



MATERIAL SAFETY DATA SHEET FOR

MATERIAL IDENTIFICATION

NUMBER : M0000007
 NAME : Benomyl 50 W Fungicide
 GRADE : 50% Formulation
 CHEMICAL FAMILY : Benzimidazole
 CAS NAME : Methyl 1-(butylcarbamoyl)-2-benzimidazolecarbamate
 MANUFACTURER/DISTRIBUTOR : E.I. du Pont de Nemours & Co., Inc.
 1007 Market Street
 Wilmington, DE
 19898

PRODUCT INFORMATION PHONE : 1-(800)441-7515
 TRANSPORTATION EMERGENCY PHONE (CHEMTREC) : 1-(800)424-9300
 MEDICAL EMERGENCY PHONE : 1-(800)441-3637

HAZARDOUS COMPONENTS

Material	CAS Number	%
Benomyl	17804-35-2	50

PHYSICAL DATA

Melting Point : Decomposes
 Vapor Pressure : Nil mm Hg
 Solubility in Water : Disp.
 Odor : None
 Form : Solid
 Color : Off-white
 Bulk Density 24 lb/cu. ft.

HAZARDOUS REACTIVITY

Instability : Stable.
 Incompatibility : None reasonably foreseeable.
 Decomposition : Decomposes with heat. Hazardous gases produced are n-butyliisocyanate, a strong lachrymator.
 Polymerization : Polymerization will not occur.

FIRE AND EXPLOSION DATA

Autoignition Temperature : 220 deg C.
 Lower Explosive Limit: 0.08 g/L. May be ignited by heat or open flame.

FIRE AND EXPLOSION HAZARDS

THE DATA IN THIS MATERIAL SAFETY DATA SHEET RELATES ONLY TO THE SPECIFIC MATERIAL DESIGNATED HEREIN AND DOES NOT RELATE TO USE IN COMBINATION WITH ANY OTHER MATERIAL OR IN ANY PROCESS

(FIRE AND EXPLOSION DATA - CONTINUED)

Dust forms explosive mixture with air. Hazardous gases produced in fire are n-butyliisocyanate.

EXTINGUISHING MEDIA

Water Spray. Dry Chemical.

SPECIAL FIRE FIGHTING INSTRUCTIONS

Evacuate personnel to a safe area. Keep personnel removed & upwind of fire. Wear self-contained breathing apparatus. Use water spray. Cool tank/container with water spray.

HEALTH HAZARD INFORMATION

Principal Health Hazards

CAUTION! May irritate eyes, nose, throat and skin.

ROUTES OF EXPOSURES AND EFFECTS:

INGESTION-(fasted rats): LD50 is greater than 10,000 mg/kg (male and female).

INHALATION-(4 hour exposure, rat): LC50 is greater than 2 mg/L (dry product).

SKIN IRRITATION AND SENSITIZATION-(Rabbit): LD50 is greater than 10,000 mg/kg (male guinea pig); application to shaved skin with formulated product (in distilled water) produced moderate sensitization.

EYE IRRITATION-(Rabbit): 10 mg of dry 50% powder or 0.1 ml of 10% suspension in mineral oil caused only temporary mild conjunctival irritation.

Other Health Hazards

CHRONIC STUDIES:

FEEDING STUDIES: (rat, dog): In two-year feeding studies (with 2,500 ppm, the highest dietary level), the no observable effect level was 2,500 ppm for rats and 500 ppm for dogs. In dogs fed 2,500 ppm, there was biochemical evidence of impaired liver function and histologic evidence of liver cirrhosis. No oncogenic effects were observed in either rats or dogs. In a two-year feeding study with mice, the no-observable effect level was 500 ppm except for changes in the liver. Oncogenic effects were observed in the liver of male and female mice at all dietary levels (500 to

(HEALTH HAZARD INFORMATION - CONTINUED)

5,000 ppm).

REPRODUCTION: (3 generations): No adverse effect on reproduction performance at dietary levels as high as 2,500 ppm; no pathological changes found in tissues from weanling pups of F3B generation (2,500 ppm).

TERATOGENICITY: (rat, rabbit): Not embryotoxic or teratogenic to rats by dietary administration at levels as high as 5,000 ppm (equivalent to 373 mg/kg/day, approx.). By gavage, statistically significant teratogenic response was obtained at dose levels of 62.5 mg/kg/day and above, but not at 30 mg/kg/day and below. No teratogenic effects were found in studies with rabbits fed 500 ppm in the diet (equivalent to 20 mg/kg/day, approx.).

MUTAGENICITY: Negative results were obtained in the following assays: Host mediated assay; CHO point mutation; Reverse-mutation tests; Rat dominant lethal at 2,500 ppm in diet; Drosophila test for measuring recessive lethal damage; DNA repair (UDS).

Carcinogenicity

None of the components in this chemical is listed by IARC, NTP, or OSHA as a carcinogen.

Exposure Limits

AEL (DuPont) : 5 mg/m³ (8 and 12 hr TWA)
 TLV * (ACGIH) : 10 mg/m³
 PEL (OSHA) : None Established

* TLV is a registered trademark.

Safety Precautions

Avoid breathing vapors or mist. Avoid contact with eyes. Avoid contact with skin. Avoid contact with clothing. Avoid breathing dust. Wash thoroughly after handling.

 FIRST AID

INHALATION

If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.

SKIN CONTACT

Flush skin with plenty of water.

EYE CONTACT

(FIRST AID - CONTINUED)

In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

INGESTION

If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. Call a physician.

PROTECTION INFORMATION

Generally Applicable Control Measures and Procedures

Use only with adequate ventilation. Keep away from heat, sparks and flames. Avoid dust generation. Do not consume food, drink or tobacco in the areas where they may become contaminated with this material.

Personal Protective Equipment

Eye/Face : Coverall chemical splash goggles.

Respirator :

Filter Respirator : Approved pesticide respirator if exposure may exceed AEL level.

Additional : Protective clothing

DISPOSAL INFORMATION

Aquatic Toxicity : Rainbow trout LC50 (96 hr exposure) is 0.41 ppm.

Spill, Leak, or Release

NOTE: Review FIRE AND EXPLOSION HAZARDS and SAFETY PRECAUTIONS before proceeding with clean up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up. Dike spill. Prevent liquid from entering sewers, water ways or low areas. Shovel or sweep up.

Waste Disposal

Treatment, storage, transportation and disposal must be in accordance with Federal, State, and Local regulations. Remove nonusable solid material and/or contaminated soil, for disposal in an approved and permitted landfill. Do not flush to surface water or sanitary sewer system. Do not reuse container; dispose of according to approved Federal, State or local procedures under the Resource Conservation and Recovery Act.

SHIPPING INFORMATION

Domestic - Other than Air (DOT)
Name : Agricultural Fungicide, N.O.I.B.N.

Special Information : Not regulated under D.O.T.

Additional Information

STORAGE CONDITIONS

Store in well ventilated area. Keep container tightly closed. Do not store or consume food, drink or tobacco in area where they may become contaminated with this material.

ADDITIONAL INFORMATION AND REFERENCES

Never allow Benomyl 50W to become wet during storage. This may lead to certain chemical changes which will reduce the effectiveness of Benomyl 50W as a fungicide.

Date of latest Revision : 86/01/31
Person Responsible for MSDS : Registration & Regulatory Aff.
Agricultural Products Dept.
Wilmington, DE 19898