

VILLA BENOMYL 500 WP

MATERIAL SAFETY DATA SHEET

1. IDENTIFICATION OF PRODUCT AND COMPANY

Product Name: BENOMYL 500 WP
 Fungicide
UN No. 3077
Supplier: Villa Crop Protection (Pty) Ltd.
 PO Box 10413
 Aston Manor, 1630, South Africa
Telephone: (011) 3962233
Fax: (011) 3964666
Website: www.villacrop.co.za

Emergency telephone numbers:

24 Hr Transport / Spill emergency no:

Envirosure. +27 31 205 4918
 (Hazcall24) +27 86 044 4411

(Client: Villa Crop Protection)

Griffon Poison Information Centre +27 82 446 8946

(Client: Villa Crop Protection)

Poisoning Emergency telephone numbers:

Griffon Poison Information Centre +27 82 446 8946
 Poisons Information Centre +27 861 555 777

Villa Crop Protection Emergency number:

National Safety, Health and Environmental Manager:
 +27 63 698 0668

2. COMPOSITION / INFORMATION ON INGREDIENTS

Common Name: BENOMYL
Chemical Name: Methyl 1-(butylcarbamoil) benzimidazol-yl carbamate (IUPAC)
CAS No.: 17804-35-2
Chemical family: Benzimidazole
Chemical formula: C₁₄H₁₈N₄O₃
Molecular weight: 290.3
Use: Systemic fungicide with protective and curative action.
Formulation: BENOMYL 500 g/kg Wettable powder
Hazardous components: BENOMYL 500 g/kg.
SYMBOLS: Xn
RISK PHASES: R22, R36/37, R40, R51

3. HAZARD IDENTIFICATION

Likely routes of exposure: Ingestion, skin and eye contact.

Eye contact: Mild eye irritant.

Skin contact: Mild irritant. Very low toxicity by contact. Moderate sensitizer. Repeated exposure to product may cause temporary allergic skin reaction.

Ingestion: Very low toxicity.

Inhalation: Mild irritant to the nose, throat and respiratory system. Low to moderately toxic.

4. FIRST AID MEASURES AND PRECAUTIONS

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: Move the victim to fresh air or remove source of contamination. Monitor for respiratory distress. Administer oxygen or artificial respiration if needed. Seek medical attention if necessary.

Skin contact: Move the victim to fresh air and remove all contaminated clothing, shoes and leather goods. Gently wipe off excess chemical. Wash affected skin areas gently and thoroughly with water and non-abrasive soap. Do not rub the skin. If irritation persists, seek medical advice. Allergic skin reaction should be treated as an allergic contact dermatitis with anti-inflammatory agents or cortisone-containing emulsions. Wash contaminated clothing thoroughly.

Eye contact: Immediately flush the eyes with gently flowing lukewarm water or saline solution for 20 minutes. Seek medical attention if necessary.

Ingestion: Product is not likely to be hazardous. No specific intervention is indicated. In case of ingestion, do not induce vomiting. Wash mouth with water and give a glass of water to drink. Seek medical advice immediately.

Advice to physician: No specific antidotes. Treat symptomatically. If BENOMYL has been ingested, and copious vomiting has not occurred, the stomach must be emptied and steps taken to limit gastrointestinal absorption.

Note the nature of this product.

5. FIRE FIGHTING MEASURES

Fire and explosion hazard: Product is not flammable. Dust particles may form explosive mixtures in air.

Special Hazards: Fire may produce poisonous gases of combustion, namely n-butylisocyanate.

Lower explosive limit: 0.08 g/l.

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 water coming in contact with the product. Contain water used for fire fighting for later disposal. Avoid the accumulation of polluted run-off from the site.

Firefighting: Remove spectators from surrounding area. Isolate the fire area and evacuate downwind. Use a recommended extinguishing agent for the type of surrounding fire.

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Fight fire from maximum distance and use unmanned hose holder or monitor nozzles. Contain fire control agents for later disposal. Avoid inhaling hazardous vapours. Keep upwind.

Remove container from fire area if possible and without risk. Water can be used to cool unaffected containers but must be contained for later disposal.

Dyke fire control water for later disposal. Do not scatter the material. Avoid pollution of waterways.

Do not use high volume water jet, due to contamination risk. Contain water used for fire fighting for later disposal.

Avoid the accumulation of polluted run-off from the site.

Personal protective equipment:

Fire fighters and others that may be exposed should wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES (SPILLAGE)

Personal precautions: Do not inhale dusts. Ventilate area of spill or leak, especially confined areas. Avoid contact with skin, eyes or clothes. For personal protection see Section 8.

Environmental precautions: Do not allow entering drains or watercourses. Spillage or uncontrolled discharges into water courses (or public waters) to be reported immediately to the Police and to the Department of Water/Environmental Affairs.

Occupational spill: For dry spills, shovel up and sweep up with damp earth or sand or other suitable absorbents, taking care not to raise a dust cloud. Place the material into a labelled, clean, dry container and cover for subsequent disposal; and store in a safe place to await proper disposal. All contaminated cleaning materials should be placed in closable receptacles.

In situations where product comes in contact with water, contain contaminated water for later disposal. Do not flush spilled material into drains. Do not contaminate water while cleaning equipment or disposing of wastes. Keep spectators away and upwind.

7. HANDLING AND STORAGE REQUIREMENTS

Handling: Remove sources of naked flame or sparks. Avoid contact with eyes and skin and inhalation of dust and fumes. Use with adequate ventilation. Wash hands before eating, drinking, chewing gum, smoking or using the toilet. Operators should change and wash clothing daily. Remove clothing immediately if the insecticide 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 container in isolated, dry, cool and well-ventilated area. Keep from contact with other pesticide, fertilizers and seeds during storage. Store away from incompatible substances. Product is incompatible with alkaline media. Not to be stored next to foodstuffs and water supplies. Keep under lock and key out of reach of unauthorized persons, children and animals. Local regulations should be complied with.

Storage stability: Considered stable for a period of 2 years in normal air, warehouse and light conditions, if kept in closed container.

8. EXPOSURE CONTROL / PERSONAL PROTECTION

Occupational exposure limits:

OSHA PEL: 15 mg/m³ - Total dust.

ACGIH TLV 10 mg/m³

Engineering control measures: It is essential to provide adequate ventilation to keep airborne concentrations of **BENOMYL 500 WP** dust below permissible exposure levels. The measures appropriate for a particular work site depend on how this material is used and on the extent of exposure. Ensure that control systems are properly designed and maintained. Only spark-resistant equipment should be used. 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 equipment including approved respiratory protection.

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

Clothing: Employee must wear appropriate protective (impervious) clothing and equipment to prevent skin contact with the substance.

Gloves: Employee must wear appropriate chemical resistant protective gloves to prevent contact with this substance.

Eye protection: Employee must wear splash-proof safety goggles and face-shield to prevent contact with this substance.

Emergency eyewash: 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.

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9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Solid off-white fine powder.
Odour: Weak chemical odour.
Flash point: Not applicable.
Auto-ignition temperature: 220 °C.
Solubility in water: Wettable powder formulation – dispersible.
pH: Not available.
Bulk density: 420 g/l

10. STABILITY AND REACTIVITY

Storage stability: Considered stable at normal warehouse and storage conditions, if kept in closed, original container. Stable in light. Stable for up to 2 years when stored in a dry, cool covered warehouse in original, well-labelled containers. Store at low temperature conditions, below 50°C, preferably below 30 °C and not for prolonged periods in direct sunlight.
Stability: Decomposes in strong acidic and strong basic media. Decomposes with heat. Decomposes slowly in the presence of moisture.
Incompatibility: Compatible with most other pesticides, except strong alkaline materials, when used at normal rates. However, a compatibility test is required before using with other products. Do not physically mix concentrate directly with other herbicides or pesticide concentrates; always dilute first.
Hazardous decomposition products: Toxic n-butyl isocyanate is released when the product decomposes on heating. High humidity or moisture levels and/or high temperatures can also lead to generation of n-butyl isocyanate.

11. TOXICOLOGICAL INFORMATION

Acute oral LD₅₀: (calculated) > 4 000 mg/kg in rats.
Acute dermal LD₅₀: (calculated) > 4 000 mg/kg in rats.
Acute inhalation: (calculated) LC₅₀ for rats > 2 mg/l air
Acute skin irritation: May cause irritation to skin.
Acute eye irritation: Mild irritant to eyes.
Dermal sensitization: Cause moderate dermal sensitization. Repeated exposure may cause temporary allergic reaction.
Carcinogenicity: Not listed as carcinogen by NTP, IARC, ACGIH or OSHA. However, due to conflicting results in studies, it is not possible to determine the carcinogenicity of BENOMYL.
Teratogenicity: Very high doses of BENOMYL can cause birth defects in test animals. However, the route of exposure makes a difference in the teratogenicity. US EPA listed BENOMYL as a Criteria of Concern.

Mutagenicity: Due to conflicting results in numerous assays, no conclusion can be drawn. US EPA classified BENOMYL as a Criteria of Concern.

Fate in humans and animals: BENOMYL's metabolism has been studied in mouse, rat, rabbit, dog, sheep and cow. BENOMYL is rapidly broken down to Carbendazim, further to other compounds, such as 5-hydroxy-2-benzimidazole carbamate (5 HBC), and then eliminated. BENOMYL and its metabolites do not accumulate in tissues over long-term exposure periods.
ADI: 0.02 mg/kg body weight.

12. ECOLOGICAL INFORMATION

Degradability: BENOMYL is strongly bound to soil and does not dissolve in water to any significant extent. It is highly persistent. Half-life is 6 to 12 months in bare soil. In water it completely degrades to Carbendazim. Half live of Carbendazim is 2 months in water.
BENOMYL is systemic and absorbed by plants. Once in plant, it accumulates in veins and at the leaf margins. Residues are stable; with 48 to 97% remaining as the parent compound 21 to 23 days after application.

ECOTOXICOLOGY:

Birds: Moderate toxic to birds.
 LD₅₀ (Acute oral): redwing blackbird 100 mg/kg
 LC₅₀ (8day diet) mallard ducks > 10 000 mg/kg
 bobwhite quail > 10 000 mg/kg

Fish: Toxic to fish
 LC₅₀ (96h): rainbow trout 0.27 mg/l
 goldfish 4.2 mg/l
 LC₅₀ (48h): guppy 3.4 mg/l

Bees: Not toxic to bees.
 LD₅₀ (contact) > 50 µg/g bee.

Daphnia: May not be toxic to *Daphnia magna*.
 LC₅₀ (48h): 640 µg/l

Algae: Toxic to algae
 E_{b50} (72h): 2.0 mg/l
 E_{b50} (120h): 3.1 mg/l

Earthworms:
 Very toxic to all species of earthworms.
 LC₅₀ (14days): 0.4 mg/kg

13. DISPOSAL CONSIDERATION

Pesticide disposal: Open dumping or burning of this pesticide is prohibited. Waste resulting from the use of this product that cannot be reused or reprocessed. Never pour untreated waste or surplus products into public sewers or where there is any danger of run-off or seepage into water systems. Do not contaminate rivers, dams or any other water sources with the product or used containers. Comply with local legislation applying to waste disposal.

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Package product wastes: Emptied containers retain vapour and product residues. Observe all labelled safeguards until container is destroyed. Empty the container of excess product into the container of the applicator. Destroy the emptied containers by perforation and flattening. Bury in an approved, designated landfill. Do not re-use the empty container for any other purpose. Comply with any local legislation applying to disposal.

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.

14. TRANSPORT INFORMATION

UN NUMBER: 3077
ADR/RID:
 Shipping name: Environmentally hazardous substance, solid, n.o.s (**BENOMYL 50 %**)

IMDG/IMO:
 Packaging group: III
 Class: 9
 Shipping name: Environmentally hazardous substance, solid, n.o.s (**BENOMYL 50%**)

ICAO/IATA:
 Shipping name: Environmentally hazardous substance, solid, n.o.s (**BENOMYL 50%**)
 Class: 9
 Hazard Label: Miscellaneous.
 Packaging group: III
 Passenger Aircraft: Y911 (max 30 kg)
 911 (No Limit)
 Cargo Aircraft: 911 (No Limit)

MARINE POLLUTANT

END OF DOCUMENT

Compiled: June 2001
Revised: March 2019
Revision no: (3)
Next revision: March 2024

For detailed information on revisions, contact the Registration holder.

15. REGULATORY INFORMATION

Symbol: Xn.
Indication of danger: Harmful.
Risk phrases:
R 22 Harmful if swallowed
R 36/37 Irritating to eyes and respiratory system.
R 40 Limited evidence of a carcinogenic effect.
R 51 Toxic to aquatic organisms.
Safety phrases:
S 1/2 Keep locked up and out of reach children.
S 23 Do not breathe dust and/or spray.
S 24/25 Avoid contact with skin and eyes.
S36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

16. OTHER INFORMATION

Packing and Labelling: Packed in 1 kg, 2 kg & 5 kg plastic containers; in 1 kg, 2 kg & 5 kg sealed foil bags and 20 & 25 kg woven bags or 3 ply paper bags and labelled according to South African regulations and guidelines.