

MATERIAL SAFETY DATA SHEET



Emergency Phone: 1800-033-882 (24 hrs)
Dow AgroSciences Australia Ltd.
Frenchs Forest NSW 2086

DITHANE* M45 FUNGICIDE

Effective Date: 24 March 2007
Product Code: 88788

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Dithane* M45 Fungicide

PURPOSE: Fungicide for use in horticulture and agriculture.

COMPANY IDENTIFICATION:

Dow AgroSciences Australia Ltd.
ABN 24 003 771 659
Level 5, 20 Rodborough Road,
Frenchs Forest NSW 2086

Customer Service Toll Free Number:
1800 700 096
(Mon-Fri, 8am–5pm EST)
Emergency Telephone Number:
1800 033 882
(24 hours) (EMERGENCIES ONLY)
Transport Emergency Only Dial 000

S37: Wear suitable gloves.

3. COMPOSITION/INFORMATION ON INGREDIENTS:

Ingredient	CAS #	Content
Mancozeb	008018-01-7	80%
Methenamine	000100-97-0	<10%
Balance not contributing to hazard		10-30%

4. FIRST AID:

Consult the Poisons Information Centre (131126) or a doctor in every case of suspected chemical poisoning. Never give fluids or induce vomiting if a patient is unconscious or convulsing regardless of cause of injury. If breathing difficulties occur seek medical attention immediately.

EYE: Flush eyes thoroughly with water for several minutes. Remove contact lenses after initial 1-2 minutes and continue flushing for several minutes. If effects occur, consult a physician, preferably an ophthalmologist.

SKIN: Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation persists. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles such as shoes, belts, and watchbands.

INGESTION: Call the Poisons Information Centre or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the Poisons Information Centre or doctor. Never give anything by mouth to an unconscious person.

INHALATION: Move person to fresh air; if effects occur, consult a physician.

NOTE TO PHYSICIAN: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

2. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Classified as hazardous according to the criteria of NOHSC
Not Classified as Dangerous Goods for Land Transport (see Section 14)

Potential Health Effects: May cause allergic skin reactions. May irritate upper respiratory tract and lungs. May cause slight skin and eye irritation.

RISK PHRASES:

R36 /37/38: Irritating to eyes, respiratory system and skin.
R43: May cause sensitisation by skin contact.
R50: Very toxic to aquatic organisms.

SAFETY PHRASES:

S2: Keep out of the reach of children.
S8: Keep container dry.
S16: Keep away from sources of ignition - No smoking.
S22: Do not breathe dust.
S24/25: Avoid contact with skin and eyes.

5. FIRE FIGHTING MEASURES:

FLASH POINT: 146°C (Mancozeb)

FLAMMABLE LIMITS

LFL: 160.18 g/m³
UFL: Not determined

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EXTINGUISHING MEDIA: Carbon dioxide, dry chemical, water spray, or foam. Use water spray to cool containers exposed to fire.

FIRE AND EXPLOSION HAZARDS: Particulates can become airborne. Combustion generates toxic fumes including the following: hydrogen sulfide, sulfur oxides, and carbon oxides. The minimum ignition temperature of dust cloud is 310°C. The minimum ignition temperature of dust layer is 132°C. Dusts of sufficient concentrations can form explosive mixtures with air.

FIRE-FIGHTING EQUIPMENT: Wear positive pressure self-contained breathing apparatus with full protective clothing. Remain upwind. Avoid breathing smoke.

HAZCHEM: 2X

6. ACCIDENTAL RELEASE MEASURES:

ACTION TO TAKE FOR SPILLS/LEAKS: Do not touch or walk through spilled material. Wear gloves, overall and boots. Stop further spill occurring and prevent entry into waterways and drains. **Small spills:** In case of spill on floor or paved surfaces sweep up and place in drums for disposal at a licensed local authority landfill. Spill residues may be cleaned using water and detergent. Contain and absorb wash water. Seek advice from the SDS, product label or Dow AgroSciences regarding disposal. **Large spills:** Report large spills to Dow AgroSciences Emergency Services at 1800-033-882.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

HANDLING: Keep out of reach of children. Harmful if swallowed, inhaled, or absorbed through skin. Causes eye and skin irritation. Avoid contact with eyes, skin and clothing. Users should wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.

STORAGE: Store in tightly closed original container in a cool, dry well-ventilated area out of direct sunlight when not in use. Do not store with food, feedstuffs, fertilizers and seeds. See product label for further handling/storage precautions relative to the end use of this product. Reduce stacking height where local conditions can affect packaging strength.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION:

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions

EXPOSURE GUIDELINES: Mancozeb: Dow AgroSciences Industrial Hygiene Guide is 1 mg/m³, dermal sensitizer. AIHA WEEL is 1 mg/m³, dermal sensitizer.

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne levels below the exposure guideline.

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

EYE/FACE PROTECTION: Use safety glasses.

SKIN PROTECTION: Use gloves chemically resistant to this material.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. If respiratory irritation is experienced, use an approved air-purifying respirator for dust.

APPLICATORS AND ALL OTHER HANDLERS: Refer to the product label for personal protective clothing and equipment.

9. PHYSICAL AND CHEMICAL PROPERTIES:

APPEARANCE: Yellow powdered solid
MELTING POINT: Not applicable (decomposes)
VAPOUR PRESSURE: Negligible
SOLUBILITY IN WATER: Dispersible
SPECIFIC GRAVITY: 0.35 - 0.50 g/cc (bulk density)
ODOUR: Musty
PERCENT VOLATILITY: 1% water

10. STABILITY AND REACTIVITY:

STABILITY: Material is stable under normal storage conditions. Keep away from moisture, heat or flame.

