

MATERIAL SAFETY DATA SHEET



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

DITHANE* RAINSHIELD NEO TEC FUNGICIDE

Effective Date: 14-Jun-07
Product Code: 106774

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Dithane* Rainshield Neo Tec Fungicide

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

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 a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not give alcohol. Do not induce vomiting unless told to do so by the poison control center 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

Potential Health Effects: May cause eye irritation with corneal injury. May cause skin irritation. Toxic to aquatic organisms.

3. COMPOSITION/INFORMATION ON INGREDIENTS:

Mancozeb:	CAS # 008018-01-7	75%
Other non-hazardous ingredients:		25%

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.

EYES: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist.

5. FIRE FIGHTING MEASURES:

FLASH POINT: Not applicable (granule)

METHOD USED: Not applicable

FLAMMABLE LIMITS:

LFL: Not determined

UFL: Not determined

EXTINGUISHING MEDIA: When product is involved in a fire use carbon dioxide, dry chemical, or foam.

FIRE & EXPLOSION HAZARDS: Toxic, flammable gases, including carbon disulfide, hydrogen sulfide and oxides of carbon, nitrogen and sulfur, as well as ethylenethiourea (ETU), will be produced under fire conditions. Chronic (long-term) exposure to ETU is associated with a number of health effects including thyroid tumors, cancer and birth defects. None of these effects are anticipated from normal occupational exposure to ETU. Short-term acute exposure to ETU, such as that likely to be experienced by HAZMAT responders or bystanders, will not result in any harmful effects. ETU is readily oxidized (under fire conditions) to ethylene urea, which is a relatively innocuous material. Fight fire from an upwind location. Consider in-house sheltering of bystanders present in the smoke shadow.

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In fire conditions, this product may smolder without the presence of open flame. These smoldering fires may be difficult to control. Use water spray to cool containers exposed to fire. Thoroughly wet all exposed material to prevent continued smoldering. Small amounts of water may appear to intensify the fire. Discontinue water spray if container integrity is lost. Under these conditions, carbon dioxide or foam may be a more effective fire control agent than water spray. Contain firefighting water for future disposal. Where conditions permit, consider ventilation and high temperature incineration of the involved product. Water used to fight the fire must be contained and collected for future safe disposal. Suspensions of Dithane dust in the air may ignite or explode. The presence of water and an external heat source (such as fire) may accelerate decomposition of this product, resulting in the generation of further heat and the formation of toxic, flammable gases. The result of this process may be continuing outbreaks of smoldering product. Under post-fire conditions, all involved material should be inspected for evidence of damage from exposure to heat and/or water. Offending bags should be opened in a well-ventilated area, the contents placed in secure containers, slurried with water and held for proper disposal.

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: Sweep up small spills and place in a suitable container for disposal. Report large spills to Dow AgroSciences at 1800-033-882. Wear protective clothing and self contained breathing apparatus if dust is present. Do not use water to clean up.

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, nose, throat 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: Product should be stored in the original container in compliance with local government regulations. Store in tightly closed original container in a cool, dry well-ventilated area out of direct sunlight when not in use. This product is combustible and should not be exposed to flames or other ignition sources. Do not allow material to become wet or overheated in storage; decomposition, impaired activity or fire may result. 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 GUIDELINE:

Mancozeb: Dow AgroSciences Industrial Hygiene Guide 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 chemical goggles.

SKIN PROTECTION: Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur.

RESPIRATORY PROTECTION: Atmospheric levels should be maintained below the exposure guideline. If respiratory irritation is experienced, use an air-purifying respirator for dust that complies with relevant Australian Standards.

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

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9. PHYSICAL AND CHEMICAL PROPERTIES:

BOILING POINT: Not applicable
MELTING POINT: 192-204°C
VAPOR PRESSURE: Negligible
VAPOR DENSITY: Not applicable
SOLUBILITY IN WATER: Dispersible
SPECIFIC GRAVITY: 0.6 – 0.7 g/cc (bulk density)
APPEARANCE: Yellow to brown granules
ODOR: Musty
PERCENT VOLATILITY: 0%
pH: Not applicable
VISCOSITY: Not applicable
EVAPORATION RATE: Not applicable

10. STABILITY AND REACTIVITY:

STABILITY: (CONDITIONS TO AVOID) 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.

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

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.

EYES: May cause severe eye irritation with corneal injury.

SKIN: Prolonged 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. Based on information for a similar material, the LD₅₀ for skin absorption in rabbits is >5,000 mg/kg.

INGESTION: Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. Based on information for a similar material, the oral LD₅₀ for rats is >5,000 mg/kg.

INHALATION: Dust may cause irritation of the upper respiratory tract (nose and throat) and lungs. For mancozeb, the LC₅₀ for rats is >5.14 mg/L for 4 hours.

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 did not interfere with reproduction in laboratory animal studies.

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

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE:

MOVEMENT & PARTITIONING:

No relevant information found.

DEGRADATION & PERSISTENCE:

Based largely or completely on information for the major component(s).

Chemical degradation: hydrolysis is expected in the environment.

Degradation is expected in the soil environment.

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 a dietary basis (LC₅₀ is >5000 ppm).

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

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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 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 by the criteria of the Australian Dangerous Goods Code (ADG) for the transport by road and rail.

AIR TRANSPORT: Not classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulation for transport by air.

MARINE TRANSPORT: Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG) for transport by sea.

UN No: 3077

Class: 9, Marine Pollutant (Mancozeb)

Packing group: III

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

15. REGULATORY INFORMATION:

APVMA APPROVAL NUMBER: 55157

POISON SCHEDULE: S5

RISK PHRASES:

R22: Harmful if swallowed.

R37: Irritating to respiratory system.

R42/43: May cause sensitization by inhalation and skin contact.

SAFETY PHRASES:

S2: Keep locked up.

S8: Keep container dry.

S46: If swallowed, seek medical advice immediately and show the container or label.

S22: Do not breathe dust.

S24/25: Avoid contact with skin and eyes.

S37: Wear suitable gloves.

S45: In case of accident or if you feel unwell, seek medical advice (show the label where possible).

16. OTHER INFORMATION:

Glossary

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.

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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
International Maritime Dangerous Goods Code.
International Air Transport Association (IATA) Dangerous Goods Regulation

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

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. 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.