

Material Safety Data Sheet



Transportation and Medical Emergency Phone: **1-800-535-5053 (INFOTRAC)**

General Phone: 317-580-8282

EPA Reg. Number: 67690-38

Creation Date: 10/13/2005

Revision Date: 03/06/2006

Pentathlon* LF Fungicide

SePRO Corporation Carmel, IN 46032

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT: Pentathlon* LF Fungicide

COMPANY IDENTIFICATION:

SePRO Corporation

11550 North Meridian Street, Suite 600

Carmel, IN 46032

www.sepro.com

Information Phone: 317-580-8282 (Monday - Friday, 8:00 am to 5:00 pm EST)

2. HAZARDOUS IDENTIFICATIONS

EMERGENCY OVERVIEW

Pale yellow liquid with a sulfurous odor.

- Harmful if swallowed, inhaled or absorbed through the skin.
- Avoid breathing spray mist.
- Remove contaminated clothing and wash clothing before reuse.
- Causes moderate eye irritation.

EMERGENCY PHONE NUMBER: 800-535-5053

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mancozeb	CAS# 8018-01-7	37.00%
----------	----------------	--------

A coordination product of zinc ion and manganese ethylenebisdithiocarbamate

Inert Ingredients		63.00%
-------------------	--	--------

(Contains 4.0 pounds active ingredient per gallon.)

4. FIRST AID MEASURES

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

SKIN: Take off contaminated clothing. Rinse skin immediately with plenty of soap and water for 15-20 minutes. Call a poison control center or doctor for treatment advice.

EYES: Hold eyes 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 eyes. Call a poison control center or doctor for treatment advice.

INGESTION: Call a poison control center or doctor immediately for treatment advice. Have person sip a large 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.

5. FIRE FIGHTING MEASURES

FLASH POINT: Not determined

METHOD USED: Not determined

FLAMMABLE LIMITS:

LFL: Not determined

UFL: Not determined

AUTO-IGNITION TEMPERATURE: Not determined

EXTINGUISHING MEDIA: Use carbon dioxide, dry chemicals, or water spray.

FIRE AND EXPLOSION HAZARDS: Pesticide particulates can become airborne. Combustion generates toxic fumes of hydrogen sulfide, carbon disulfide, sulfur oxides, nitrogen oxides, and carbon oxides.

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

FIREFIGHTING INSTRUCTIONS: Contain run-off. Remain upwind. Avoid breathing smoke. Use water spray to cool containers exposed to fire. Prevent human exposure to fire, smoke, fumes or products of combustion.

HAZARDOUS COMBUSTION PRODUCTS: Not determined

6. ACCIDENTAL RELEASE MEASURES

ACTION TO TAKE FOR SPILLS AND LEAKS:

Personal Protection: Review FIRE FIGHTING MEASURES (Section 5) and HANDLING (PERSONNEL) (Section 7) before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

Procedures: Contain spills immediately with inert materials (e.g. sand, earth). Transfer liquids and solid diking material to separate suitable containers for recovery or disposal. Flush cleaned area with water to a sewage treatment facility.

CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Report large spills to INFOTRAC and consult SePRO Corporation for assistance.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE:

Handling (Personnel): 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.

Material Safety Data Sheet



Transportation and Medical Emergency Phone: **1-800-535-5053 (INFOTRAC)**
General Phone: 317-580-8282

EPA Reg. Number: 67690-39
Creation Date: 10/13/2005
Revision Date: 03/06/2006

Pentathlon* LF Fungicide

SePRO Corporation Carmel, IN 46032

Handling (Physical Aspects): Keep away from heat, sparks, and flames.

Storage:

- Do not contaminate water, food or feed by storage.
- Store in a cool place but not below 32° F. Temperature extremes will affect quality of product
- Store product in original container only, away from other pesticides, fertilizer, food or feed
- Keep container tightly closed when not in use.

Keep out of reach of children.

8. EXPOSURE CONTROL/PERSONAL PROTECTION

These precautions are suggested for conditions where the potential for exposure exists. Emergency conditions may require additional precautions.

EXPOSURE GUIDELINES: Mancozeb: ACGIH TLV – none established; OSHA PEL – none established; AIHA WEEL is 1 mg/m³, 8 Hr. TWA, SEN.

