SECTION 1 - PRODUCT & COMPANY IDENTIFICATION

**ARYSTA LifeScience South Africa (Pty) Ltd**
**Co. Reg. No.: 2009/019713/07**
**7 Sunbury Office Park, off Douglas Saunders Drive**
**La Lucia Ridge, 4019**
**Tel:** 031 514 5600  
**Fax:** 031 514 5611  
**e-mail:** info@arysta.co.za  
**Web address:** arystalifescience.co.za

Product Name: **MANCOZEB 800 WP**  
Product Use: **Fungicide**  
Creation Date: **September 2011**  
Revision Date: **October 13**

24 Hr Emergency Number: **082 771 2712**

In case of Poisoning:
- **Poison Information Centre:** 082 446 8946
- **Tygerberg Hospital:** (021) 931 6129
- **Poison Emergency Enquiries:** (021) 689 5227

In case of Spillage:
- **HAZMAT:** 0800 147 112

SECTION 2 - COMPOSITION / INFORMATION ON INGREDIENTS

**Common Name:** Mancozeb  
**Chemical Name:** manganese ethylenebis: (dithiocarbamate) (polymeric) complex with zinc salt (IUPAC)  
**Chemical family:** alkylenebis (dithiocarbamate)  
**Use:** Fungicide with protective action  
**Formulation:** \((C_4H_6MnN_2S_4)_x(Zn)_y\)

Hazardous ingredients of toxicological concern:

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Concern</th>
<th>% Present</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mancozeb</td>
<td>Irritant</td>
<td>&gt; 80 % v/v</td>
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**Symbol:** Xi  
**Indication of Danger:** Irritant

RISK-PHRASE(S): R36, R43

SECTION 3 - HAZARD IDENTIFICATION

**Toxicity class:** WHO (a.i.) III (Table 5); EPA (formulation) IV.  
A low toxicity fungicide.

**ADI (JMPR):** 0.03 mg/kg b.w.  
**NOAEL:** Long-term feeding studies: 5 mg/kg bw/day.

**Main Hazard:** Marine pollutant.

**Eye contact:** The product may cause mild to moderate eye irritation.

**Skin contact:** Minimally toxic and may have sensitising properties.

**Ingestion:** Minimally toxic.

**Inhalation:** May be irritating to the respiratory system.

SECTION 4 - 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. Accidental swallowing has caused nausea, vomiting, diarrhoea, headache, ataxia, confusion, and fatigue in man.

**Inhalation:** Remove source of contamination or move victim to fresh air. Monitor for respiratory distress. Seek medical attention if necessary.

**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. Person who become sensitised may require specialised medical management with anti-inflammatory agents or cortisone-containing emulsions.

**Eye contact:**

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Immediately flush the eyes with gently flowing lukewarm water of saline solution for 20 minutes. Obtain medical attention if necessary.

**Ingestion:**
In case of ingestion of significant quantities of the fungicide, medical advise should be sought immediately.

**Advis to physicians:**
No specific antidotes are available against dithiocarbamate poisoning. If a large amount of mancozeb has been ingested in the last few hours, and if copious vomiting has not already occurred, the stomach must be emptied and steps taken to limit gastrointestinal absorption. If the patient is fully alert and nervous system depression is not anticipated, oral administration of Syrup of Ipecac is probably the best way to empty the stomach.

**Dosage of Syrup of Ipecac:**
- **Adults and children over 12 years:** 30 ml followed by 2-3 glasses of water.
- **Children under 12 years:** 15 ml followed by 1-2 glasses of water. Children less than one year should receive only 10-10 ml and should be under direct medical supervision if at all possible.

When vomiting stops after induced emesis, give activated charcoal and cathartic orally by adding sorbitol to the charcoal slurry.

**Dosage of Activated Charcoal:**
- **Adults and children over 12 years:** 50-100 mg in 300-800 ml water.
- **Children under 12 years:** 15-30 mg in 100-300 water.

**Dosage of Sorbitol:**
Adults and given separately, it should be diluted children over 12 years:
- 1-2 mg/kg body weight t a maximum of 150 mg per dose.
- **Children under 12 years:** 1.0-1.5 mg/kg body weight to a maximum of 50 mg per dose.

