

MATERIAL SAFETY DATA SHEET



Emergency Phone: 800-992-5994
Dow AgroSciences LLC
Indianapolis, IN 46268

RALLY* 40W FUNGICIDE

Effective Date: 9/26/03
Product Code: 88805
MSDS: 007705

1. PRODUCT AND COMPANY IDENTIFICATION:

PRODUCT: Rally* 40W Fungicide

COMPANY IDENTIFICATION:

Dow AgroSciences, LLC
9330 Zionsville Road
Indianapolis, IN 46268-1189

2. COMPOSITION/INFORMATION ON INGREDIENTS:

Myclobutanil:	CAS # 088671-89-0	40%
alpha-butyl-alpha-(4-chloro-phenyl)-1H-1,2,4-triazole-1-propanenitrile		
Other Ingredients, Total, Including		60%
Polyvinyl alcohol	CAS # 009002-89-5	
Kaolin Clay	CAS # 001332-58-7	
(contains crystalline silica)	CAS # 014808-60-7)	

This document is prepared pursuant to the OSHA Hazard Communication Standard (29 CFR 1910.1200). In addition, other substances not 'Hazardous' per this OSHA Standard may be listed. Where proprietary ingredient shows, the identity may be made available as provided in this standard.

3. HAZARDOUS IDENTIFICATIONS:

EMERGENCY OVERVIEW

Hazardous Chemical. Tan powdered solid with a mild odor. May cause eye irritation with corneal injury. May cause skin irritation. LD₅₀ for skin absorption is >5000 mg/kg. Oral LD₅₀ is >1000 mg/kg. Toxic to aquatic organisms and birds.

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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 moderate eye irritation with corneal injury. Dust may irritate eyes.

SKIN: Brief contact may cause slight skin irritation with local redness. Prolonged skin contact is unlikely to result in absorption of harmful amounts. The LD₅₀ for skin absorption in rabbits for a similar material is >5000 mg/kg.

INGESTION: Low toxicity if swallowed. Small amounts swallowed incidental to normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Based on information for a similar material, the oral LD₅₀ for rats is expected to be >1000 mg/kg.

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

SYSTEMIC (OTHER TARGET ORGAN) EFFECTS: For myclobutanil, in animals, effects have been reported on the following organs: testes, adrenal gland, kidney and thyroid.

CANCER INFORMATION: Myclobutanil did not cause cancer in laboratory animals. This mixture contains crystalline silica, which is listed as a carcinogen for hazard communication purposes under OSHA Standard 29 CFR Part 1910.1200. Crystalline silica is listed by IARC and NTP. Crystalline silica has been shown to cause cancer in laboratory animals and humans.

TERATOLOGY (BIRTH DEFECTS): Myclobutanil did not cause birth defects in laboratory animals. Has been toxic to the fetus in laboratory animals at doses non-toxic to the mother.

REPRODUCTIVE EFFECTS: For myclobutanil, in laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

4. FIRST AID:

EYE: 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.

SKIN: Wash skin with plenty of water.

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 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.

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

5. FIRE FIGHTING MEASURES:

FLASH POINT: Not applicable

FLAMMABLE LIMITS

LFL: Not applicable

UFL: Not applicable

EXTINGUISHING MEDIA: Use the following extinguishing media when fighting fires involving this material: carbon dioxide, dry chemical or water spray.

UNUSUAL HAZARDS: Pesticide particulates can become airborne. Combustion generates toxic fumes of the following: hydrogen chloride. Dusts at sufficient concentrations can form explosive mixtures with air. The minimum ignition temperature of dust cloud is 945°F (507°C) and of dust layer is 730°F (388°C).

FIREFIGHTING EQUIPMENT: Wear self-contained breathing apparatus (pressure demand NIOSH approved or equivalent) and full protective gear.

SPECIAL PROCEDURES: Contain run-off. Remain upwind. Avoid breathing smoke. Use water spray to cool containers exposed to fire.

