



MATERIAL SAFETY DATA SHEET

PRODUCT : MANCOZEB 800WP

EFFECTIVE DATE : October 2006

REVISION NO : 2

PAGE : 1 of 5

SUPPLIER : NOVA AGRO (HK) LTD.
(Reg. No. 1023146)
28/F Tesbury Centre
28 Queen's Road East
Wanchai
HONG KONG

EMERGENCY TELEPHONE NUMBERS

SPILLAGES :
Telephone No. : 00263 4 704173

POISONINGS:

National Poison Centre : 27-21-9386084 (office hours).
(South Africa) : 27-21-9316129 (after hours).
: 27-800 33444 (24 h)

1. IDENTIFICATION OF THE SUBSTANCE

- **Product Name** MANCOZEB 800WP
- **Common Name** Mancozeb
- **Chemical Name(IUCAP)** Manganese ethylenebis (dithiocarbamate) (polymeric) complex with zinc salt.
- **Cas No.** 8018-01-7
- **Chemical Family** Alkylenebis (dithiocarbamate)
- **Chemical Formula:** Non-defined
- **Use:** Fungicide with protective action.
- **Symbols:** X_i
- **Risk-Phrase(s):** R36, R37, R43

2. HAZARD IDENTIFICATION

- **Toxicity class:** EPA IV
A low toxicity fungicide.
- **Likely routes of exposure:** Skin and eye contact, inhalation and ingestion.
- **Eye contact:** May cause moderate eye irritation.
- **Skin contact:** Mild to moderate skin irritant.
- **Ingestion:** Minimally toxic.
- **Inhalation:** May be irritating to the respiratory system.

3. FIRST AID MEASURES AND PRECAUTIONS

Reactions are not likely to occur unless the absorbed dose is extraordinary. Symptoms of exposure to the product include: itching, scratchy throat, sneezing and coughing.

- **Inhalation:**

Remove source of contamination or move victim to fresh air. Monitor for respiratory distress. Administer 100% humidified supplemental oxygen with assisted ventilation as required.

- **Skin contact:**

Remove contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash skin gently and thoroughly with water and non-abrasive soap. Seek medical advice if necessary. Persons who become sensitised may require specialised medical management with anti-inflammatory agents.

- **Eye contact:**

Immediately flush the eyes with gently flowing lukewarm water or saline solution for 20 minutes, holding the eyelid(s) open. Seek medical attention if necessary.

- **Ingestion:**

Give the victim a drink of a suspension of activated charcoal with water (240ml of diluent /30g of charcoal) to bind toxicant remaining in the gastrointestinal tract. Seek medical advice if necessary.

- **Ingestion:**

Give the victim a drink of a suspension of activated charcoal with water (240ml of diluent /30g of charcoal) to bind toxicant remaining in the gastrointestinal tract. Seek medical advice if necessary.

- **Advice to physician:**

Treat symptomatically and supportively.

4. FIRE FIGHTING MEASURES

- **Firefighting:**

Fight fire from a maximum distance. Contain fire control water for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Water can be used to cool unaffected containers. Avoid inhalation of hazardous vapours. Keep upwind.

- **Fire and explosion:**

Slight fire hazard when exposed to heat or flame. Dust-air mixtures may ignite or explode.

- **Extinguishing agents:**

Extinguish small fires with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray can be used for cooling of unaffected stock, but avoid the accumulation of polluted run-off from the site.

- **Personal protective equipment:**

Fire may produce irritating or poisonous vapours (toxic oxides of carbon, nitrogen and sulphur), of combustion. Fire-fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

5. ACCIDENTAL RELEASE MEASURES



MATERIAL SAFETY DATA SHEET

PRODUCT : MANCOZEB 800WP
EFFECTIVE DATE : October 2006
REVISION NO : 2
PAGE : 2 of 5

(SPILLAGE)

- **Personal precautions:**

Avoid contact with skin and eyes. Do not inhale fumes. For personal protection see Section 8.

- **Environmental precautions:**

Do not allow to enter drains or water sources. When the product contaminates public waters, inform appropriate authorities in accordance with local regulations.

- **Occupational spill:**

For small liquid spills, soak up with sand or other suitable non-combustible absorbent material, taking care not to raise a dust cloud. Place the material into a clean, dry container and cover for subsequent disposal. In cases where product comes in contact with water, contain contaminated water for later disposal. Do not flush spilled material into drains. Keep spectators away and upwind.

