



The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont  
Material Safety Data Sheet

Page 1

-----  
"DuPont" "MANZATE" "PRO-STICK" FUNGICIDE  
M0000607 Revised 1-MAY-2008  
-----

-----  
CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
-----

Material Identification

"MANZATE" is a registered trademark of DuPont.

"PRO-STICK", "DuPont" are trademarks of DuPont.

# Tradenames and Synonyms

Manzate 75DF Fungicide  
Manzate 200DF Fungicide  
Manzate Evolution  
Manzate 75WG  
Manzate DF  
Manzate 200WG  
Innova Mancozeb 750

Company Identification

MANUFACTURER/DISTRIBUTOR  
DuPont  
1007 Market Street  
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-7515 (outside the U.S.  
302-774-1000)  
Transport Emergency : CHEMTREC 1-800-424-9300(outside U.S.  
703-527-3887)  
Medical Emergency : 1-800-441-3637 (outside the U.S.  
302-774-1000)

-----  
COMPOSITION/INFORMATION ON INGREDIENTS  
-----

Components

Material	CAS Number	%
MANCOZEB	8018-01-7	75
A coordination product of zinc ion and manganese ethylenebisdithiocarbamate		
INERT INGREDIENTS		25

Components (Remarks)

DISPERSIBLE GRANULES  
Contains 0.75 Pounds of Mancozeb Per Pound of Product

-----  
HAZARDS IDENTIFICATION  
-----

## Emergency Overview

## HAZARDS TO HUMANS (AND DOMESTIC ANIMALS)

CAUTION. MAY IRRITATE EYES, NOSE, THROAT AND SKIN. MAY BE HARMFUL IF ABSORBED THROUGH SKIN, INHALED OR SWALLOWED. Avoid breathing dust or spray mist. Avoid contact with skin, eyes and clothing. Keep away from fire or sparks.

## Potential Health Effects

Skin contact may cause skin irritation with discomfort and rash. Repeated exposure may cause skin sensitization with allergic rashes. Significant skin permeation and systemic toxicity after contact appears unlikely.

Eye contact may cause eye irritation with discomfort, tearing, or blurring of vision.

Based on animal studies, long term exposure to high levels may cause abnormal thyroid function.

## Carcinogenicity Information

None of the components present in this material at concentrations equal to or greater than 0.1% are listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

-----  
FIRST AID MEASURES  
-----

## First Aid

IF SWALLOWED: 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 a poison control center or doctor. Do not give anything by mouth to an unconscious person.

IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. Call a poison control center or doctor for further treatment advice.

IF IN EYES: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

IF ON SKIN OR CLOTHING: Take off contaminated clothing.

## (FIRST AID MEASURES - Continued)

Rinse skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For medical emergencies involving this product, call toll free 1-800-441-3637. See Label for Additional Precautions and Directions for Use.

-----  
FIRE FIGHTING MEASURES  
-----

## Flammable Properties

Flash Point & Method : Not determined  
Flammable Limits : 0.29 g/L (% by volume in air)  
Autoignition Temperature : 205°C (401°F)

## Hazardous Combustion Products:

Hazardous gases/vapors produced in a fire are H<sub>2</sub>S, CS<sub>2</sub>, and oxides of sulfur, nitrogen, and carbon.

## Extinguishing Media

Dry Chemical, CO<sub>2</sub>, Water Spray, Foam.

## Fire Fighting Instructions

Evacuate personnel to a safe area. Keep personnel removed and upwind of fire. Wear self-contained breathing apparatus. Wear full protective equipment. Use water spray. Runoff from fire control may be a pollution hazard.

-----  
ACCIDENTAL RELEASE MEASURES  
-----

## Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Evacuate personnel, thoroughly ventilate area, use self-contained breathing apparatus.

## Spill Clean Up

Remove source of heat, sparks, flame, impact, friction, or electricity. Dike spill. Prevent material from entering sewers, waterways, or low areas. Shovel or sweep up. Never return to container for reuse. Scoop into bags or boxes with plastic or aluminum shovel.

-----  
HANDLING AND STORAGE  
-----

## Handling (Personnel)

USERS SHOULD: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet. Remove Personal Protective Equipment (PPE) immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

## Handling (Physical Aspects)

Keep away from heat, sparks and flames.

## Storage

Do not contaminate water, food or feed by storage or disposal. Never allow product to become wet during storage. This may lead to chemical changes which will reduce its effectiveness as a fungicide and create flammable vapors.

Keep container tightly closed. Store product in original container only. Store in a well ventilated place. Store in a cool, dry area away from feed, seed or fertilizer.

-----  
EXPOSURE CONTROLS/PERSONAL PROTECTION  
-----

## Engineering Controls

## Engineering Control Statements:

When handlers use enclosed cabs or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d)(4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

During aerial application, Human flaggers must be in enclosed cabs.

## Personal Protective Equipment

Some materials that are chemical resistant to this product are listed below. If you want more options, follow the instructions for Category A on an EPA chemical-resistance category selection chart.

Applicators and other handlers (other than mixers and loaders) must wear:

- Coveralls over long-sleeved shirt and long pants.
- Chemical-resistant gloves such as nitrile rubber, natural rubber, or butyl rubber.
- Shoes plus socks.

## (EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

## Mixers and Loaders must wear:

- Coveralls over long-sleeved shirt and long pants.
- Chemical-resistant gloves such as nitrile rubber, natural rubber, or butyl rubber.
- Shoes plus socks.
- Protective eyewear.
- Chemical-resistant apron when mixing or loading.

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls over long-sleeved shirt and long pants.
- Chemical-resistant gloves such as nitrile rubber, natural rubber, or butyl rubber.
- Shoes plus socks.

