

MATERIAL SAFETY DATA SHEET

VONDOZEB 80 WP FUNGICIDE

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT : VONDOZEB 80 WG/ Fungicide
Chemical Family : Dithiocarbamate
Chemical Abstarcts Name : [[(1,2-ethanediylbis[carbamodithioato]](2-)]manganese mixture with [[1,2-ethadiylbis[carbamodithioato]](2-)]zinc

COMPANY IDENTIFICATION:

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2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

MANCOZEB 80 WP MANUFACTURING USE CONCENTRATE is a powder product that is not flammable, combustible, or explosive and has low acute oral and dermal toxicity. Mancozeb may cause sensitization in some individuals after prolonged or repeated exposure.

POTENTIAL HEALTH EFFECTS

ROUTE(S) OF EXPOSURE: Dermal exposure is not usually a concern because mancozeb is Poorly absorbed through intact skin. Inhalation or ingestion is unlikely to occur in occupational use.

Eye contact : Mancozeb 80 WP MUC causes slight and reversible irritation to the eyes.

- Skin contact** : Mancozeb 80 WP MUC causes slight and reversible irritation to intact skin.
- Ingestion** : Products containing mancozeb are **not** intended for ingestion. Mancozeb 80 WP MUC has a low acute toxicity. Small amounts (e.g., a tablespoon) swallowed accidentally are not likely to cause effects; swallowing amounts larger than that may cause gastrointestinal symptoms.
- Cancer** : Ethylene thiourea (ETU), a trace contaminant, is listed as a "probable human carcinogen" by US EPA, and mancozeb and ETU are listed by the State of California as carcinogenic (Proposition 65).

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS NO	% BY WEIGHT
Mancozeb	8018-01-7	≥ 80
Inert Ingredient	-	Add to 100%

4. FIRST AID MEASURES

- Inhalation** : Move person to fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Keep patient warm and at rest.
Call a physician or poison control centre immediately.
- Skin contact** : Take off all contaminated clothing immediately.
Wash off immediately with plenty of water.
If skin irritation persists, call a physician.
Wash contaminated clothing before re-use.
- Eye contact** : Rinse immediately with plenty of water, also under the eyelids for at least 15 minutes.
Remove contact lenses.
Immediate medical attention is required.

- Ingestion** : If swallowed, seek medical advice immediately and show this container or label. Do not induce vomiting
- Medical advice** : There is no specific antidote available.
Treat symptomatically.

5. FIRE FIGHTING MEASURES

- General Hazard** : None, because Mancozeb 80 WP MUC is not flammable, combustible or explosive.
- Extinguishing media** : Use Carbon dioxide (CO₂), foam, dry chemical. If stored material becomes wetted or damp it can produce heat and deteriorate, over time, to become a fire hazard
- Fire/Explosion Hazard** : Firefighters and other who may be exposed to products of combustion should wear full fire fighting turn out and self-contained breathing apparatus. Fire fighting equipment should be thoroughly decontaminated after use
- Fire-fighting Equipment** : Wear protective pressure self-contained breathing apparatus With full clothing. Remain upwind. Avoid breathing smoke.

6. ACCIDENTAL RELEASE MEASURES

LAND SPILL

- Large spill** : Dyke around spill as necessary. If wet, absorb product with a clay-based absorbent.
Remove dry product, absorbent and contaminated soil for disposal in accordance with applicable local regulations.
- Small spill** : Remove contaminated soil and place in containers for disposal in accordance with applicable local regulations. Avoid contamination of water bodies during cleanup and disposal. Personal protective equipment is not needed to cleanup land spills.
- Spillage onto Hard Surface** : Limit area of spillage by barricading if necessary. Sweep up or vacuum, and place product into containers for disposal in accordance with applicable local regulations.
Clean surface with water. [NOTE: Wood surfaces will not be harmed nor present a future hazard after rinsing and drying.]

Spillage into Water : Where possible, remove any intact containers from the water. Advise local water authority that none of the affected water should be used for irrigation or for the abstraction of potable water until natural dilution returns the mancozeb value to a negligible level.

7. HANDLING AND STORAGE

Handling : Avoid breathing dust. Keep away from heat, sparks and open flame, no smoking. avoid contact with skin, eyes and clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Keep out of reach of children

Storage : Store in an area where cross-contamination with pesticides, fertilizers, food or feed could not occur. Store in a dry place and/or closed container. If allowed to become wet the product will deteriorate and represent a fire hazard.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limit : An exposure standard has been set for mancozeb at 1 mg/m³ (TWA-NIOSH)

Engineering Controls : Investigate engineering techniques to reduce exposure. Local mechanical exhaust ventilation is preferred. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems

Personal Protective Equipment

Eye/face Protection : Avoid contact with eyes. Goggles

Skin Protection : Rubber gloves. Wear protective gloves/clothing

Respiratory Protection : Where airborne exposure is likely, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Full facepiece equipment is recommended and, if used, replaces need for face shield and/or chemical goggles. If exposure cannot be kept at a minimum with engineering control, consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitation specified by NIOSH or the

manufacturer. For emergency and other conditions where there may be a potential for significant exposure, use an approved full face positive-pressure, self-contained breathing apparatus. Respiratory protection program must comply with CFR 1910.134

