

SAFETY DATA SHEET

SECTION 1

IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **Apparent Mancozeb 750 WG Fungicide**

Other Names: An dithiocarbamate fungicide, Group M3 Fungicide.
Use: Agricultural fungicide for a broad range of crops.
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SECTION 2

HAZARDS IDENTIFICATION

**Classified as hazardous according to criteria of Safe Work Australia.
Not classified as a Dangerous Good according to the ADG Code.**

GHS classification of the substance/mixture

Sensitization – Skin: Hazard Category 1, 1A, 1B.

Toxic to Reproduction: Hazard Category 2.

Hazardous to the Aquatic Environment – Acute Hazard: Hazard Category 1.

Signal Word: WARNING.

Hazard statements:

- H317 May cause an allergic skin reaction.
- H361 Suspected of damaging fertility or the unborn child.
- H400 Very toxic to aquatic life.

Precautionary Statements:

Prevention:

- P201 Obtain special instructions before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P261 Avoid breathing mist, vapours or spray.
- P272 Contaminated work clothing should not be allowed out of the workplace.
- P273 Avoid release to the environment.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P281 Use personal protective equipment as required.

Response:

- P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
- P308 + P313 IF exposed or concerned: Get medical advice/ attention:
- P321 Specific treatment (see Safety Directions on the product label).
- P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.
- P363 Wash contaminated clothing before reuse.
- P391 Collect spillage.

Storage & Disposal:

- P405 Store locked up.
- P501 Dispose of contents/container in accordance with national regulations.

SECTION 2 HAZARDS IDENTIFICATION (Continued)

Pictograms:

**SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS**

Ingredients:

CHEMICAL	CAS NUMBER	PROPORTION
Mancozeb	8018-01-7	750 g/kg
Other ingredients determined not to be hazardous		Balance

SECTION 4 FIRST AID MEASURES**FIRST AID**

- Ingestion:** If swallowed do NOT induce vomiting. Wash mouth with water. If poisoning occurs, contact a Doctor or Poisons Information Centre. Phone 131 126. Avoid giving alcohol.
- Eye contact:** Brush granules gently away. Hold eyes open and flood with clean water. Ensure irrigation under eyelids by occasionally lifting them. Do not try to remove contact lenses unless trained. If irritation persists, seek medical advice.
- Skin contact:** Brush granules gently off clothing and skin. Remove contaminated clothing. Wash skin thoroughly with soap and water. If skin is irritated, seek medical advice.
- Inhalation:** Remove to fresh air and observe until recovered. If effects persist, seek medical advice.
- Advice to Doctor:** Mancozeb has low acute oral and dermal toxicity. There is no specific antidote available. Treat symptomatically.

SECTION 5 FIRE FIGHTING MEASURES

Specific Hazard: Generally considered a low risk.

Extinguishing media: Extinguish fire using carbon dioxide, foam or dry agent. If not available, use waterfog or fine water spray but ensure all runoff is contained. Contain all runoff.

Hazards from combustion products: On heating will emit irritating and toxic fumes. The formation of hydrogen sulphide, carbon disulfide, sulphur oxides and carbon oxides can be expected in a fire situation. Firefighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to vapour or smoke. Finely dispersed particles may form explosive mixtures in air.

Precautions for fire-fighters and special protective equipment: Isolate fire area. Evacuate downwind residents. Wear full protective clothing and self-contained breathing apparatus. Do not breathe smoke or vapours generated.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Emergency procedures: Wear cotton overalls over normal clothing, buttoned to the neck and wrist and washable hat, elbow-length PVC gloves, goggles, and disposable dust mask covering mouth and nose. In the case of spillage, contain spilled material. Collect recoverable product for use as labelled on the product. Vacuum, shovel or pump contaminated spilled material into an approved container and dispose of waste as per the requirements of Local or State Waste Management Authorities. Keep out animals and unprotected persons. Finely dispersed particles may form explosive mixtures in air.

