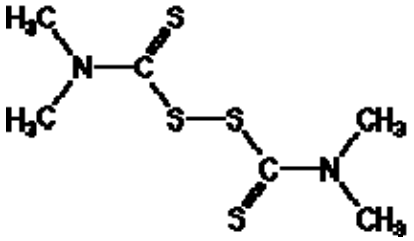
## 1. Chemical Product Identification

Product Name: Thiram

Molecular Formula: $C_6H_{12}N_2S_4$

Molecular Weight: 240.4

Structural Formula:



Chemical Name:

tetramethylthiuram disulfide (IUPAC);

Form: crystals

Color: colourless

Odor: odorless

CAS No.: 137-26-8

## 2. Composition / Information On Ingredients

| Composition | CAS No. | Content % |
|---|---|---|
| Thiram | 137-26-8 | 80.0 |
| Other ingredients | | 20.0 |

## 3. Hazards Identification

| Component | Symbol | R phrases |
|---|---|---|
| Thiram | Xn;Xi; | R 68-20/22-36/37-43 |

More important danger for the man: None

Dangers for the environment: Thiram is highly toxic to fish. Thiram is not expected to bioconcentrate in aquatic organisms.

Physical-chemical dangers: none

## 4. First Aid Measures

Skin: Remove contaminated clothes. Rinse and then wash skin with water and soap. Refer for medical attention.

Eyes: First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.

Inhalation: Move affect person to fresh air and keep at rest until recovered. If not breathing, give artificial respiration and get to a doctor.

Ingestion: Do not induce vomiting if the person is conscious. Give glass of water. Get to a doctor.

**Notes to physician:** No specific antidote if ingested. Treat symptomatically.

## 5. Fire-Fighting Measures

Extinguishing media

To be used: Powder, foam, and sand.

Don’t use: Not applicable

Particular risk: None

Measures of personal protection: Safety glasses or goggles, rubber gloves, shoes plus socks, long-sleeved shirt, and long pants.

Environmental cautions

EX: Prevent the contamination of the floor and the beds of water.

## 6. Accidental Release Measures

Personal cautions: Safety glasses or goggles, rubber gloves, shoes plus socks, long-sleeved shirt, and long pants.

Cleaning methods

EX: The empty container may be decontaminated by rinsing two or three times with water and detergent and scrubbing the sides.

Environmental cautions

EX: prevent the contamination of the floor and beds of water.

## 7. Handling And Storage

Handling: Do not apply to humans, their clothing, or bedding. Do not contaminate food or use on household tanks.

Storage: Store at normal temperatures, away from children, domestic animals, food and feed products, seed and fertilizer. Do not contaminate other stored products or the storage area by handling or storage of this product. Keep in a well-ventilated room.

## 8. Exposure Controls / Personal Protection

Personal protective equipment
Respiratory protection: Approved respirator

Protective gloves: Rubber gloves

Eye protection: Safety goggles or face shield.

Industrial hygiene: adequate ventilation.

## 9. Physical And Chemical Properties

Melting point: none;.

Density: 0.55

Water solubility: 18mg/L (room temperature)

Other solubility: In ethanol <10, acetone 80, chloroform 230(all in g/l, room temperature); In hexane 0.04, dichloromethane 170, toluene 18, isopropanol 0.7 (all in g/l, 20℃).

Ph value: 5.0-8.0;

Flash point: non-inflammable;

Ignition temperature: not applicable

## 10. Stability And Reactivity

Conditions to avoid: none

Products to avoid: acidic media.

Thermal decomposition: none

Hazardous decomposition products: none.

Hazardous reaction: Not applicable

## 11. Toxicological Information

Contact with the skin: slight irritant to skin

Contact with the eyes: moderate irritant to eye.

Inhalation: itching, scratchy throat, hoarseness, sneezing, coughing, inflammation of the nose or throat, bronchitis, dizzines, headache, fatigue, nausea, diarrhea, and other gastrointestinal complaints.

Ingestion**:** Ingestion of thiram and alcohol together may cause stomach pains, nausea, vomiting, headache, slight fever, and possible dermatitis..

Effects for chronic toxicity:

Reproductive: **:** Very high oral doses of approximately 1200 mg/kg/day thiram to mice on days 6 to 17 of pregnancy caused resorption of embryos and retarded fetal development. In another study, doses of 132 mg/kg/day for 13 weeks produced infertility in male mice, while doses of 96 mg/kg/day for 14 days delayed the estrous cycle in females. The feeding of 50 mg/kg/day thiram from day 16 of pregnancy to 21 days after birth caused reduced growth and survival of the pups. Pups that were transferred to untreated dams at birth remained healthy, while pups transferred from untreated to treated dams showed toxic effects. These data suggest that reproductive effects occur at high doses not likely to be experienced by humans.

Carcinogenicity: When administered to mice at the highest dose possible, thiram was not carcinogenic. Dietary levels as high as 125 mg/kg/day for 2 years did not cause tumors in rats. These data indicate that thiram is not carcinogenic.

Teratogenicity: Maternal doses of 125 mg/kg/day thiram were teratogenic in hamsters, causing incomplete formation of the skull and spine, fused ribs, abnormalities of the legs, heart, great vessels, and kidneys. Developmental toxicity was observed in a three-generation study of rats fed 5.0 mg/kg/day. These data suggest that high doses are required to cause teratatogenic effects.

Mutagenicity: Thiram has been found to be mutagenic in some test organisms but not in others. Thus, the evidence is inconclusive.

Sensisation: skin sensitiser (guinea pigs);

## 12. Ecological And Ecotoxicological Information

**Aquatic organisms:**

$LC_{50}$ (96 h) for bluegill sunfish 0.0445, rainbow trout 0.128 mg/l. Daphnia $LC_{50}$ (48 h) 0.21 mg/l, Algae $EC_{50}$ (72 h) 0.065 mg/l.

**Bird:** Acute oral $LD_{50}$ for male ring-necked pheasants 673, mallard ducks >2800, starlings >100, redwing blackbirds >100mg/kg. $LC_{50}$ (8 d) for ring-necked pheasants >5000, mallard ducks >5000, bobwhite quail >3950, Japaneses quail >5000 ppm.

**Other Animals (Non-target species)**

Bee: Thiram is nontoxic to bees.

## 13. Disposal Considerations

Material which can not be used at the site should be disposed of in an approved waste disposal facility following all applicable Federal, State and Local regulations. If burned, stay out of smoke. Do not contaminate water supplies by disposal of wastes or containers.

## 14. Transport Information

Not applicable.

## 15. Regulatory Information

Not applicable.

## 16. Other Information

All information and instructions provided in this Material Safety Data Sheet (MSDS) are based on the current state of scientific and technical knowledge at the date indicated on the present MSDS and are presented in good faith and believed to be correct. This information applies to the product as such. In case of new formulations or mixes, it is necessary to ascertain that a new danger will not appear. It is the responsibility of persons on receipt of this MSDS to ensure that the information contained herein is properly read and understood by all people who may use, handle, dispose or in any way come in contact with the product. If the recipient subsequently produce formulations containing this product, it is the recipients sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.