General Hygiene Considerations

Handle in accordance with good industrial hygiene and safety practice

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	: Solid
Appearance	: Yellow to Yellowish Green Coloured Homogeneous Powder
Odor	: Musky / rotten egg
Bulk Density	: 26 - 28 lb per cubic footl
Tap Density	: 0.49 g/ml
Vapor Pressure (mm/Hg)	: Negligible @ 20°C
Solubility in Water	: dispersible in water, negligible dissolution in water
Solubility in Solvent	: insoluble in acetone, methanol, ethyl acetate, 1,2-dichloromethane, n-hexane and xylene
Melting Point	: Not applicable
Flammability	: Not flammable
pH @ 27°C	: 5.0 - 9.0 (General Specification)

10. STABILITY AND REACTIVITY

Stability	: Stable under recommended storage conditions
Condition to avoid	: Protect from water, heat, flame and spark
Incompatible Material	: Strong oxidizing agent. Strong acids, quaternary ammonium Salts. EDBC sequestering agents
Hazardous Decomposition Products	: Carbon disulfide, ethylene thiourea
Possibility of Hazardous Polymerization	: Hazardous polymerization does not occur

11. TOXICOLOGICAL INFORMATION

The following information is available for the formulation:

Ingestion	: Oral LD50 (rat) >5000 mg/kg
Dermal	: Dermal LD50 (rat) >2000 mg/kg
Inhalation	: Inhalation LC50 (rat) 5.3 - 7.38 mg / L
Sensitization	: Skin sensitization (guinea pig) weak sensitizer
Irritation	: Primary eye irritation (rat) Primary skin irritation (rat) slight reversible irritation
Carcinogenicity	: ETU, a potential micro contaminant is considered to be a probable human carcinogen by EPA, IARC, and NTP. The State of California (Proposition 65) has listed mancozeb and ETU as carcinogenic.
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 ³) 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

Acute Toxicity – Fish	: Data on Mancozeb
	LC50 (96h, flow-through) Bluegill Sunfish > 3.6 mg/l
	LC50 (96h, flow-through) Rainbow Trout 1.0 mg/l



Acute Toxicity – Daphnia	: EC50 (96h, flow-through) Daphnia	3.8 mg/l
Acute Toxicity – Algae	: EC50 (120h, cell density) (Selenastrum capricornutum)	0.044 mg/l
Acute Toxicity – Other	: LD50 (10d) Mallard Ducks	> 5500 mg/l
Organisms	: LD50 (10d) Japanese quail	5500 mg/l
	LD50 Bee (contact)	> 400 µg/bee
	(oral)	> 209 µg/bee
	LC50 (14d) Woms (Eisenia foetida)	> 1000 mg/kg soil
Persistence and Degradability	: Rapidly degrades in the environment by hydrolysis, oxidation, photolysis, volatilization and bio-degradation. Mancozeb breaks down rapidly in soil, sediment and water, terminal metabolites are natural product and with mineralization to carbon dioxide. If does not bioaccumulate	
Mobility in Soil	: mancozeb adsorbs into soil and therefore leaching should not occur	

13. DISPOSAL CONSIDERATIONS

Waste Disposal Method : Dispose of content/container in accordance with local regulation. Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide or rinsate is a violation of Federal law. If the wastes cannot be disposed of by use or according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

Contaminated Packaging : Empty containers should be taken for local recycling, recovery or waste disposal

14. TRANSPORT INFORMATION

ADR / RID

UN no : 3077 **ADR Class:** 9
Packing group : III **Classification code:** M7
Shipping name : ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MANCOZEB TECHNICAL)

Labelling : 9 **Hazard ID no:** 90

IMDG / IMO

UN no : 3077 **Class:** 9
Packing group : III **EmS:** F-A,S-F
Marine pollutant : YES
Labelling : 9 + MARINE POLLUTANT

IATA / ICAO

UN no : 3077 **Class:** 9
Packing group : III **Subsidiary risk:** None
Packing instructions : 911
Labelling : 9

15. REGULATORY INFORMATION

Risk Phrases

R 37 : Irritating to respiratory system
R 43 : May cause sensitization by skin contact
R 50/53 : Very toxic to aquatic organisms, may cause long-term, adverse effect in the Aquatic Environment

Safety Phrases

S 1/2 : Keep locked up and out of reach children
S 3/9/49 : Keep only in the original container in a cool, well-ventilation place
S 13 : Keep away from food, drink and animal feeding stuffs
S 20/21 : When using do not eat, drink or smoke
S 23 : Do not breathe sprays
S 24/25 : Avoid contact with skin and eyes
S 29 : Do not empty into drains
S 36/37/38 : Wear suitable protective clothing, gloves and face protection
S 52 : Use only in well-ventilated areas
S 52 : This material and its container must be disposal of as hazardous waste

16. OTHER INFORMATION

NFPA

Health : 2



Flammable : 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 how the product will be handled and used in the workplace including in conjunction with other products. If clarifications or further information is needed to ensure that an appropriate risk assessment can be made the user should contact the company.

End of MSDS