Material and methods for containment and cleanup procedures: To clean spill area, tools and equipment, wash with a solution of soap, water and acetic acid/vinegar. Follow this with a neutralisation step of washing the area with a bleach or caustic soda ash solution. Finally, wash with a strong soap and water solution. Absorb, as above, any excess liquid and add both solutions to the drums of waste already collected.

SECTION 7**HANDLING AND STORAGE**

Precautions for Safe Handling: No smoking, eating or drinking should be allowed where material is used or stored. May irritate the eyes and skin. Repeated exposure may cause allergic disorders. Avoid contact with eyes and skin. DO NOT inhale dust. Wash hands after use. When opening the container and preparing spray, wear cotton overalls over normal clothing, buttoned to the neck and wrist and washable hat, elbow-length PVC gloves, goggles, and disposable dust mask covering mouth and nose. When using the prepared spray, wear cotton overalls over normal clothing, buttoned to the neck and wrist and a washable hat and elbow-length PVC gloves. After each day's use, wash gloves, goggles and contaminated clothing.

Conditions for Safe Storage: Do not store for prolonged periods in direct sunlight. Store in the closed, original container in a well ventilated area away from children, animals, food, feedstuffs, seed and fertilisers. Not classified as a Dangerous Good by the ADG. This product is a Schedule 5 Poison (S5) and must be stored, transported and sold in accordance with the relevant Health Department regulations.

SECTION 8**EXPOSURE CONTROLS / PERSONAL PROTECTION****Exposure Guidelines:**

No exposure guidelines have been established for this product by Safe Work Australia.

Biological Limit Values:

No biological limit allocated.

Engineering Controls:

Keep containers closed when not in use. No special engineering controls are required, however make sure that the work environment remains clean and that dust is minimised.

Personal Protective Equipment (PPE):

General: When opening the container and preparing spray, wear cotton overalls over normal clothing, buttoned to the neck and wrist and washable hat, elbow-length PVC gloves, goggles, and disposable dust mask covering mouth and nose. When using the prepared spray, wear cotton overalls over normal clothing, buttoned to the neck and wrist and a washable hat and elbow-length PVC gloves. After each day's use, wash gloves, goggles and contaminated clothing.

Personal Hygiene: May irritate the eyes and skin. Repeated exposure may cause allergic disorders. Avoid contact with eyes and skin. DO NOT inhale dust. Wash hands after use. Clean water should be available for washing in case of eye or skin contamination. Wash skin before eating, drinking or smoking. Shower at the end of the workday.

SECTION 9**PHYSICAL AND CHEMICAL PROPERTIES**

Appearance:	Yellow to brown coloured granules.
Odour:	Musty, sulphurous type odour.
Boiling point:	Not applicable – solid at room temperature.
Freezing point:	Not applicable – solid at room temperature.
Specific Gravity:	No data.
Solubility in Water:	Disperses in water.
pH:	No data available.
Flammability:	Not flammable.
Corrosive hazard:	Not available.
Flashpoint (°C):	Not flammable.
Poisons Schedule:	This product is a Schedule 5 (S5) poison.
Formulation type:	Water Dispersible Granule.

SECTION 10**STABILITY AND REACTIVITY**

Chemical Stability: Product is considered stable in ambient conditions for a period of up to 2 years after manufacture. Product must be used within 2 years of manufacture.

Conditions to avoid: Do not store for prolonged periods in direct sunlight. Keep away from moisture, heat and flames.

SECTION 10 STABILITY AND REACTIVITY (Continued)

Incompatible materials: Strong acids and oxidising agents.

Hazardous decomposition products: When involved in a fire will emit toxic and noxious fumes containing hydrogen sulphide, carbon disulfide, sulphur oxides and carbon oxides.

Hazardous reactions: No particular reactions to avoid. Hazardous polymerisation is unlikely to occur.

SECTION 11 TOXICOLOGICAL INFORMATION

No specific data is available for this product as no toxicity tests have been conducted on this product. Information presented is our best judgement based on similar products and/or individual components. As with all products for which limited data is available, caution must be exercised through the use of protective equipment and handling procedures to minimise exposure.