6. HANDLING AND STORAGE REQUIREMENTS

- **Handling:**

Avoid contact with eyes, prolonged contact with skin and inhalation of dust and vapour. Wash hands before eating, drinking, chewing gum, smoking or using the toilet. Remove clothing immediately if the herbicide gets inside. Then wash skin thoroughly using a non-abrasive soap and put on clean clothing. Do not apply directly to areas where surface water is present, or to intertidal areas below the mean high water mark. Water used to clean equipment must be disposed of correctly to avoid contamination.

- **Storage:**

Store in its original labelled container in shaded, well-ventilated area, away from heat, sparks and other sources of ignition. Store in a dry area. Do not allow the product to become wet or overheated in storage; decomposition, impaired activity or fire may result. Not to be stored next to foodstuffs and water supplies. Keep out of reach of children and animals. Local regulations should be complied with.

7. EXPOSURE CONTROL / PERSONAL PROTECTION

It is essential to provide adequate ventilation. The measures appropriate for a particular work site depends on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Comply with occupational safety, environmental, fire and other applicable regulations.

- **Personal protective equipment:**

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection.

- **Respirator:**

An approved full face respirator suitable for protection from dusts and mists of pesticides is adequate. Limitations of respirator use specified by the approving agency and the manufacturer must be observed.

- **Clothing:**

Employees must wear appropriate protective (impervious) clothing and equipment to prevent repeated or prolonged skin contact with this substance. Do not wear leather clothing.

- **Gloves:**

Employees must wear appropriate synthetic protective gloves (chemical resistant) to prevent contact with this substance.

- **Eye protection:**

The use of safety goggles is recommended.
Emergency eye wash: Where there is any possibility that an employee's eyes may be exposed to this substance, the employer should provide an eye wash fountain or appropriate alternative within the immediate work area for emergency use.

8. PHYSICAL AND CHEMICAL PROPERTIES

- **Appearance:** Pale yellow powder.
- **Odour:** Odourless.
- **Explosive properties:** Dust-air mixtures may explode.
- **Flammability:** Not flammable. Mean combustion time is 18'25".
- **Oxidising properties**
- **pH:** ± 6,85 (1% in water).
- **Relative density:** Tap density is 0,67.
- **Storage stability:** Stable for 2 years under normal, dry storage conditions. Stable after 14 days at 54°C
- **Persistent foaming:** 5 ml after 1 minute. 3 ml after 12 minutes.

- **Suspensibility:** Without creaming: 67,9% (standard hard water).
- **Wettability:** With creaming: 81,4% (standard hard water).
Mean value: 59 seconds
- **Solubility in organic solvents:** Practically insoluble in most organic solvents.
- **Partition-coefficient in n-octanol /water:** No data available.
- **Melting point:** Decomposes without melting @ 192°C.

9. STABILITY AND REACTIVITY

Stability:

The product is stable at room temperature. Product hydrolyzed rapidly in alkaline media and hydrolyzed slower in acidic and neutral aqueous media.

Incompatibility:

The product is compatible with most other common pesticides but incompatible with alkaline materials such as Bordeaux mixture or Lime Sulphur.

Do not physically mix concentrate directly with other herbicides or pesticide concentrates; always dilute first.

Hazardous decomposition:

Product undergoes decomposition at high temperatures. Avoid heating above ambient temperature. Oxides of nitrogen, phosphorus and sulfur are released when the product decomposes on heating.

10. TOXICOLOGICAL INFORMATION

- **Acute oral LD₅₀:** > 5000 mg/kg in rats.
- **Acute dermal LD₅₀:** > 5000 mg/kg in rabbits.
- **Acute inhalation LC₅₀ (4 h):** > 5,14 mg/l in rats.
- **Acute skin irritation:** Mild to moderate.
- **Acute eye irritation:** Moderate.
- **Dermal sensitization:** The product provokes mild dermal sensitisation (guinea pigs).
- **Carcinogenicity:** Animal studies did not detect any carcinogenic activity.
- **Teratogenicity:** Animal studies did not detect any teratogenic effects.
- **Mutagenicity:** Results taken from animal studies suggest that the product induces large-scale chromosomal aberrations, rather than small aberrations of

point mutations.

11. ECOLOGICAL INFORMATION

- **Degradability:**

Strongly absorbed to soil. The product is rapidly degraded in the environment by hydrolysis, oxidation, photolysis and metabolism. The half life in soil is 3 – 11 days (clay and loam soil).

- **Mobility:**

The product has low mobility and is not likely to leach.

