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DuPont
Material Safety Data Sheet

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"CURZATE" M-8 FUNGICIDE
DU005750 Revised 18-MAY-2002

CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

CURZATE is a registered trademark of DuPont.

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	64
CYMOXANIL	57966-95-7	8
INERT INGREDIENTS		28

HAZARDS IDENTIFICATION

Emergency Overview

WARNING! MAY BE HARMFUL IF SWALLOWED.
Wash with soap and water after handling
and before eating, drinking or using
tobacco.

Potential Health Effects

Skin contact with Mancozeb may cause skin irritation with discomfort or rash. Mancozeb has been infrequently associated with skin sensitization in humans. Significant skin permeation and systemic toxicity after contact appears unlikely.

(HAZARDS IDENTIFICATION - Continued)

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

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

Based on animal data, inhalation of Cymoxanil may cause eye irritation with tearing, pain or blurred vision, irritation of the nose and throat with sneezing, sore throat or runny nose, and incoordination.

Based on animal data, skin contact with Cymoxanil may cause irritation with itching, burning, redness, swelling or rash.

Based on animal data, eye contact with Cymoxanil may cause eye irritation with tearing, pain or blurred vision.

Based on animal data, ingestion of Cymoxanil may cause temporary central nervous system depression with dizziness, confusion, incoordination, drowsiness or unconsciousness, changes in hematology measurements, pathological changes in the liver, and weight loss.

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 poison control center or doctor immediately for treatment advice. Have a 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.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-441-3637 for emergency medical treatment information

FIRE FIGHTING MEASURES

Flammable Properties

Like most organic powders or crystals, under severe dusting conditions, this material may form explosive mixtures in air.

Extinguishing Media

Water Spray, Foam, Dry Chemical, CO2.

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. 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.

Emergency Response - Chemical resistant coveralls, waterproof gloves, waterproof boots and face/eye protection. If dusting occurs, use NIOSH approved respirator protection.

Initial Containment

Remove source of heat, sparks, flame, impact, friction or electricity.

Spill Clean Up

Shovel or sweep up.

HANDLING AND STORAGE

Handling (Personnel)

Do not get in eyes, on skin or clothing. Avoid breathing dust.

USERS SHOULD: Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.

Remove personal protective equipment immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

(HANDLING AND STORAGE - Continued)

Handling (Physical Aspects)

Avoid dust generation.

Storage

Do not store or consume food, drink or tobacco in areas where they may become contaminated with this material.

EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Use only with adequate ventilation.

Personal Protective Equipment

Always follow the label instructions when handling this product.

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

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

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 or loading.

For exposures in enclosed areas, a respirator with either an organic vapor-removing cartridge with a particulate prefilter (NIOSH approval prefix TC-23C), or a canister approved for pesticides (NIOSH approval number TC-14G).

For exposures outdoors, a particulate respirator (NIOSH approval number prefix TC-21C).

Discard clothing or other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow 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.

(EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

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.
Protective eyewear.

During aerial applications, human flaggers must be enclosed cabs.

Exposure Guidelines

Applicable Exposure Limits

MANCOZEB

PEL (OSHA) : None Established
TLV (ACGIH) : None Established
WEEL (AIHA) : 1 mg/m³, 8 Hr. TWA, SEN

CYMOXANIL

PEL (OSHA) : None Established
TLV (ACGIH) : None Established
AEL * (DuPont) : 2 mg/m³, 8 & 12 Hr. TWA

* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

PHYSICAL AND CHEMICAL PROPERTIES

Physical Data

Solubility in Water : Dispersible
Odor : Sulfurous
Form : Powder
Color : Light yellow
Bulk Density (Loose) : 18.1 lb/cu ft
Bulk Density (Packed) : 25.6 lb/cu ft

STABILITY AND REACTIVITY

Chemical Stability

Stable at normal temperatures and storage conditions.

Incompatibility with Other Materials

Incompatible with acids, oxidizing agents, water (in storage).

(STABILITY AND REACTIVITY - Continued)

Decomposition

Hazardous gases/vapors produced are hydrogen cyanide, carbon disulfide. May undergo decomposition upon extended storage or on prolonged exposure to air, heat, and moisture.

Polymerization

Polymerization will not occur.

TOXICOLOGICAL INFORMATION

Animal Data

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.

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.

Overexposure to Cymoxanil by skin contact did not produce irritation in guinea pigs. In a repeated dermal exposure test with rats, the NOEL was 1000 mg/kg.

(TOXICOLOGICAL INFORMATION - Continued)

Effects of single exposure by ingestion of Cymoxanil included weight loss, altered righting reflexes, weakness, labored breathing, lethargy, incoordination, and nasal discharge. Repeated oral exposure caused increased liver weight, reduced weight gain, and testicular and epididymal histological changes. Other effects included diarrhea, altered hematology, lethargy, and increased mortality.

Long term exposure by ingestion of Cymoxanil to high concentrations caused body and organ weight decreases, pathological changes of the liver, gastrointestinal tract, lungs, eyes, nerves, testes, sperm, bone marrow, spleen and thymus, altered hematology, weakness and increased mortality.

Effects of single exposure by inhalation to high concentrations of Cymoxanil included diarrhea, altered respiratory rate, nasal and ocular discharge, changes in posture, decreased motor activity, tremors and lethargy.

In animal testing Cymoxanil has not caused carcinogenicity. Animal testing show developmental effects only at similar exposure levels producing other toxic effects in the adult animal. Tests have shown Cymoxanil to cause reproductive toxicity in animals, however, only at levels producing toxic effects in the adult animal. Cymoxanil has not produced genetic damage in bacterial cultures. In mammalian cell cultures Cymoxanil has caused genetic toxicity. It has not produced genetic damage in tests on animals. In animal testing, Cymoxanil has not caused permanent genetic damage in reproductive cells of mammals (has not produced heritable genetic damage).

The following Acute Toxicity Data represents a similar formulation:

Acute Oral LD50 (Rat): >2000 mg/kg (based on no mortality at this level, the highest level tested).

Acute Dermal LD50 (rat): >2000 mg/kg (based on no mortality at this level, the highest level tested).

Skin Irritation and Sensitization: Product was found to be a non-irritant in acute primary irritation studies with rabbits; product may cause skin sensitization based on tests with guinea pigs.

Eye: Produced acute ocular irritation in tests with rabbits. Effects showed total reversibility by day 14.

ECOLOGICAL INFORMATION

Ecotoxicological Information

AQUATIC TOXICITY:

CYMOXANIL

96 hour LC50 - Rainbow trout: 61 mg/L.

96 hour LC50 - Bluegill sunfish: 29 mg/L.

AVIAN TOXICITY:

CYMOXANIL

LD50 - Bobwhite Quail: > 2250 mg/kg.

LD50 - Mallard Duck: > 2250 mg/kg.

LC50 - Bobwhite Quail: > 5620 ppm.

LC50 - Mallard Duck: > 5620 ppm

Mancozeb

There are no Aquatic or Avian Toxicity data available.

DISPOSAL CONSIDERATIONS

Waste Disposal

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

Container Disposal

For Paper and Plastic Bags: 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

DOT/IMO

Proper Shipping Name : ENVIRONMENTALLY HAZARDOUS
SUBSTANCE, SOLID, N.O.S. (MANCOZEB)

Hazard Class : 9

UN No. : UN 3077

Marine Pollutant : YES (MANCOZEB 64%)

Packing Group : III

REGULATORY INFORMATION

U.S. Federal Regulations

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

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

OTHER INFORMATION

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
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