

# MATERIAL SAFETY DATA SHEET OF MANCOZEB 80% WP

## 1. IDENTIFICATION OF THE CHEMICAL PRODUCT AND COMPANY

Supplier: Shanghai AgroChina International Trade Co., Ltd.

Street address: RM. 1507~1607, Zhengda Plaza, No. 58, Changliu Road, Pudong, Shanghai, R.P. China

FAX: +86 21 33927659

ZIP: +86 21 60899989

Product name: Mancozeb 80% WP

Product use: Fungicide to control plant diseases.

## 2. COMPOSITION/INFORMATION ON INGREDIENTS

Formulation Type: Wettable powder

Active Ingredients: Mancozeb

Chemical Abstracts name:

[[1,2-ethanediybis[carbomodithioato]](2-)]manganese mixture with  
[[1,2-ethanediybis[carbomodithioato]](2-)]zinc

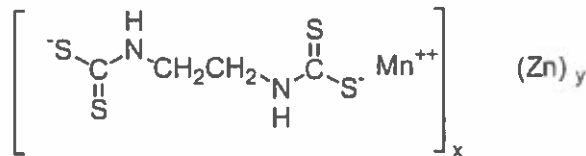
Chemical Family: Dithiocarbamate

CAS NO. 8018-01-7

Molecular Formula:  $[C_4H_6MnN_2S_4]_xZn_y$

Molecular Weight: 271.2 (based on composition)

Structural Formula:



x:y=1:0.091

Other ingredients determined not to be hazardous

INGREDIENT	CAS NO	PROPORTION
Mancozeb	8018-01-7	>80%
other	Not available	≤20%

### 3. HAZARDS IDENTIFICATION

**Emergency overview:** Caution! Keep out of reach of children. May cause eye and skin irritation. Avoid contact with eyes, skin and clothing. Toxic to aquatic organisms.

**Routes of entry:** Inhalation; skin contact; eye contact.

**Health hazards:**

**Inhalation:** Inhalation of dust can cause the following: irritation of nose, throat and lungs.

**Eye contact:** May cause eye irritation with corneal injury.

**Skin contact:** Prolonged or repeated skin contact can cause the following: possible skin irritation and/or dermatitis due to skin sensitization.

**Ingestion:** Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

**Environmental hazards:** Very toxic to aquatic organisms may cause long-term adverse effects in the aquatic environment.

### 4. FIRST AID MEASURES

**General:** If poisoning is suspected, immediately contact the poison information centre, doctor or nearest hospital. Have the product container, label or Material Safety Data Sheet with you when going for treatment. Tell the person contacted the complete product name, and the type and amount of exposure. Describe any symptoms and follow the advice given.

**Inhalation:** Move subject to fresh air.

**Eye Contact:** Flush eyes with a large amount of water for at least 15 minutes. Consult a physician if irritation persists.

**Skin Contact:** Wash affected skin areas thoroughly with soap and water. Consult a physician if irritation persists. Remove and wash contaminated clothing thoroughly. Do not take clothing home to be laundered.

**Ingestion:** If swallowed, give 2 glasses of water to drink. Consult a physician. Never give anything by mouth to an unconscious person.

**Note to physician:** No specific antidote is known. Treat symptomatically.

### 5. FIRE FIGHTING MEASURES

**Flash point:** 146 °C.

**Method used:** TOC.

**Flammable limits:** Not determined.

**Autoignition temperature:** Not determined.

**Hazardous combustion products:** Combustion generates toxic fumes of the following: hydrogen sulfide,

carbon disulfide, sulfur oxides, nitrogen oxides, and carbon oxides. Dusts at sufficient concentrations can form explosive mixtures with air.

**Extinguishing media:** Use the following extinguishing media when fighting fires involving this material: carbon dioxide, dry chemical, or water spray.

**Fire-fighting instructions:** Contain run-off. Remain upwind. Avoid breathing smoke. Use water spray to cool containers exposed to fire. Fire fighting equipment should be thoroughly decontaminated after use.

**Protective equipment for firefighters:** Wear self-contained breathing apparatus (pressure-demand MSHA/NIOSH approved or equivalent) and full protective gear.

## **6. ACCIDENT RELEASE MEASURES**

**Personal precautions:** Withdrawal from combustion sources, sufficient respiratory ventilation/protection, fight against dusts, prevention to skin and eyes contact.

**Environmental precautions:** Avoid sewage, surface water, ground water and soil contamination. Retain spilled liquids and collect them with sand or other absorbent inert material (sepiolite). Absorbent inert material stocks have to be sufficient to face reasonably predictable spillage. Keep sewers from potential spillage to minimize pollution hazards. Do not throw washing waters into sewers. Contact competent authorities when a situation cannot be controlled rapidly and efficiently. In the case of spillage into water, stop dispersion of the product with adequate barrier.

**Method for cleaning up:** Collect contaminated products on the surface concerned, transfer to closed drums before sending in a specialized incineration treatment center. Wash the contaminated surface with water and collect washing waters for treatment. Cover the contaminated zone using absorbent materials such as sand or sepiolite.

## **7. HANDLING AND STORAGE**

**Storage:** Do not store this material near food, feed or drinking water. Store in a well ventilated area. Store in a dry area. Do not allow this product to become wet or overheated in storage; decomposition, impaired activity or fire may result.

**Handling:** Do not handle material near food, feed or drinking water. Avoid high concentrations of dust in air and accumulation of dust on equipment. An airborne dust of this material can create a dust explosion. When handling and processing this material local exhaust ventilation may be required to control dust and reduce exposure to vapors.

## **8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Exposure limits:** Mancozed 1 mg/m<sup>3</sup>

**Engineering controls:** Provide general and/or local exhaust ventilation to control airborne levels below

the exposure guideline.

