Mancozeb -MATERIAL SAFETY DATA SHEET

Manufacturer/information service:

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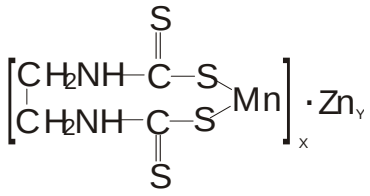
1. Chemical Product Identification

Product Name: Mancozeb

Molecular Formula: $(C_4H_6Mn_2S_4)_xZn_y$

Molecular weight (M.Wt): 330.7

Structural Formula:



Chemical Name: [1,2ethanediylbis[carbamodith-ioato](2-)]mangese

Form: solid

Color: grayish-yellow

Odor: musty

CAS No: 8010-01-7

2. Composition / Information on Ingredients

Composition	CAS No.	Content %
Mancozeb	8010-01-7	85.0
Others		15.0

3. Hazards Identification

Component	Sympol	R phrases

Mancozeb	Tn	R36/37/38

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

Extinguishing media

To be used: foam, CO_2 or dry chemical

Don't use: not applicable

Particular risk: not applicable

Measures of personal protection: Wear positive pressure self-contained breathing apparatus.

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

Handling and 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.

Technical protective measures: may bi 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: greyish-grey powder with mulsty odor

Melting point: decomposes at 192 – 204 ℃

Bulk density: 1.92

Water solubility: 6.2ppm

Other solubilities: insoluble in organic solvent

PH value: 5.0 –7.0

Flash point: non-flammable

Ignition temperature: no determined

10. Stability and Reactivity

Conditions to avoid: heat, water and fire
Products to avoid: oxidizers
Thermal decomposition: no determined
Hazardous decomposition products: oxides of nitrogen, sulfur, ethylene thiourea, and carbon disulfide.
Hazardous reaction: will not occur

11. Toxicological Information

Contact with the skin: Contact can cause skin irritation.
Contact with the eyes: can cause eye skin irritation.
Inhalation: Inhalation can cause irritation of nose and throat.
Ingestion: Ingestion can cause temporary CNS depression, drowsiness, and changes in the liver and weight loss.
Sharp toxicity: none
Effects for chronic oxhibition: Mancozeb was not carcinogenic in a two year feeding study in rats at 250 ppm. In long-term feeding studies, some dithiocarbamates have induced carcinogenicity and birth defects at high dietary intake levels.
Sensisation: none

Acute toxicity

Acute oral: LD_{50} acute oral rat:>5000 mg/kg
Acute dermal: LD_{50} acute dermal rat: >10000 mg/kg
Inhalation toxicity: not applicable
Skin irritation: non-irritant to skin
Eye irritation: slight irritant to eye

Teratogenicity

Mancozeb: No teratogenic effects were observed in a three-generation rat study with mancozeb at a dietary level of 50 mg/kg/day. Mancozeb was not teratogenic to rats when it was inhaled by pregnant females at airborne concentrations of 0.017 mg/L. In pregnant rats fed 5 mg/kg/day, the lowest dose tested, developmental toxicity was observed in the form of delayed hardening of the bones of the skull in offspring.

Oncegenicity

Mancozeb: No data are available regarding the carcinogenic effects of mancozeb. While studies of other EBDCs indicate they are not carcinogenic, ETU (a mancozeb metabolite), has caused cancer in experimental animals at high doses. Thus, the carcinogenic potential of mancozeb is not currently known.

Reproduction

Mancozeb: In a three-generation rat study with mancozeb at a dietary level of 50 mg/kg/day there was reduced fertility but no indication of embryotoxic effects. In another study in which pregnant rats were exposed to mancozeb by inhalation, toxic effects on the pups were observed only at exposure levels (55 mg/m3) that were also toxic to the dams. It is unlikely that mancozeb will produce reproductive effects in humans under normal circumstances.

Chronic toxicity

Mancozeb: No toxicological effects were apparent in rats fed dietary doses of 5 mg/kg/day in a long-term study. Impaired thyroid function was observed as lower iodine uptake after 24 months in dogs fed doses of 2.5 and 25 mg/kg/day of mancozeb, but not in those dogs fed 0.625 mg/kg/day.

Mutagenicity

Mancozeb: Mancozeb was found to be mutagenic in one set of tests, while in another it did not cause mutations. Mancozeb is thought to be similar to maneb, which was not mutagenic in the Ames Test. Data regarding the mutagenicity are inconclusive but suggest that mancozeb is either not mutagenic or weakly mutagenic.

12. Ecological And Ecotoxicological Information

Fish: Mancozeb is moderately to highly toxic to fish and aquatic organisms. Reported 48-hour LC50 are 9 mg/L in goldfish, 2.2 mg/L in rainbow trout, 5.2 mg/L in catfish, and 4.0 mg/L in carp.
Bee:Mancozeb is non-hazardous to honey bees in which acute toxicity exceeds 100 mi crograms per bee.
Bird:Mancozeb is practically non-toxic to birds.

13. Disposal Considerations

Product: Pesticide wastes are toxic. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of federal law. Decontamination of the containers in order to use them for other purposes should not be permitted. Containers must be either burnt or crushed and buried below the topsoil. Care must be taken to avoid subsequent contamination of water sources.

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.