If sorbitol is given separately, it should be diluted with an equal volume of water before administration. If there is any indication of central nervous system depression, or if the patient fails to vomit within 30 minutes of Syrup of Ipecac administration, measures should be taken to project the respiratory tract from aspiration of gastric contents, then the stomach should be emptied by gastric intubations, aspiration and lavage with a slurry of activated charcoal. Install activated charcoal following lavage. Unless diarrhoea has already commenced, include a cathartic to hasten elimination.

**CAUTION:**
Do not instill fluid so rapidly that overloading of the stomach leads to vomiting or regurgitation, followed by aspiration. Serious electrolyte disturbances may follow catharsis, especially in young children. If contact with the toxicant has been minimal, administration of charcoal without the cathartic, followed by careful observation of the patient, probably represent optimal management.

**SECTION 5 - FIRE-FIGHTING MEASURES**

**Extinguishing agents:**
Extinguish small fires with carbon dioxide, dry powder, or alcohol-resistant foam. Extinguish large fires with carbon dioxide, dry powder, or alcohol-resistant foam. Water spray can be used for cooling of unaffected stock, but avoid water coming in contact with the product.

**Fire-fighting:**
Fight fire from maximum distance. Remove container from area if possible. Contain fire control agents for later disposal. Use a recommended extinguishing agent for the type of surrounding fire. Water can be used to cool unaffected containers. Avoid inhalation hazardous vapours. Keep upwind.

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

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

**SECTION 6 - ACCIDENTAL RELEASE MEASURES (SPILLAGE)**

**Personal precautions:**
Avoid contact with skin and eyes. Do not breathe in fumes. For personal protection see Section 8

**Environmental precautions:**
Do not allow to enter drains or water courses. When the product contaminates public waters, inform appropriate authorities immediately in accordance with local regulations.

**Occupational spill:**
For small dry spills, sweep up with damp earth or sand or other suitable absorbent, such as saw dust, taking care not to raise a dust cloud. Place the material into a clean, dry container and cover for subsequent disposal. All contaminated cleaning materials should be placed in closable receptacles. In situations where product comes in contact with water, contain contaminated water for disposal. Do not flush spilled material into drains. Keep spectators away and upwind.
Large spills:
Do NOT wash away into sewer. Sweep spilled substance into sealable containers; if appropriate, moisten first to prevent dusting. Carefully collect remainder, then remove to safe place (extra personal protection: P2 filter respirator for harmful particles).

SECTION 7 - HANDLING AND STORAGE REQUIREMENTS

Handling:
Avoid contact with eyes, prolonged contact with skin, and inhalation of dust and vapour. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking or using the toilet. Remove clothing immediately if the products 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:
Keep out of reach of unauthorized persons, children, and animals. Store in its original labeled container in shaded, well-ventilated area. Away from heat, sparks and other sources of ignition – NO SMOKING. Store in dry area and protect from temperatures below 0 ºC and above 50 ºC. Avoid breaking the containers, spillages or leaks. 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. Local regulations should be complied with.

SECTION 8 - EXPOSURE CONTROL/PERSONAL PROTECTION

Occupational exposure limits:
OSHA
Ceiling value : 5 mg/cu / Manganese's cmpd, as MN/
TLV
Not established

Engineering and control measures:
It is essential to provide adequate ventilation. The measures appropriate for a particular worksite depend 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 REQUIREMENT:
Respirator:
An approved full face respirator suitable for protection from dusts and mists of pesticides is required. Limitations of respirator use specified by approving agency and the manufacturer must be observed.

Clothing:
Employee must wear appropriate protective (impervious) clothing boots, hat and equipment to prevent repeated or prolonged skin contact with this substance. Do not wear leather clothing.

Gloves:
Employee must wear appropriate chemical resistant protective gloves 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.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Pale yellow powder.
Odour: Musty.
Explosive properties: Dust-air mixtures may explode when in contact with moist.
Flammability: No data
Flash point: Not applicable
Oxidising properties: Not-oxidising
PH: ± 6.85 (1% in water)
Relative density: Tap density is 0.67
Partition-coefficient: No data available
Solubility in water: Will disperse in water.

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SECTION 10 - STABILITY AND REACTIVITY

Stability:
Stable, for two years under normal, dry storage conditions in originally unopened packages. Slowly decomposed by heat and moisture.