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 800-992-5994. Keep dust to a minimum. Keep out of sewers and open bodies of water.

Wear appropriate protective equipment when handling a spill of this material. If exposed to material during clean-up operations see Section 4 for actions to follow. Remove all contaminated clothing promptly. Wash all exposed skin areas with soap and water immediately after exposure. Thoroughly launder clothing before reuse. Do not take clothing home to be laundered.

7. HANDLING AND STORAGE:

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

HANDLING: Do not handle material near food, feed or drinking water. Avoid high concentrations of dust in air and accumulation of dust on equipment. An airborne dust of this material can create a dust explosion. When handling and processing this material local exhaust ventilation may be required to control dust and reduce exposure to vapors. To prevent dust explosions employ bonding and grounding for operations capable of generating static electricity. Protect all equipment from explosions by following the guidelines in NFPA-68 and NFPA-69. For electrical equipment follow local codes and electrical classification NFPA-70 (the National Electrical Code), class II, division 2, group G.

STORAGE: Do not store this material near food, feed or drinking water. Store in a well-ventilated area. Store in a dry area. Store out of direct sunlight in a cool place. The minimum recommended storage temperature for this material is 34°F (1°C). The maximum recommended storage temperature for this material is 120°F (49°C).

OTHER: Completely empty bag into application equipment. Dispose empty bag in a sanitary landfill or by incineration as allowed by state and local authorities. Avoid inhalation of smoke if incinerated.

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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(S):

Kaolin: The ACGIH TLV is 2 mg/M³, respirable, A4. The OSHA PEL is 15 mg/M³ total dust and 5 mg/M³ respirable fraction.

Polyvinyl alcohol: Dow AgroSciences Industrial Hygiene Guide is 10 mg/M³.

Silica, crystalline: ACGIH TLV is 0.1 mg/M³ (respirable) for tripoli, and fused silica, 0.05 mg/M³ (respirable) for cristobalite, tridymite, and quartz. Quartz has an A2 designation. OSHA PEL is (30 mg/M³)/(%SiO₂+2) total dust, (250 mppcf)/(%SiO₂+5) or (10 mg/M³)/(%SiO₂+2) respirable for quartz, tripoli, and fused silica; the value for cristobalite and tridymite is 1/2 the value calculated from the respirable dust formula for quartz.

Myclobutanil: Dow AgroSciences Industrial Hygiene Guide is 1 mg/M³ TWA and 3 mg/M³ STEL.

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

RECOMMENDATIONS FOR MANUFACTURING, COMMERCIAL BLENDING, AND PACKAGING WORKERS:

EYE/FACE PROTECTION: Use chemical goggles.

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 a NIOSH approved air-purifying respirator.

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

9. PHYSICAL AND CHEMICAL PROPERTIES:

COLOR: Tan
STATE: Powdered solid
ODOR: Mild
pH: 7.5 to 8.5 Aqueous suspension
VISCOSITY: Not applicable
SPECIFIC GRAVITY (Water = 1): 0.3 to 0.35 g/cc (bulk density)
VAPOR DENSITY (Air = 1): Not applicable
VAPOR PRESSURE: Not applicable
MELTING POINT: Not available
BOILING POINT: Not applicable
SOLUBILITY IN WATER: Dispersible
PERCENT VOLATILITY: 0%
EVAPORATION RATE (Bac = 1): Not applicable

10. STABILITY AND REACTIVITY:

STABILITY: This material is stable under normal storage conditions.

INCOMPATIBILITY: Avoid contact with strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION:

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

12. ECOLOGICAL INFORMATION:

ENVIRONMENTAL FATE:

ECOTOXICOLOGY:

Based largely or completely on information for myclobutanil.

Material is highly toxic to aquatic organisms on an acute basis (LC₅₀ or EC₅₀ is between 0.1 and 1 mg/L in the most sensitive species tested).

Acute LC₅₀ in bluegill (*Lepomis macrochirus*) is 2.4 - 4.1 mg/L.

