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DuPont
Material Safety Data Sheet

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M0000546 "MANEX" FUNGICIDE
Revised 15-OCT-2004

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Tradenames and Synonyms

"MANEX"
"MANEB"

Tradenames and Synonyms (Remarks)

"MANEX" is a registered trademark of E. I. du Pont de Nemours and Company and its affiliates.

Company Identification

MANUFACTURER/DISTRIBUTOR

Griffin L.L.C. (USA)
2509 Rocky Ford Road
P.O. Box 1847
Valdosta
GA.
USA
31603-1847

PHONE NUMBERS

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

COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	%
MANEB (Manganese Ethylenebisdithiocarbamate)	12427-38-2	37
INERT INGREDIENTS		63

* Disclosure as a toxic chemical is required under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372.

Components (Remarks)

4 Pounds of Maneb Per Gallon

HAZARDS IDENTIFICATION

Emergency Overview

May cause irritation of eyes, nose, throat and skin. Avoid breathing spray mist. Do not rub eyes or mouth with hands. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

Potential Health Effects

Inhalation: May cause irritation to the nose and throat.

Eye Contact: May cause irritation to the eyes.

Skin Contact: May cause irritation to the skin.

Skin Sensitization: May cause dermal sensitization.

Ingestion: Irritation to the digestive system may cause diarrhea and vomiting.

CHRONIC:

Maneb at high levels has caused birth defects in test animals, hind leg paralysis and an increased incidence of retinal atrophy related to old age. It has caused thyroid tumors in test animals, resulting from ethylene thiourea (ETU) formation. ETU, a trace contaminant and breakdown product of Manex (Maneb) Fungicide, primarily affects the thyroid. It has also caused other endocrine, liver and blood effects, tumors and birth defects in test animals. Rats fed 2 years on a diet containing 250 ppm suffered no ill effects. In long term feeding studies on rodents, some dithiocarbamates, including maneb, have induced carcinogenicity and birth defects at high dietary intake levels.

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 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 15-20 minutes. Call a poison control center or doctor for treatment advice.

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 the 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.

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 : Not determined
Autoignition Temperature : Not determined

FIRE FIGHTING HAZARDS & PROCEDURES

General Hazard : Prevent human exposure to fire, smoke, fumes or products of combustion. Large masses of dried product residue may ignite spontaneously.

Extinguishing Media : Use dry chemical, carbon dioxide, water spray or foam.

Fire Fighting Equipment : Wear protective clothing and self-contained breathing apparatus.

Hazardous Combustion Products : Combustion generates toxic fumes of the following: hydrogen sulfide, carbon disulfide, sulfur oxides, nitrogen oxides, and carbon oxides.

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.

Spill Clean Up

Spill or Leak Procedures:

Cover spill with absorbent material such as sweeping compound or lime. Sweep up and place in suitable (fiberboard) containers for later disposal.

HANDLING AND STORAGE

Handling (Personnel)

USERS SHOULD:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove 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.

Store in a cool, dry place.

Do not store near feed, food or within the reach of children.

Storage Temperature: Store above 0°C and below 35°C.
Average shelf life under proper storage conditions is 2 years.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

When handlers use closed systems, 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.

The closed systems or enclosed cabs must be used 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. Human flaggers must be in enclosed cabs.

MANUFACTURING, COMMERCIAL BLENDING, & PACKAGING WORKERS

Ventilation:

Handle in a well ventilated area.

Respiratory Protection:

In enclosed spaces where the TLV or PEL may be exceeded, wear NIOSH/OSHA approved dust or mist respirator.

Eye Protection:

Wear protective eyewear to prevent contact with this substan

Protective Clothing:

Applicators and other handlers must wear long sleeved shirt, long pants, waterproof gloves, shoes plus socks, and a chemical-resistant apron.

Personal Protective Equipment

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

- Coveralls over long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

Mixers and Loaders must wear:

- Coveralls over long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks
- Protective eyewear
- Chemical-resistant apron when mixing and 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.

(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

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
- Waterproof gloves
- Shoes plus socks

Exposure Guidelines

Applicable Exposure Limits

MANEB*

PEL (OSHA)	: None Established
TLV (ACGIH)	: None Established

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Vapor Pressure	: Not determined
Density	: 1.3 g/ml
Solubility in Water	: Disperses to form a suspension.
pH	: 7.8
Boiling Point	: Decomposes
Freezing Point	: Not determined
Odor	: Characteristic odor
Color	: Yellowish
Physical State	: Liquid

STABILITY AND REACTIVITY

Chemical Stability

General	: This material is stable under normal conditions.
Incompatible Materials	: Oxidizing agents and acids.
Conditions to Avoid	: Avoid temperatures above 49°C.
Hazardous Decomposition	: Thermal decomposition may yield the following: carbon disulfide, hydrogen sulfide, NO _x , and SO _x .
Hazardous Polymerization	: Material is not known to polymerize.