INCOMPATIBILITY: (specific materials to avoid) Avoid contact with oxidizing agents and acids.

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HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition may yield the following: carbon disulfide and hydrogen sulfide.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

EYE: May cause slight eye irritation.

SKIN: Brief contact may cause slight skin irritation with local redness. Skin contact may cause an allergic skin reaction in a small proportion of individuals. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD₅₀ for skin absorption in rabbits is >5000 mg/kg.

INGESTION: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. The oral LD₅₀ for rats is >5000 mg/kg.

INHALATION: Mist may cause irritation of the upper respiratory tract (nose and throat) and lungs.

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: Mancozeb, in animals, effects have been reported on the following organs: thyroid, liver, nervous system and eyes.

CANCER INFORMATION: Mancozeb has caused cancer in laboratory animals.

TERATOLOGY (BIRTH DEFECTS): Mancozeb has caused birth defects in laboratory animals only at doses toxic to the mother.

REPRODUCTIVE EFFECTS: Mancozeb, in animal studies, did not interfere with reproduction.

MUTAGENICITY: For mancozeb, in-vitro genetic toxicity studies were predominantly negative. Animal genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL DATA:

MOVEMENT & PARTITIONING: No relevant information found.

Expected to have low mobility in soil based on Koc of 1000. Not expected to volatilise from soils. In water, expected to adsorb to sediments and suspended solids. Not expected to volatilize from water. Estimated potential for bioconcentration is low (estimated BCF 2.1).

DEGRADATION & PERSISTENCE: Based largely or completely on information for Mancozeb.

Readily degraded by soil microorganisms. Extensively metabolised by plants. The photolysis half-life in soil is <2 days.

ECOTOXICOLOGY: Based largely or completely on information for Mancozeb.

Material is very highly toxic to aquatic organisms on an acute basis (LC₅₀ or EC₅₀ is <1 mg/L in most sensitive species tested).

Material is practically non-toxic to birds on an acute basis (LD₅₀ is >2000 mg/kg).

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: If wastes and/or containers cannot be disposed of according to the product label directions, disposal of this material must be in accordance with your local or area regulatory authorities. This information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. If the material as supplied becomes a waste, follow all applicable regional, national and local laws and regulations.

14. TRANSPORT INFORMATION:

ROAD AND RAIL TRANSPORT: Not classified as Dangerous Goods for transport by road and rail.

For **marine** and **air** transport:

UN No: 3077

Class: 9

Packing group: III

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SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (MANCOZEB)

15. REGULATORY INFORMATION:

APVMA APPROVAL NUMBER: 30598
POISON SCHEDULE: 5

16. OTHER INFORMATION:

Glossary

AIHA WEEL: American Industrial Hygiene Association's Workplace Environmental Exposure Level.

ASCC: Australian Safety and Compensation Council (formerly NOHSC: National Occupational Health and Safety Commission).

BCF: Bioconcentration Factor - a measure for the characterization of the accumulation of a chemical in an organism. It is defined as the concentration of a chemical in an organism (plants, microorganisms, animals) divided by the concentration in a reference compartment (e.g. food, surrounding water).

EC₅₀: median effective concentration. Statistically derived concentration of a substance in an environmental medium expected to produce a certain effect in 50% of test organisms in a given population under a defined set of conditions.

Explosive Limits - The range of concentrations (% by volume in air) of a flammable gas or vapour that can result in an explosion for ignition in a confined space.

K_{oc} - the organic carbon partition coefficient (mL soil water /g organic carbon).

LC₅₀ - Lethal Concentration 50%. A concentration of chemical in air or water that will kill 50% of the test organisms.

LD₅₀ - Lethal Dose-50%. The dose of a chemical that will kill 50% of the test animals receiving it.

pH - Measure of how acidic or alkaline a material is using a 1 - 14 scale. pH 1 is strongly acidic and pH 14 strongly alkaline.

Polymerisation - a chemical reaction in which small molecules (monomers) combine to form much larger molecules (polymers). A hazardous polymerisation reaction is one that occurs at a fast rate and releases large amounts of energy.

P_{ow} - The octanol-water partition coefficient is the ratio of the concentration of a chemical in octanol and in water at equilibrium and at a specified temperature. Octanol is an organic solvent that is used as a surrogate for natural

organic matter. This parameter is used in many environmental studies to help determine the fate of chemicals in the environment.

TWA - Time Weighted Average. The average concentration of a chemical in air over the total exposure time - usually an 8 hour work day.

References

AS/NZS 1715-1994 Selection Use and Maintenance of Respiratory Protective Devices.

ASNZS 1716 - 1994 Respiratory protective devices.

Australian Dangerous Goods Code

NOHSC Hazardous Substances Information System.

FOR FURTHER PRODUCT INFORMATION CALL DOW AGROSCIENCES CUSTOMER SERVICE REPRESENTATIVES TOLL FREE 1800 700 096 DURING BUSINESS HOURS.

This MSDS has been compiled using publicly available information, information provided by suppliers of ingredients used in the product and internal studies on the product and/or its ingredients.

THIS MSDS 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 BASED ON PUBLICLY AVAILABLE AND INTERNALLY AVAILABLE INFORMATION. EACH USER SHOULD READ THIS MSDS 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. THE RESPONSIBILITY FOR PRODUCTS SOLD IS SUBJECT TO OUR STANDARD TERMS AND CONDITIONS, A COPY OF WHICH IS SENT TO OUR CUSTOMERS AND IS ALSO AVAILABLE ON REQUEST.

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