

MATERIAL SAFETY DATA SHEET

MANCOZEB 80% WP

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

- ◆ Product Name: Mancozeb 80% WP
- ◆ Use: fungicide March Chemical Co., Ltd.
- ◆ Address: 14C Jinghui Business BLDG, 631 Zhongshan North Rd, Hangzhou, 310014, P.R.China Emergency call: 0086-571-85814680

SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS Active

- ◆ ingredient:: mancozeb
- ◆ IUPAC: manganese ethylenebis(dithiocarbamate)(polymeric)complex with zinc salt
- ◆ Chemical Name: [1, 2-Ethaznediybis(carbamodithio)(2-)]manganese zinc salt
- ◆ CAS# Mancozeb 8018-01-7 Other inert 200

SECTION 3 - HAZARDS IDENTIFICATION

◆ Inhalation

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

◆ Eye contact

Direct contact with material can cause the following: moderate irritation

◆ Skin contact

Prolonged or repeated skin contact can cause the following: possible skin irritation-dermatitis due to skin sensitization Ingestion Very low toxicity by ingestion.

SECTION 4 - FIRST AID MEASURES

◆ Inhalation

Move subject to fresh air.

◆ Eye contact

Flush eyes with water. Consult a physician if irritation persists.

◆ Skin contact

Wash affected skin areas thoroughly with soap and water. Consult a physician if irritaion 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. See a physician. Never give anything by mouth to an unconscious person.

SECTION 5 - FIRE FIGHTING MEASURES

- ◆ Flash Point (Method): 280°F/137.8°C (TOC)
- ◆ Flammable limits: 0.2g/l(% by volume in air)
- ◆ Autoignition temperature: Not determined

FIRE FIGHTING HAZARDS& PROCEDURES

- General hazards: Like most organic powers or crystals, under severe dusting conditions this material may form explosive mixtures in air.
- Extinguishing media: Use dry chemical carbon dioxide, water spray or foam.
- Fire fighting equipment/instruction: Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment. Use water spray. Runoff from fire control may be a pollution hazard. If area is heavily exposed of fire and if conditions permit. Let fire burn itself out since water may increase the contamination hazard.

Hazardous combustion products: Hazardous gases/vapors produced in fire are H₂S, CS₂, and oxides of sulfur, nitrogen, and carbon.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

Spill or leak procedures: remove source of heat, sparks, flame, impact, friction, or electricity. Dike spill. Prevent material form entering sewers, waterways, or low areas. Shovel or sweep up. Never return to container for reuse. Scoop into bags or boxes with plastic or aluminum shovel.

SECTION 7 - HANDLING and STORAGE

General information:

Avoid breathing vapors or mist. Avoid breathing dust. Avoid contact with eyes, skin, or tobacco in areas where they may become contaminated with this material.

Handling:

Users should wash hands before eating, drinking, chewing gum, using tobacco or using toilet. Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing,. As soon as possible, wash thoroughly and change into clean clothing. Avoid dust regeneration.

Storage:

Store in a well ventilated place. Keep container tightly closed. Do not store or consume food, drink, or tobacco in areas where they may become contaminated with this material. Never allow the product to become wet during storage. This may lead to chemical changes with will reduce the effectiveness as fungicide and create flammable vapors.

SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION

- **Ventilation:** Provide local exhaust ventilation and/or general dilution ventilation to meet published exposure limits.
- **Respiratory protection:** Wear dual cartridge respirator for dusts and mists.
- **Eye protection:** Wear protective eyewear to prevent contact with this substance.
- **Protective clothing:** Mixers and loaders must wear coveralls over long-sleeved shirt and long pant, shoe plus socks, protective eyewear, and chemical-resistant apron. Applicators and other handlers must wear coveralls over long-sleeved shirt and long pant, waterproof gloves, and shoe plus socks. Personnel re-entering treated areas that is permitted under the worker protection standard and that involves contact with anything that has been treated, such as plants, soil, or water coveralls over long-sleeved shirt and long pants, waterproof gloves, and shoes plus socks. Any clothing or heavily contaminated with this product's concentrate must be discarded. Do not reuse them. Follow manufacture's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

