



MATERIAL SAFETY DATA SHEET

Manufacturer/information service:

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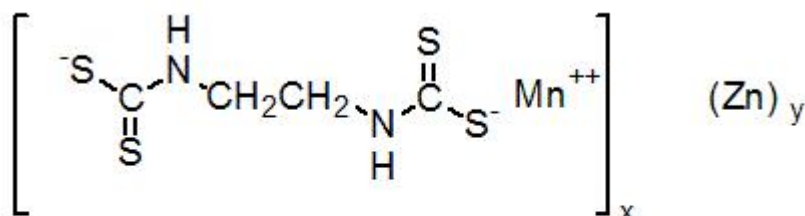
1. Chemical Product Identification

Product Name: Mancozeb TC

Molecular Formula: $(C_4H_6MnN_2S_4)_x(Zn)_y$

Molecular Weight: 271.2 g/mol

Structural Formula:



$$x:y = 1:0.091$$

Chemical Name: manganese ethylenebis(dithiocarbamate) (polymeric) complex with zinc salt

Form: Powder

Colour: Yellowish

CAS No.: 8018-01-7

2. Composition / Information On Ingredients

Composition	Chemical name	Content (% w/w)
Active ingredient	Mancozeb	85%



Other ingredient	-----	15%
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3. Hazards Identification

Component	Sympol	R phrases
Mancozeb	Tn	R36/37/38

Danger: May be fatal if swallowed. Harmful if inhaled. Avoid inhaling fume or spray mist. Do not get in eyes, on skin or on clothing. Aspiration hazard, do not induce vomiting. Keep out of children.

More important danger for the man: none

Dangers for the environment: toxic to fish

Physical-chemical dangers: none

4. First Aid Measures

Skin: wash affected area with soap and water. If irritation persists, see a physician.

Eyes: flush with plenty of water for 15 minutes. Call a physician immediately.

Inhalation: remove victim to fresh air. If not breathing, give artificial respiration, preferable mouth to mouth. Get medical attention.

Ingestion: call a physician or the poison control center immediately. Drink one ro two glasses of water and induce vomiting by touching the back of the throat with finger. Repeat until vomit fluid is clear. Do not induce vomiting or give anything by mouth to an unconscious person.

5. Fire-Fighting Measures

Flash Point: 137.8°C

Means for extinction: Use water spray, powder, foam, carbon dioxide

Measures of personal protection: Firefighters should always wear positive pressure self-contained breathing apparatus and full protective clothing. Cool fire-exposed containers with water.

6. Accidental Release Measures

Personal cautions: do not enter the accidental place without authorizing, must wear protective clothing when disposed the product.

Cleaning methods



EX: sweep up spilled material to avoid dusting. Prevent materials from entering floor drains. Place in suitable, labeled container for disposal. Scrub contaminated area with water and detergent. Collect rinsate and place in a suitable labeled container for disposal.

Environmental cautions

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

7. Handling And Storage

Storage: do not contaminate water, food or feed by storage or disposal. Keep container closed when not in use. Store in cool, dry location. Do not store in direct, hot sunlight. Do not contaminate water, food or feed by storage, disposal or by cleaning of equipment. Do not reuse empty bag.

Open dumping is prohibited.

Personal precaution measures: may be fatal if swallowed. Harmful if absorbed through the skin. Causes eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking or using tobacco.

Fire and explosion protection: wear protective clothing.

8. Exposure Controls/personal protection

Personal protective equipment: Long-sleeved shirts and long pants, shoes plus socks.

Respiratory protection: Ensure good ventilation. If not adequate, use a suitable respirator for added protection.

Protective gloves: waterproof gloves

Eye protection: Safety glasses; chemical goggles.

Industrial hygiene: always practice good industrial hygiene; handle with care; avoid personal contact. Do not get into eyes or on skin; do not breathe mist or vapor of product. Do not swallow. Wash hands with soap and water and rinse after handling product. Shower after each shift. Wash all work clothing and completely clean all personal protective equipment after each shift.

9. Physical And Chemical Properties

Appearance: Yellowish powder

Odor: Practically odorless

Vapor pressure: 1.32×10^{-10} mm Hg at 25 deg C



Melting point: 192-194 °C

Boiling point: 454.7 °C at 760 mmHg

Solubility at 20°C: 6-20 mg/l in water, practically insoluble in most organic solvents

Decomposition temperature: Decomposes at 172 °C

10. Stability And Reactivity

Stability: Stable at normal temperature and storage conditions. Elevated temperature and/or free water promotes decomposition of exposed material.

Reactivity:

Conditions to avoid: open flames, sparks, ignition sources, dampness

Incompatibility: Strong acids, oxidizers, dampness(in storage)

Thermal decomposition:decomposes at 172 deg C

Hazardous decomposition products: oxides of nitrogen, sulfur, ethylene thiourea, and carbon disulfide.

Hazardous reaction: will not occur

11. Toxicological Information

Acute oral LD50 for rats >5000 a.i.mg/kg;

Acute percutaneous LD50 for rats >2000 a.i.mg/kg.

Acute inhalation toxicity LC50 (4h) for rats: >5.14 a.i. mg/L;

Skin irritation: Not an irritant (rabbits).

Eye irritation for rabbit: non irritating;

Skin sensitization for guinea pig: not a sensitize.

12. Ecological And Ecotoxicological Information

Effect on birds: low toxicity to birds, Acute LD50 for Japanese quail is >2000 a.i. mg/kg.

Effects on Fish: high toxicity to fish, Acute LC50 (96h) for rainbow trout is 0.074 a.i.mg/L.

Effects on Aquatic invertebrates:high toxicity to Aquatic invertebrates, Acute LC50 (48h) for daphnia magan is 0.073 a.i.mg/L.

Effects on Algae: moderate toxicity to algae, Acute hour EC50 (72h), growth for Raphidocelis subcapitata is 0.044 a.i. mg/L.

Effects on Bees: low to honeybee. Contact acute LD50 (48h) is >161.7 a.i.µg/bee, Oral acuteLD50 (48h) is 140.6 a.i.µg/bee.



Effects on earthworms: moderate toxic to earthworms, Acute 14 day LC50 is >299.1 a.i. mg/kg.

13. Disposal Considerations

Triple or (preferably) pressure rinse containers before disposal. Add rinsings to the spray tank. Do not dispose of undiluted chemicals on-site. If recycling replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

14. Transport Information

Un no.: 3077

Class:9

Packing group: III

15. Regulatory Information

Symbol: T

R phrases: R36/37/38

S phrases: S1/2, S24/25

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.