RESPIRATORY PROTECTION: A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements must be followed whenever workplace conditions warrant a respirator's use. None are required if airborne concentrations are maintained below the TWA / TLV's listed in Exposure Limit Information.

- Up to 10 times the TWA / TLV: Wear an OSHA / NIOSH approved (or equivalent) half-mask, air-purifying respirator.
- Up to 100 times the TWA / TLV: Wear an OSHA / NIOSH approved (or equivalent) full-face piece, air-purifying respirator.
- Above 100 times the TWA / TLV or Unknown: Wear an OSHA / NIOSH approved (or equivalent) self-contained breathing apparatus in the positive pressure mode, or OSHA / NIOSH approved (or equivalent) full-face piece airline respirator in the positive pressure mode with emergency escape provisions. Air-purifying respirators should be equipped with pesticide cartridges (organic vapor cartridge and pesticide prefilter).

ENGINEERING CONTROLS: During aerial application, human flaggers must be in enclosed cabs. When handlers use close 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.

PERSONAL PROTECTIVE EQUIPMENT (PPE): 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.
- Protective eyewear.

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 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. 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.
- Protective eyewear.

9. PHYSICAL AND CHEMICAL PROPERTIES

COLOR: Pale Yellow

PHYSICAL STATE: Liquid

ODOR: Sulfurous

BOILING POINT: 100° C/212° F Water

MELTING POINT: 0° C/32° F Water

DENSITY: 1.30 g/cm³

SPECIFIC GRAVITY (H₂O=1): 1.29 to 1.31 g/cm³

SOLUBILITY IN WATER (20° C): Dispersible

VAPOR PRESSURE: 2266.5 Pa @ 20° C/68° F Water

pH (20° C): 7.5

VISCOSITY: 1160 cps

VAPOR DENSITY (AIR=10): < 1 Water

EVAPORATION RATE (Bac - 1): < 1 Water

PERCENT VOLATILITY: 53 to 56% Water

10. STABILITY AND REACTIVITY

STABILITY: Material is considered stable; however, temperatures above 49° C/120° F should be avoided.

INCOMPATIBILITY: (Specific materials/conditions to avoid)
Avoid contact with oxidizing agents and acids. Avoid temperature above 49° C.

Material Safety Data Sheet



Transportation and Medical Emergency Phone: **1-800-535-5053 (INFOTRAC)**
General Phone: 317-580-8282

EPA Reg. Number: 67690-39
Creation Date: 10/13/2005
Revision Date: 03/06/2006

Pentathlon* LF Fungicide

SePRO Corporation Carmel, IN 46032

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition may yield carbon disulfide and hydrogen sulfide.

HAZARDOUS POLYMERIZATION: Material not known to polymerize.

11. TOXICOLOGICAL INFORMATION

POTENTIAL HEALTH EFFECTS: This section includes possible adverse effects, which could occur if this material is not handled in the recommended manner.

INHALATION: Inhalation of vapor or mist can cause irritation of the nose and throat. Inhalation LC₅₀ (4 hours): > 5.14 mg/L in rats. (Very low toxicity by inhalation.) 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.

SKIN: Mancozeb is a mild to moderate skin irritant. One formulation containing mancozeb has been reported to be a skin sensitizer in animals; however, a different formulation did not cause skin sensitization in guinea pigs. Prolonged or repeated skin contact can cause possible skin irritation and dermatitis. Skin absorption LD₅₀: > 2000 mg/kg in rabbits. (Slight to moderate toxicity by contact).

EYES: Mancozeb is a moderate eye irritant. Direct contact with material can cause possible irritation.

INGESTION: Oral LD₅₀: > 5000 mg/kg in rats. (Very low toxicity by ingestion). 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.

CHRONIC: 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 in the ethylenebisdithiocarbamate (EBDC) class of fungicides. EBDCs including mancozeb, which are metabolized to ethylene thiourea (ETU), have produced thyroid tumors in animals studies.

REPRODUCTION: Multi-generation studies in animals demonstrate no reproductive toxicity.

TERATOLOGY/DEVELOPMENTAL TOXICITY: Tests in some animals indicate that mancozeb may produce embryo and fetal toxicity, but only at maternally toxic doses.

MUTAGENICITY: 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.

CARCINOGENICITY: Mancozeb is considered to show weak carcinogenic activity. 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.

NOTE: Mancozeb 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 Pentathlon LF (Mancozeb) Fungicide, primarily affects the thyroid. It has also caused other endocrine, liver and blood effects, tumors and birth defects in test animals

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL TOXICITY (Mancozeb):

Mysid shrimp (<i>Mysidopsis bahia</i>)	96 hour LC ₅₀ , acute flow through	25.7 ug/L
Oyster shell (<i>Crassostrea virginica</i>)	deposition EC ₅₀	5.88 mg/L
Daphnia magna	48 hour LC ₅₀	23 mg/L
Rainbow trout (<i>Salmo gairderi</i>),	96 hour LC ₅₀	1.1 mg/L
Bluegill Sunfish (<i>Lepomis macrochirus</i>),	96 hour LC ₅₀ , acute flow through	1 mg/L
Sheepshead minnow (<i>Cyprinodon variegatus</i>)	96 hour LC ₅₀ , acute flow through	2.97 mg/L

This material is toxic to fish. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas.

13. DISPOSAL CONSIDERATIONS

PRODUCT DISPOSAL: Do not contaminate water, food, or feed by storage or disposal. Wastes resulting from the use of this product may be disposed of on site per label use directions or at an approved waste disposal facility. Follow all local, state, and federal requirements for disposal.

This material 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: Triple rinse (or equivalent) the container. 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.

Material Safety Data Sheet



Transportation and Medical Emergency Phone: **1-800-535-5053 (INFOTRAC)**
General Phone: 317-580-8282

EPA Reg. Number: 67690-39
Creation Date: 10/13/2005
Revision Date: 03/06/2006

Pentathlon* LF Fungicide

SePRO Corporation Carmel, IN 46032

14. TRANSPORT INFORMATION

Department of Transportation (DOT)	Not Regulated unless shipped in bulk package or by water.†
International Air Transport Association (IATA)	Not Regulated.
International Maritime Organization (IMO)	Regulated.†

†Note: If regulated,

Proper Shipping Name	Environmentally Hazardous Substance, Liquid n.o.s., (mancozeb 37% aqueous suspension)
Class	9
Identification No.	UN 3082
Packing Group	III
Marine Pollutant	Yes
Reportable Quantity	Yes – add RQ if 5,000 or more pounds mancozeb in a single package.

For additional shipping information contact SePRO Corporation at 317-580-8282 and speak with the Logistics Manager.

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 TITLE III, SECTION 313: This product contains materials (CAS # 12427-38-2) listed in Section 313 of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR Part 372.

SARA HAZARD CATEGORY: This product has been reviewed according to the EPA "Hazard Categories" promulgated under Sections 311 and 312 of the Superfund Amendments 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:

This product contains Maneb 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.

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: This product is not known to contain any substances subject to the disclosure requirements of any state.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA 701) and HAZARDOUS MATERIALS IDENTIFICATION SYSTEM (HMIS): (4=Extreme; 3=High; 2=Moderate; 0=Insignificant)

Category	Rating
Health	1
Flammability	1
Reactivity	0

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

COMPREHENSIVE ENVIRONMENTAL RESPONSE COMPENSATION AND LIABILITY ACT (CERCLA, OR SUPERFUND): Releases of this material (mancozeb as ethylenebisdithiocarbamic acid, salts, and esters CAS # 111-54-6; RQ: 5000 lbs) to air, land, or water are 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 and 40 CFR Part 302.

RESOURCE CONSERVATION AND RECOVERY ACT (RCRA): Wastes of this commercial chemical product are classified as hazardous by 40 CFR §261.33 being a listed waste U114.

16. OTHER INFORMATION, USES AND RESTRICTIONS

MSDS STATUS: New – 10/13/05
Revised – 04/06/06: All Sections

The information in this Material Safety Data Sheet relates to this specific material. It may not be valid for this material if used in combination with any other materials or in any process. It is the users' responsibility to satisfy themselves as to the suitability and completeness of this information for their own particular use.

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