- **Accumulation:**

The product shows little or no tendency to bio accumulate and poses no long term threat to wildlife.

- **Ecotoxicology:**

- **Birds:**

Practically non-toxic.

Acute oral LD₅₀:

>3 200 mg/kg (Japanese quail).

> 6 400 mg/kg (mallard ducks).

- **Fish:**

Low toxicity to fish.

96 hour LC₅₀:

Rainbow trout: 4 600 µg/l.

Carp: 666,6 µg/l.

- **Bees:**

Non-toxic to bees.

Contact LD₅₀ (24hr and 48h):

> 100 µg /bee.

Oral LD₅₀ (24hr and 48 hr):

> 129,0 µg /bee.

- **Daphnia:**

Low toxicity to *Daphnia magna*, but may affect the reproductive capacity.

EC₅₀ (48 hr): 900 µg/l.

- **Algae:**

Selenastrum capricornutum.

E_bC₅₀ (0 -72 hr; inhibition of growth): 0,011 mg/l.

E_rC₅₀ (0 -72 hr inhibition of growth):

1,16 mg/l.

- **Earthworms**

Low toxicity to *Eisenia foetida*. LC₅₀ (14 d): >1000 mg/kg.

12. DISPOSAL CONSIDERATION

Pesticide disposal:

Contaminated absorbents, surplus product, etc., should be burned in a high-temperature incinerator (>1000°C) with effluent gas scrubbing. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Comply with local legislation applying to waste disposal.

Package product wastes:

Emptied containers retain product residues. Observe all labeled safeguards until container is destroyed. Combustible containers should be disposed of in pesticide incinerators or



MATERIAL SAFETY DATA SHEET

PRODUCT : MANCOZEB 800WP

EFFECTIVE DATE : October 2006

REVISION NO : 2

PAGE : 4 of 5

disposal of in approved landfill site. Comply with any local legislation applying to disposal.

13. TRANSPORT INFORMATION

- **UN Number:** 2968
- **ADR/IRD:** 4.3
- **IMDG/IMO:** 4.3
- **ICAO/IATA:** 4.3
- **PACKING GROUP:** III
- **ROAD/RAIL:** Dithiocarbamate pesticide, solid, toxic, n.o.s. (mancozeb).
- **AIR/IATA:** 619, Y619
Dithiocarbamate pesticide, solid, toxic, n.o.s. (mancozeb).
- **SEA:** Dithiocarbamate pesticide, solid, toxic, n.o.s. (mancozeb).
Considered a marine pollutant.

14. REGULATORY INFORMATION

- **Symbol:** X_i
- **Indication of danger:** Irritant.
- **Risk phrases:**
 - R 36:** May cause eye irritation
 - R 37:** Irritating to respiratory system.
 - R 43:** May cause sensitisation by skin contact
- **Safety phrases:**
 - S 2:** Keep out of reach of children.
 - S 8:** Keep container dry.
 - S 24/25:** Avoid contact with skin and eyes.

15. PACKING AND LABELLING

25kg in a 4-ply paper bags with the inner layer coated with polyethylene in a woven polypropylene bag.
1kg in a printed aluminium sachet, packed 20x1kg in a carton.

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 in 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 produces formulations(s) containing this product, it is the recipient's sole responsibility to ensure the transfer of all relevant information from this MSDS to their own MSDS.

REFERENCES

- *Pestline*; Material Safety Data Sheets for Pesticides and Related Chemicals; Volume II; Occupational Health Services Inc., 1991.
- *The Pesticide Manual*; 13th Edition; Editor Clive Tomlin; Crop Protection Publications, 2003.
- *IPCS*; Health and Safety Guide No. 22; World Health Organisation, Geneva, 1990.
- *Agriculture and Public Health*; Guide to the Treatment of Poisoning by Chemicals, 1993.
- *Pharmacological Basics of Therapeutics*; International Edition; Alfred Goodman Gilman, Joel G. Hardman, Lee E. Limbird, Perry B. Molinoff, Raymond W. Ruddon.
- *EuroChem Monitor*; European Community Legislation on the Marketing and Use of Dangerous Substances and Preparations, Volume 1 and 5.
- *Dangerous Goods Regulations; IATA 1999*; International Air Transport Association, 40th Edition, Effective 1 January 1999.
- *Guidelines for personal protection when using pesticides in hot climates*. GIFAP, G8/7 5M/989/ENG/QUA.
- *South African Medicine Formulary*. Emergency Treatment of Poisoning. Merck Manual.