**Personal protective equipment (PPE):**

**Respiratory protection:** Where airborne exposure is likely, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components.

**Skin protection:** Minimize skin contamination by following good industrial hygiene practice. Wearing rubber gloves is recommended. Wash hands and contaminated skin thoroughly after handling.

**Eye protection:** Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment available.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

**Form:** Powder.

**Color:** Light yellow

**Odor:** Musty.

**pH:** 6~9.

**Solubility in water:** Dispersible.

**Vapor pressure:** Negligible.

## **10. STABILITY AND REACTIVITY**

**Chemical stability:** Stable under normal conditions.

**Conditions to avoid:** Keep away from moisture, heat or flame.

**Hazardous decomposition products:** Thermal decomposition may yield the following: carbon disulfide - hydrogen sulfide.

**Incompatible materials:** Avoid contact with the following: oxidizing agents – acids.

**Hazardous reactions:** Hazardous polymerization will not occur.

## **11. TOXICOLOGICAL INFORMATION**

**Acute toxicity:**

**Oral:** LD<sub>50</sub> for rats >5000 mg/kg.

**Dermal:** LD<sub>50</sub> for rats >5000, rabbits >5000 mg/kg.

**Inhalation:** LC<sub>50</sub> (4 h) for rats >5 mg/l.

**Irritant properties:**

**Skin:** May cause skin irritation.

**Eye:** May cause eye irritation.

**Allergenic and sensitizing effects:** May cause mild dermal sensitisation.

**Chronic toxicity/Carcinogenicity:** No toxicological effects were apparent in rats fed dietary doses of 5

mg/kg/day in a long-term study. A major toxicological concern in situations of chronic exposure is the generation of ethylenethiourea (ETU) in the course of mancozeb metabolism, and as a contaminant in mancozeb production. In addition to having the potential to cause goiter, a condition in which the thyroid gland is enlarged, this metabolite has produced birth defects and cancer in experimental animals.

**Genetic effects/Mutagenicity:** 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.

**Reproductive effects:** 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/m<sup>3</sup>) that were also toxic to the dams. It is unlikely that mancozeb will produce reproductive effects in humans under normal circumstances.

**Target organ effects:** The main target organ of mancozeb is the thyroid gland; the effects may be due to the metabolite ETU.

## 12. ECOLOGICAL INFORMATION

The following information is for the active ingredient, mancozeb.

### Ecotoxicity:

Birds	Acute oral LD <sub>50</sub> : for Mallard duck and Japanese quail > 5000 mg/kg Dietary LC <sub>50</sub> (5 days): for bobwhite quail and mallard ducks >5200 mg/kg diet.
Fish	This product is very toxic to fish. LC <sub>50</sub> (96h flow-through): for rainbow trout 1.0, bluegill sunfish >3.6 mg/l LC <sub>50</sub> (96h static-renewal): for rainbow trout 0.15, bluegill sunfish 0.083, common carp 4.0 mg/l LC <sub>50</sub> (96 h, static sediment/water microcosm): for rainbow trout 0.073, fathead minnow 0.57, bluegill sunfish 0.84, common carp 1.7 mg/l.
Daphnia	EC <sub>50</sub> (48 h): (48 h, flow-through) 3.8 mg/l; (48 h static-renewal) 0.073 mg/l; (24 h, static) 0.011 mg/l; (48 h, static) 0.39 mg/l.
Algae	EC <sub>50</sub> : for <i>Selenastrum capricornutum</i> 0.044 mg/l.
Bees	LD <sub>50</sub> (oral): >209 µg/bee LD <sub>50</sub> (contact): >400 µg/bee
Earthworm:	LC <sub>50</sub> (14 days): for <i>Eisenia foetida</i> >1000 mg/kg soil

**Persistence and degradability:** Rapidly degrades in the environment by hydrolysis, oxidation, photolysis,

volatilization and bio-degradation.

**Bioaccumulative potential:** Because mancozeb hydrolyses rapidly, it does not bioconcentrate in aquatic organisms.

**Mobility in soil:** Mancozeb adsorbs into soil and therefore leaching should not occur.

### **13. DISPOSAL CONSIDERATION**

Triple or preferably pressure rinse containers before disposal. Add rinsings to 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 Number:** 3077

**UN Proper shipping name:** Environmentally hazardous substances, solid, n.o.s. (Mancozeb)

**Transport hazard class:** 9

**Packing group:** III

**Marine pollutant:** Yes

### **15. REGULATORY INFORMATION**

#### **Risk phrases:**

R37: Irritating to respiratory system

R43: May cause sensitization by skin contact

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

#### **Safety phrases:**

S1/2: Keep locked up and out of reach of children.

S3/9/49: Keep only in the original container in a cool, well-ventilated place.

S13: Keep away from food, drink and animal feeding stuffs.

S20/21: When using do not eat, drink or smoke.

S23: Do not breathe sprays.

S24/25: Avoid contact with skin and eyes.

S29: Do not empty into drains.

S36/37/38: Wear suitable protective clothing, gloves and face protection.

S51: Use only in well-ventilated areas.

S60: This material and its container must be disposed of as hazardous waste.

## **16. OTHER INFORMATION**

### **NFPA:**

Health: 2

Flammability: 1

Reactivity: 0

This MSDS summarizes our best knowledge of the health and safety hazard information of the product and how to safely handle and use the product in the workplace. Each user should read this MSDS and consider the information in the context of the how the product will be handled and used in the workplace including in conjunction with other products.

If clarification or further information is needed to ensure that an appropriate risk assessment can be made the user should contact the company.

END OF MSDS