Acute LC₅₀ in rainbow trout (*Oncorhynchus mykiss*) is 4.2 mg/L.

Acute LC₅₀ in water flea (*Daphnia magna*) is 11 mg/L.

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Maximum acceptable toxicant concentration (MATC) in fish early life-stage study is between 0.98 - 2.2 mg/L.
Growth inhibition EC₅₀ in green alga (*Selenastrum capricornutum*) is 1.0 mg/L.
Growth inhibition EC₅₀ in alga (*Scenedesmus sp.*) is 2.655 mg/L.
Acute immobilization EC₅₀ in water flea (*Daphnia magna*) is 17 mg/L.
Acute LC₅₀ in sheepshead minnow (*Cyprinodon variegatus*) is 4.7 mg/L.
Acute LC₅₀ in saltwater mysid (*Mysidopsis bahia*) is 0.24 mg/L.
Acute EC₅₀ in shell deposition inhibition in Eastern oyster (*Crassostrea virginica*) is 0.72 mg/L.
Material is practically non-toxic to birds on a dietary basis (LC₅₀ is >5000 ppm).
Dietary LC₅₀ in bobwhite (*Colinus virginianus*) is >5000 ppm.
Dietary LC₅₀ in mallard (*Anas platyrhynchos*) is >5000 ppm.
Material is slightly toxic to birds on an acute basis (LD₅₀ is between 501 and 2000 mg/kg).
Acute oral LD₅₀ in bobwhite (*Colinus virginianus*) is 510 mg/kg.
Acute contact LD₅₀ in honeybee (*Apis mellifera*) is >100 µg/bee.

13. DISPOSAL CONSIDERATIONS:

DISPOSAL METHOD: Wastes resulting from the use of this product may be disposed of on site according to label directions or at an approved waste disposal facility. Follow all local, state, and federal requirements for disposal.

14. TRANSPORT INFORMATION:

U.S. DEPARTMENT OF TRANSPORTATION (DOT) INFORMATION:

This material is not regulated for transportation.

15. REGULATORY INFORMATION:

NOTICE: The information herein is presented in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with federal, state or provincial, and local laws. The following specific information is made for the purpose of complying with numerous federal, state or provincial, and local laws and regulations.

U.S. REGULATIONS

SARA 313 INFORMATION: This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

CHEMICAL NAME	CAS NUMBER	CONCENTRATION
MYCLOBUTANIL	088671-89-0	40%

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 (SARA Title III) and is considered, under applicable definitions, to meet the following categories:

An immediate health hazard
A delayed health hazard

CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986:

WARNING: This product contains a chemical(s) known to the State of California to be a reproductive and developmental toxic. The chemical is myclobutanil (CAS # 088671-89-0).

WARNING: This product contains a chemical known to the State of California to cause cancer. The chemical is crystalline silica (CAS # 014808-60-7).

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TOXIC SUBSTANCES CONTROL ACT (TSCA): All ingredients are on the TSCA inventory or are not required to be listed on the TSCA inventory.

STATE RIGHT-TO-KNOW: The following product components are cited on certain state lists as mentioned. Non-listed components may be shown in the composition section of the MSDS.

CHEMICAL NAME	CAS NUMBER	LIST
MYCLOBUTANIL	088671-89-0	NJ2

NJ2=New Jersey Environmental Hazardous Substance (present at greater than or equal to 1.0%).

OSHA HAZARD COMMUNICATION STANDARD: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) RATINGS:

Health	2
Flammability	1
Reactivity	0

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, or SUPERFUND): To the best of our knowledge, this product contains no chemical subject to reporting under CERCLA.

16. OTHER INFORMATION:

MSDS STATUS: Moved to DAS Format
Reference: DR-0381-6180
Replaces MSDS Dated: 6/1/01
Document Code: D03-867-002
Replaces Document Code: D03-867-001

The Information Herein Is Given In Good Faith, But No Warranty, Express or Implied, Is Made. Consult Dow AgroSciences for Further Information.