Incompatibility:
Incompatible with oxidizing materials and acids. The product is compatible with many other pesticides when used at normal rates. However, a compatible test is required before using with other products. Do not physically mix concentrate directly with other herbicides or pesticide concentrates; always dilute first.

Thermal decomposition:
Formation of toxic oxides of carbon, nitrogen and sulphur on heating.

SECTION 11 - TOXICOLOGICAL INFORMATION

Acute oral LD₅₀:
> 2 500 mg/kg in rats

Acute dermal LD₅₀:
≥ 2 500 mg/kg in rabbits

Acute inhalation LD₅₀:
5.26 g/m³ in rats

Acute skin irritation:
Non-irritant

Acute eye irritation:
Very slightly irritant for eyes. (rabbits), effect is reversible.

Dermal sensitization:
The product provokes mild dermal sensitisation (Guinea pigs).

Carcinogenicity:
Animal studies did not detect any carcinogenic activity. No human data available.

Teratogenicity:
Animal studies did not detect any teratogenic activity. No human data available.

Mutagenicity:
Results taken from animal studies suggest that the product induces large-scale chromosomal aberrations, rather than small aberrations or points mutations.

SECTION 12 - ECOLOGICAL INFORMATION

EcoToxicology:

Birds: Practically non-toxic to birds.
Acute oral LD₅₀: >2000 mg/kg (Japanese quail)

Fish:
Toxic to fish
96 hours LD₅₀: 4600 µg/l (Rainbow trout)
666.6 µg/l (Carp)

Bees:
Non-toxic to bees
Contact LD₅₀ (24h and 48h): >100µg/bee
Oral LD₅₀ (24h and 48h): >129.0µg/bee

Daphnia:
Toxic to Daphnia magna
EC₅₀ (48h): 900µg/l

Algae (Selenastrum capricornutum):
Toxic to algae.
EbC₅₀ (0-72h; inhabitation of growth): 0.011 mg/l
ErC₅₀ (0-72h; inhabitation of growth rate): 1.16 mg/l

Earthworms:
Low toxicity to Eisenia fetida
LC₅₀ (14d): >1000 mg/kg

Soil micro-organisms:
Not-toxic to a range of soil micro-organisms.

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

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

Accumulation:
The product shows little tendency to bio accumulate

German wgk:
Not listed

SECTION 13 - DISPOSAL CONSIDERATION

Pesticide disposal
Contaminated absorbents, used containers, surplus product, etc., should be burnt at > 1000°C in an incinerator, preferably designed for
SECTION 14 - TRANSPORT INFORMATION

UN NUMBER: 3077
ADR/RID:
Substance: Environmentally hazardous substance, solid, n.o.s (Mancozeb 80%)
Substance ID no.: 3077
Hazard ID no.: 90
Label: 9
Item no.: 11%
IMDG/IMO:
Packaging group: III
Label of class: 9 MARINE POLLUTANT
Shipping name: Environmentally hazardous substance, solid, n.o.s (Mancozeb 80%)
ICAO/IATA:
Shipping name: Environmentally hazardous substance, solid, n.o.s (Mancozeb 80%)
Class: 9
Hazard Label: Miscellaneous.
Packaging group: III
Passenger Aircraft: Y911 (max 30 kg Gross weight)
911 (No Limit)
Cargo Aircraft: 911 (No Limit)
UK Classification: Not available.
Tremcard number: 90GM7-III
This product is considered a Marine Pollutant.

SECTION 15 - REGULATORY INFORMATION

Symbol: Xi
Risk phrases: R37 Irritating to respiratory system.
R 43 May cause sensitization by skin contact.
Safety phrases: S 2 Keep out of the reach of children
S 8 Keep container dry.
S24/25 Avoid contact with skin and eyes.
S 46 If swallowed seek medical advice immediately and show this container and label.

SECTION 16 - OTHER INFORMATION

Disclaimer:
The information on this sheet is not a specification; it does not guarantee specific properties. The information is intended to provide general guidance as to health and safety based upon our knowledge of the handling, storage use of the product. It is not applicable to unusual or non-standard uses of the product nor where instructions or recommendations are not followed.
All information is given in good faith but without guarantee in respect of accuracy, and no responsibility is accepted for errors and omissions or the consequence thereof.