TOXICOLOGICAL INFORMATION

Animal Data

ACUTE

- Inhalation : Acute inhalation
LC50 >5 mg/L (rat - 4 hour).
- Eye Contact : Moderate irritation. Conjunctival redness
and discharge, chemosis and ocular
irritation were observed in the unwashed
eyes of rabbits but cleared by day 7.
Conjunctival redness and discharge and
ocular irritation were observed in the
washed eyes of rabbits but cleared by
day 4.
- Skin Contact : Primary Irritation Index=0.25.
Slight irritation.
- Skin Absorption: Acute dermal LD50 > 2,000 mg/kg.
- Ingestion : Oral LD50 >5,000 mg/kg.
- Sensitization : Possible skin sensitization.

CHRONIC:

A three-month feeding study in rats indicated hind leg paralysis after a two-week exposure, at a high dose level of 5000 ppm, which also caused significant systemic toxicity and 40% mortality. A two-year feeding study in rats indicated an increased incidence of old age-related retinopathy at a dose level of 750 ppm.

Carcinogenicity:

No evidence of carcinogenicity was observed in long-term studies with mice.

Two-year feeding studies of ETU indicated thyroid and pituitary tumors in rats at dietary concentrations of 83 ppm or higher and also thyroid, pituitary and liver tumors in mice at dietary concentrations of 330 ppm or higher.

Carcinogenic effects are considered to be secondary to inhibition of thyroid synthesis and disruption of hormonal balance.

Tests have shown that ETU causes developmental toxicity but does not affect reproductive performance in animals. Tests in some animals indicate that Maneb may have developmental toxicity but only at levels also producing maternal toxicity. Tests in animals demonstrate that Maneb does not produce reproductive toxicity.

(TOXICOLOGICAL INFORMATION - Continued)

Mutagenicity:

Ames mutagenicity: Negative

Mouse Host Mediated Bacterial Gene Mutation Test: Negative

In vitro rat hepatocyte Unscheduled DNA Synthesis: Negative
Mammalian cell gene-mutation assay in Chinese hamster ovary cells (CHO): Negative

In vivo cytogenetic assay (mouse): Negative

Sex-linked recessive lethal assay (Drosophila): Negative
Sister Chromatid Exchange: Positive without metabolic activation; negative with metabolic activation Cell

Transformation in 10T 1/2 Cells: Negative

ECOLOGICAL INFORMATION

Ecotoxicological Information

Ecotox:

Maneb: 96-hour LC50 = 0.53 mg/L in the harlequin fish

Wildlife Tox:

Maneb: 5-day dietary LC50 > 10,000 ppm in mallard ducks

Maneb: 5-day dietary LC50 > 10,000 ppm in bobwhite quail

DISPOSAL CONSIDERATIONS

Waste Disposal

Do not contaminate water, food or feed by disposal.

ENVIRONMENTAL HAZARDS:

This product is toxic to fish. Drift or 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 when disposing of equipment washwaters.

Container Disposal

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by State and local authorities by burning. If burned, stay out of smoke.

Pesticide Disposal:

(DISPOSAL CONSIDERATIONS - Continued)

Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

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, Liquid, n.o.s., (maneb 37% aqueous suspension)

Hazard Class : 9

UN/NA Number : UN 3082

Packaging Group : III

Marine Pollutant : Yes

Reportable Quantity : Yes - add RQ if 5,000 or more pounds maneb. In a single package.

IATA/ICAO : Not Regulated.

REGULATORY INFORMATION

U.S. Federal Regulations

OSHA:

This product is considered hazardous under the OSHA Hazardous Communication Standard (29 CFR §1910.1200).

TSCA:

All product components are on the TSCA Chemical Inventory.

CERCLA:

Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to the state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.

RCRA:

Wastes of this commercial chemical product are classified as

(REGULATORY INFORMATION - Continued)

hazardous by 40 CFR 261.33 being a listed waste U114.

SARA TITLE III

311/312 Hazard Categories: This product has been reviewed according to the EPA "Hazard Categories" and is categorized as an acute health hazard (40 CFR §370.41).

313 Reportable Ingredients: This product contains a material (CAS # 12427-38-2) listed in Section 313 of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372.

STATE REGULATIONS

California:

This product contains Maneb and 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 (CALIFORNIA PROPOSITION 65).

EPA Reg. No. 1812-251

OTHER INFORMATION

NFPA, NPCA-HMIS

HAZARDS CLASSIFICATION:

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

HMIS: HEALTH-0 FIRE-1 REACTIVITY-0

NFPA: HEALTH-1 FIRE-1 REACTIVITY-0

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

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