Mancozeb, the active ingredient in this product, has been extensively tested on laboratory mammals and in test-tube systems. At high levels mancozeb affects the thyroid, liver, and nervous system in laboratory animals. The thyroid and liver effects are due to its metabolism in small amounts to ethylenethiourea (ETU), which interferes with thyroid hormone synthesis and induces stress-related liver growth. No evidence of mutagenic effects was obtained. ETU, a trace contaminant and breakdown product of mancozeb, has caused thyroid and pituitary tumours, which occurred at dose levels higher than likely human expose levels for the use of this product. ETU has caused birth defects in laboratory mammals at high dose levels that interfered with normal thyroid function.

Potential Health Effects:

ACUTE EFFECTS

Swallowed: Very low acute oral toxicity. Acute oral LD₅₀ > 5000 mg/kg (rat).

Eye: This product may cause eye irritation. Symptoms may include stinging and reddening of eyes and watering. If exposure is brief, symptoms should disappear once exposure has ceased.

Skin: Very low acute dermal toxicity. Acute dermal LD₅₀ > 10,000 mg/kg (rat). May cause mild irritation and sensitisation of the skin. Some workers with occupational exposure may develop skin sensitization.

Inhaled: Probably an inhalation irritant.

Long Term Exposure:

Chronic toxicity: No toxicological effects were apparent in rats in a long-term study. Impaired thyroid function was observed as lower iodine uptake after 24 months in dogs fed doses of 2.5 and 25 mg/kg/day of Mancozeb, but not in those dogs fed 0.625 mg/kg/day.

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 goitre, a condition in which the thyroid gland is enlarged, ETU has produced birth defects and cancer in experimental animals. The main target organ of Mancozeb is the thyroid gland; the effects may be due to the metabolite ETU.

Reproductive effects: In a three-generation rat study with Mancozeb there was reduced fertility but no indication of embryotoxic effects. It is unlikely that Mancozeb will produce reproductive effects in humans under normal circumstances. However, Safe Work Australia has classified this material as a category 3 material - toxic to reproduction. The agents in category 3 are possible or uncertain reproductive hazards. They are suspected to affect reproductive health but the data are insufficient. The existing data are from animal studies with no human data available.

Teratogenic effects: No teratogenic effects were observed in a three-generation rat study with Mancozeb. Developmental abnormalities were observed in rats given a very high dose of 1320 mg/kg of Mancozeb on the 11th day of pregnancy.

Mutagenic effects: 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. The data on mutagenicity are inconclusive but suggest that Mancozeb is either not mutagenic or weakly mutagenic.

SECTION 11 TOXICOLOGICAL INFORMATION (Continued)

Carcinogenic effects: No data are available regarding Mancozeb. Studies of other EBDCs indicate they are not carcinogenic. ETU has caused cancer in experimental animals at high doses. Thus, the carcinogenic potential of Mancozeb is not currently known.

Fate in humans and animals: Mancozeb is rapidly absorbed into the body from the gastrointestinal tract, distributed to various target organs, and almost completely excreted in 96 hours. ETU is the major Mancozeb metabolite of toxicological significance, with carbon disulfide as a minor metabolite.

SECTION 12 ECOLOGICAL INFORMATION

Environmental Toxicology: Mancozeb is not harmful to birds, with dietary LC₅₀ values in bobwhite quail and mallard ducklings of greater than 10,000 ppm. The 10-day dietary LC₅₀ values of 6400 ppm and 3200 ppm are reported for mallard ducks and Japanese quail, respectively. Mancozeb is moderately to highly toxic to fish and aquatic organisms with LC₅₀ = 2.2 mg/L (48 hr) Rainbow trout; LC₅₀ = 4 mg/L (48 hr) Carp; LC₅₀ = 5.2 mg/L (48 hr) Cat fish; LC₅₀ = 9 mg/L (48 hr) Gold fish; LC₅₀ = 40 mg/L (72 hr) Crayfish. Mancozeb is not toxic to honeybees.

Environmental Fate:

Mancozeb is of low soil persistence, with a reported field half-life of 1 to 7 days. Mancozeb rapidly and spontaneously degrades to ETU in the presence of water and oxygen. ETU may persist for longer, in the order of 5 to 10 weeks. Because Mancozeb is practically insoluble in water, it is unlikely to infiltrate groundwater. Mancozeb degrades in water with a half-life of 1 to 2 days in slightly acidic to slightly alkaline conditions.

SECTION 13 DISPOSAL CONSIDERATIONS

Spills and Disposal: Persons involved in cleanup require adequate skin protection - see Section 8. In case of spillage, contain spilled material and dispose of waste as indicated below or in accordance to the Australian Standard 2507- Storage and Handling of Pesticides. Keep out animals and unprotected persons. Keep material out of streams and sewers. Vacuum, shovel or pump waste into an approved drum. To decontaminate spill area, tools and equipment, wash with detergent and water and add the solution to the drums of wastes already collected and label contents. Dispose of drummed wastes, including decontamination solution in accordance with the requirements of Local or State Waste Management Authorities.

Disposal of empty containers: Puncture or shred and deliver empty packaging for appropriate disposal at an approved waste management facility. If an approved waste management facility is not available, bury the empty packaging 500 mm below the surface in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots, in compliance with relevant Local, State or Territory government regulations. DO NOT burn empty containers or product.

SECTION 14 TRANSPORT INFORMATION

Road & Rail Transport: This product is not classified as a Dangerous Goods under the Australian Code for the Transport of Dangerous Goods by Road and Rail.

Marine and Air Transport: Apparent Mancozeb 750 WG Herbicide is classified as a Marine Pollutant according to International Maritime Dangerous Goods (IMDG) Code and the International Air transport Association (IATA). If transporting by sea or air the following Dangerous Goods Classification applies:- UN 3077, Class 9 (Miscellaneous Dangerous Goods), Packing Group III, Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Contains 80% Mancozeb). Hazchem code 2Z. Hazard Identification Number (HIN) 90. Australian Standards Initial Emergency Response Guide No. 47.

SECTION 15**REGULATORY INFORMATION**

Under the Standard for Uniform Scheduling of Medicines and Poisons (SUSMP), this product is a Schedule 5 poison (S5).

This product is registered under the Agricultural and Veterinary Chemicals Code Act 1994. Product Registration No. 65666.

This product is classified as a Hazardous Substance under the criteria of Safe Work Australia. Xn: Harmful.

This product is not classified as a Dangerous Good according to the ADG Code (7th Ed).

This product is classified as a Dangerous Good according to the IMDG and IATA.

Requirements concerning special training:

Check State or Territory regulations that require people who use pesticides in their job or business to have training in the application of the materials.

SECTION 16**OTHER INFORMATION**

Issue Date: 8 April 2016. Valid for 5 years till 8 April 2021 (5 year update + GHS).

Key to abbreviations and acronyms used in this SDS:

ADG Code Australian Dangerous Goods Code (for the transport of dangerous goods by Road and Rail).

Carcinogen An agent which is responsible for the formation of a cancer.

EBDC Ethylenebisdithiocarbamates are a group of non-systemic (surface acting) fungicides.

Genotoxic Capable of causing damage to genetic material, such as DNA.

NOHSC National Occupational Health and Safety Commission.

OCS Office of Chemical Safety.

PPE Personal protective equipment.

Teratogen An agent capable of causing abnormalities in a developing foetus.

TWA The Time Weighted Average airborne concentration over an eight-hour working day, for a five day working week over an entire working life.

Safe Work Australia: Formally known as Australian Safety & Compensation Council (ASCC) which was formally known as the National Occupational Health & Safety Commission (NOHSC).

References

1. "Search Hazardous Substances". Safe Work Australia website. (2016).
2. "Approved Criteria for Classifying Hazardous Substances" 3rd Ed. NOHSC Australia. [NOHSC:1008 (2004)]. October 2004.
3. Globally Harmonized System of Classification and Labelling of Chemicals (GHS). United Nations, 2009.

This SDS summarises 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 SDS 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 clarification or further information is needed to ensure that an appropriate risk assessment can be made, the user should contact this company.

End SDS