- Color: Yellowish
- State: Powder
- Odor: sulfurous
- Melting point: 192°C(decomposed before this degree)
- Moisture: $\leq 2\%$
- Bulk density: 0.35-0.5g/cm³
- Vapor Pressure (@ 25°C mm Hg): neglectable

SECTION 10 - STABILITY AND REACTIVITY

- **Stability:** Stable at normal temperature and storage conditions. Elevated temperatures and/or free water promotes decomposition of exposed material.
- **Conditions to Avoid:** Open flames, sparks, ignition sources, dampness.
- **Incompatibility:** Strong acids, oxidizers, dampness (in storage).
- **Hazardous Polymerization:** N/A
- **Hazardous Decomposition Products:** Toxic and flammable fumes produced: H₂S, CS₂, and oxides of sulfur, nitrogen, and carbon.

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute data:

Oral LD50 (rat): >5000mg/kg

Dermal LD50(rabbit): >5000mg/kg

Skin irritation(rabbit): >practically non-irritating

Eye irritation(rabbit): >not irritating(EEC Classification) Moderately irritating(US Classification)

Inhalation LC50(rat): >5.14mg/L for 4 hr.

Carcinogenicity data:

A two-year feeding study of mancozeb in rats produced an increased incidence of thyroid tumors at 750ppm (29mg/kg/day). No evidence of carcinogenicity was observed in long-term studies with mice.

Mutagenicity data

Both mancozeb and ETU have been adequately tested in wide variety of in vitro and in vivo mutagenicity tests. The weight of the evidence of these tests indicates that mancozeb and ETU are not mutagenic in mammalian systems.

Reproductive/Teratology data

No reproductive effects were seen below exposure levels high enough to produce non-reproductive toxic effects in two-generation reproduction studies of mancozeb or ETU in rats.

Sensitization data

Mancozeb causes skin sensitization in guinea pigs when tested using the maximization procedure, but not when tested using the Buehler procedure. Consequently, mancozeb may have a weak potential for skin sensitization in humans. Toxicity class WHO (a.i.) III (Table 5); EPA (formulation) IV

SECTION 12 - ECOLOGICAL INFORMATION

Mallard duck, 10 day LD50: >6400mg/kg

Japanese quail, 10 day LD50:>6400mg/kg

Mallard duck, reproduction, NOAEL: 125ppm

Bobwhite quail, reproduction, NOAEL:500ppm

Rainbow trout ,48hour LC50: 1.9ML/L

LC50(bluegill sunfish 96 hours):1ppm

SECTION 13 - DISPOSAL CONSIDERATIONS

Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial, and local regulations. Do not flush to surface water or sanitary sewer system. Disposal of empty bag in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burned, stay out of smoke.

SECTION 14 - TRANSPORT INFORMATION

U. s. Department of transportation dot information: This material is not regulated for domestic surface transportation only when shipping in non-bulk packages. For bulk packagings and shipments by vessel: Environmentally hazardous substances, Solid, n.o.s,(contains mancozeb) /9/un 3077/ pg iii/ Marine pollutant(mancozeb)

SECTION 15 - REGULATORY INFORMATION

EPA SARA TITLE III DATA:

SECTION 302 Substances: N/A SECTION 313

TOXIC CHEMICALS: Yes (Mancozeb) RCRA

Waste Number: N/A CERCLA RQ: N/A SECTION 311/312 Hazardous

Categories: N/A

CALIFORNIA PROP 65: Yes (Mancozeb) (ETU)

Immediate Health: Yes

Reactive: Yes NFPA RATINGS

Delayed Health: Yes Sudden Pressure: No Flammability: 1 Health: 1

Fire: Yes Resactivity: 1

SECTION 16 - ADDITIONAL INFORMATION

MSDS Creation Date: 08/05/2007 MSDS revised date: 08/11/2011 The data in this Material Safety Data Sheet relates only to the specific material designated herein and are based upon data believed to be correct. 5