## Exposure Guidelines

## Applicable Exposure Limits

## MANCOZEB

PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established
WEEL (AIHA)	: 1 mg/m <sup>3</sup> , 8 Hr. TWA, SEN

-----  
PHYSICAL AND CHEMICAL PROPERTIES  
-----

## Physical Data

Vapor Pressure	: Not determined
Bulk Density (loose)	: 40-45 lb/cu ft
Solubility in Water	: Dispersible
Odor	: Sulfurous
Color	: Yellow
Physical State	: Solid

-----  
STABILITY AND REACTIVITY  
-----

## Chemical Stability

Stable at normal conditions.

## Conditions to Avoid

Acids and moisture (in storage).

## (STABILITY AND REACTIVITY - Continued)

## Incompatibility with Other Materials

Incompatible or can react with acids.

## Decomposition

Decomposes with heat. Hazardous gases/vapors produced are hydrogen sulfide, carbon disulfide, and oxides of carbon, nitrogen, and sulfur. Elevated temperature or free water promotes decomposition, which may cause spontaneous combustion.

## Polymerization

Polymerization will not occur.

-----  
TOXICOLOGICAL INFORMATION  
-----

## Animal Data

## Manzate Pro-Stick Fungicide

Oral LD50: > 5000 mg/kg in rats  
Dermal LD50: > 2000 mg/kg in rabbits  
4-hour Inhalation LC50: > 5.4 mg/L in rats

Manzate Pro-Stick Fungicide was a mild to moderate eye irritant. It was classified as a non-irritant per EEC Guidance and given a Toxicity Category III rating by EPA Guidance. Manzate Pro-Stick Fungicide is a mild to slight skin irritant and a sensitizer in animals.

## MANCOZEB

The effects in animals from repeated high inhalation doses of mancozeb (dust) equivalent to 150-250 times the AEL include reduced body weight, inflammation of the lungs, and abnormal thyroid function.

Toxic effects in animals from repeated ingestion of high doses of Mancozeb include reduced body weight and thyroid effects. In a different study, repeated dosing caused toxic and neuropathological effects in male and female rats which included compound-related mortality, decreased body weight, impaired hind limb motor activity and histopathological evidence of nerve damage. The no-observable-effect level was 125 ppm.

Increased incidences of thyroid tumors and ocular lesions (retinopathy) were observed in rats administered 750 ppm (equivalent to approximately 35 mg/kg/day) of mancozeb in their diet for two years. Mancozeb is considered to show weak carcinogenic activity. Tests in some animals indicate that Mancozeb may produce embryo and fetal toxicity, but only at maternally toxic doses. Multi-generation studies in animals demonstrate no reproductive toxicity.

## (TOXICOLOGICAL INFORMATION - Continued)

Mancozeb is in the ethylene-bis-dithiocarbamate (EBDC) class of fungicides. EBDCs including mancozeb, which are metabolized to ethylene thiourea (ETU), have produced thyroid tumors in animal studies.

Mancozeb does not produce genetic damage in bacterial or most mammalian cell culture systems. It has been reported to produce genetic damage in some, but not all, animal tests. It has not been tested adequately for heritable genetic damage.

-----  
ECOLOGICAL INFORMATION  
-----

## Ecotoxicological Information

## MANCOZEB

## AQUATIC TOXICITY:

96 hour LC50 - Rainbow trout: 0.073 mg/L.  
96 hour LC50 - Fathead minnows: 0.57 mg/L.  
96 hour LC50 - Bluegill sunfish: 0.84 mg/L.

72 hour EC50 (growth inhibition) - freshwater  
algae: 0.43 mg/L.

-----  
DISPOSAL CONSIDERATIONS  
-----

## Waste Disposal

Do not contaminate water, food or feed by disposal. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

## ENVIRONMENTAL HAZARDS:

This product is toxic to fish. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Cover or incorporate spilled treated seed. Do not contaminate water by disposing of equipment washwaters.

## Container Disposal

Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill, or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

-----  
TRANSPORTATION INFORMATION  
-----

## Shipping Information

DOT :  
Proper Shipping Name : Not Regulated by DOT unless shipped in bulk package or by water. See IMO/IMDG description

IMO/IMDG:  
Proper Shipping Name : Environmentally Hazardous Substances, Solid, n.o.s., (mancozeb 75%)

Hazard Class : 9  
UN/NA Number : UN 3077  
Packaging Group : III  
Marine Pollutant : Yes  
Reportable Quantity : Yes - add RQ if 5,000 or more pounds mancozeb in a single package.

IATA/ICAO : Not Regulated if less than 5,000 pounds mancozeb per package.

-----  
REGULATORY INFORMATION  
-----

## # U.S. Federal Regulations

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : Yes  
Chronic : Yes  
Fire : No  
Reactivity : Yes

In the United States this product is regulated by the US Environmental Protection Agency under the Federal Insecticide, Fungicide and Rodenticide Act. It is a violation of federal law to use this product in a manner inconsistent with its labeling.

EPA Reg. No. 352-704

## State Regulations (U.S.)

## CALIFORNIA PROPOSITION 65

This product contains mancozeb and ethylene thiourea (ETU), chemicals known to the State of California to cause cancer in laboratory animals. ETU is also known to the State of California to cause birth defects or other reproductive harm in laboratory animals.



-----  
OTHER INFORMATION  
-----

NFPA, NPCA-HMIS

HAZARDS CLASSIFICATION:  
(0-minimal, 1-slight, 2-moderate, 3-serious, 4-severe)

NFPA: HEALTH-1 FIRE-1 REACTIVITY-1  
HMIS: HEALTH-2 FIRE-1 REACTIVITY-1

-----  
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.

Responsibility for MSDS: DuPont Crop Protection  
Address : Wilmington, DE 19898  
Telephone : 1-888-638-7668

# Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS