

**1 PRODUCT AND COMPANY IDENTIFICATION****Agrichemicals Group**

Elf Atochem North America, Inc.
2000 Market St.
Philadelphia, PA 19103-3222

EMERGENCY PHONE NUMBERS:

Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887
Medical: Rocky Mountain Poison Control Center
(303) 623-5716 (24Hrs)

Information Telephone Numbers	Phone Number	Available Hrs
R&D Technical Service	610-878-6100	8:00am to 5:00pm EST
Customer Service	1-800-438-6071	8:00am - 5:00 pm EST

Product Name MANEB 80 WP Fungicide
Product Synonym(s)

Chemical Family Dithiocarbamate
Chemical Formula (C₄H₆MnN₂S₄) x
Chemical Name Manganese Ethylene Bis(Dithiocarbamate) (Polymeric)
EPA Reg Num 4581-255
Product Use Fungicide

2 COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient Name	CAS RegistryNumber	Typical Wt. %	OSHA
Maneb	12427-38-2	80.0	Y
Ethylene thiourea	96-45-7	Trace	Y

The substance(s) marked with a "Y" in the OSHA column, are identified as hazardous chemicals according to the criteria of the OSHA Communication Standard (29 CFR 1910.1200)

3 HAZARDS IDENTIFICATION**Emergency Overview**

Light to grayish-yellow powder, slight fishy odor.
CAUTION!

KEEP OUT OF REACH OF CHILDREN.

HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN.

Avoid contact with eyes, skin and clothing.

Avoid breathing spray mist or dust.

MAY CAUSE ALLERGIC SKIN REACTION.

MAY CAUSE THYROID DAMAGE AFTER REPEATED EXPOSURE BASED ON ANIMAL DATA

Potential Health Effects

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Based on single exposure animal tests, it is considered to be practically non-toxic if swallowed, no more than slightly toxic if absorbed through skin, practically non-toxic if inhaled and slightly irritating to eyes and skin. Inhalation may be moderately irritating to the respiratory tract. Repeated exposure may cause an allergic skin reaction. Repeated or long-term exposure may cause adverse effects on the thyroid.

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4 FIRST AID MEASURES

IF IN EYES, Flush eyes with plenty of water. Call a physician if irritation persists.

IF ON SKIN, Wash with plenty of soap and water. Get medical attention if irritation persists.

IF SWALLOWED, Call a physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. If person is unconscious, do not give anything by mouth and do not induce vomiting.

IF INHALED, Remove victim to fresh air. If not breathing, give artificial respiration, preferably mouth to mouth. Get medical attention.

5 FIRE FIGHTING MEASURES

Fire and Explosive Properties

Auto-Ignition Temperature	NA	
Flash Point	NA	Flash Point Method
Flammable Limits- Upper	NA	
Lower	NA	

Extinguishing Media

Use carbon dioxide, dry chemical, foam. If material becomes wet, it will deteriorate and become a fire hazard.

Fire Fighting Instructions

Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent). Fire fighting equipment should be thoroughly decontaminated after use.

If stored material becomes wetted or damp it can produce heat and deteriorate, over time, to become a fire hazard.

Fire and Explosion Hazards

Avoid breathing fumes from fire exposed material. If material becomes wet, it will deteriorate and become a fire hazard.

6 ACCIDENTAL RELEASE MEASURES

In Case of Spill or Leak

Contain spill. Sweep or scoop up and remove to suitable container. Flush with water. Prevent spilled product from entering sewers or natural water. Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

7 HANDLING AND STORAGE

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7 HANDLING AND STORAGE

Handling

Wash thoroughly after handling. Use only with adequate ventilation.

Do not get in eyes, on skin or on clothing.

Do not breathe dust.

Keep container closed. Keep away from heat, sparks and flame.

Empty container may contain hazardous residues. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water Board or Regional Office of the EPA. This pesticide is toxic to fish. Do not apply directly to water or wetlands. Do not apply directly to water by cleaning of equipment or disposal of wastes.

Storage

Do not store in a manner where cross-contamination with pesticides, fertilizers, food or feed could occur. If heated to decomposition (>235 F), flammable ethylene is produced. Store in a cool, dry place. If stored material becomes wetted or damp it can produce heat and deteriorate, over time, to become a fire hazard.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Investigate engineering techniques to reduce exposures. Provide ventilation if necessary to minimize exposures. If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

Eye / Face Protection

Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment available.

Skin Protection

Minimize skin contamination by following good industrial hygiene practice. Wearing rubber gloves is recommended. Wash hands and contaminated skin thoroughly after handling.

Respiratory Protection

Where airborne exposure is likely, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. If exposures cannot be kept at a minimum with engineering controls, consult respirator manufacturer to determine appropriate type equipment for a given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where there may be a potential for significant exposure, use an approved full face positive-pressure, self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Respiratory protection programs must comply with 29 CFR § 1910.134.

Airborne Exposure Guidelines for Ingredients

Exposure Limit		Value
Maneb		
ACGIH TWA	-As manganese	0.2 mg/m3
OSHA Ceiling PEL	-As manganese	5 mg/m3

-Only those components with exposure limits are printed in this section.

-Skin contact limits designated with a "Y" above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required.

-ACGIH Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic reactions.

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9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Odor	Light to grayish-yellow powder, slight fishy odor.
pH	7-9 (1% in distilled H ₂ O)
Specific Gravity	0.45- 0.65 g/ml
Vapor Pressure	negligible
Vapor Density	NA
Melting Point	Decomposes before melting
Freezing Point	NA
Boiling Point	NA
Solubility In Water	soluble
Solubility in Other Materials	Insoluble in most organic
Evaporation Rate	N/A
Percent Volatile	N/A
Other Physical Data	Pour density: 370-420 kg/m ³ Tap density : 540-560 kg/m ³

10 STABILITY AND REACTIVITY

Stability

This material is chemically stable under normal and anticipated storage and handling conditions.

Hazardous Polymerization

Does not occur.

Incompatibility

Strong acids, strong oxidizers, quarternary ammonium salts, and EDBC sequestering agents.

Hazardous Decomposition Products

Upon thermal decomposition, leads to hydrogen sulfide, sulfur oxides, nitrogen and carbon oxides, and carbon disulfide.

Ethylene thiourea (ETU)* upon decomposition

*= see Section 16

11 TOXICOLOGICAL INFORMATION

Toxicological Information

Data on this material and/or its components are summarized below.

Maneb

Single exposure (acute) studies indicate that this material is practically non-toxic if swallowed (rat LD₅₀ >5,000 mg/kg), no more than slightly toxic if absorbed through skin (rabbit LD₅₀ >2,000 mg/kg), practically non-toxic if inhaled (rat 4-hr LC₅₀ 5.34-7.38 mg/l) and slightly irritating to rabbit eyes and skin. Skin allergy has been observed in guinea pigs following repeated exposure. Repeated and long-term oral administration produced adverse effects on the thyroid in mice, rats and dogs. Long-term oral administration produced an increased incidence of lung tumors in mice of one strain, but not in three other strains. No effects were seen on the ability of male or female rats to reproduce when exposed orally for multiple generations, although adverse effects were noted in the liver and thyroid. Developmental delays, but no birth defects, were observed in the offspring of rats exposed orally during pregnancy, but only at doses which produced adverse effects on the mothers. No genetic

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11 TOXICOLOGICAL INFORMATION

changes were observed in tests using bacteria, animal cells or animals.

12 ECOLOGICAL INFORMATION

Ecotoxicological Information

Maneb

This material is moderately toxic to guppies (96-hr LC50 3.7 mg/l), Daphnia magna (48-hr LC50 1 mg/l) and algae (96-hr EC50 3.2 mg/l). No effects were seen on the ability of Bobwhite quails or mallard ducks to reproduce following oral exposure.

Chemical Fate Information

Maneb

This material has a 28-day BOD of 33%.

13 DISPOSAL CONSIDERATIONS

Waste Disposal

Recover, reclaim or recycle when practical. Dispose of in accordance with federal, state and local regulations. Dispose of solid waste at properly permitted landfills observing all local, state and federal regulations. Contaminated liquids should be concentrated and incinerated at a properly permitted disposal site again observing all local, state and federal regulations.

14 TRANSPORT INFORMATION

DOT Name	Environmentally hazardous substances, solid, n.o.s.
DOT Technical Name	Maneb
DOT Hazard Class	9
UN Number	3077
DOT Packing Group	PG III
RQ	
Marine Pollutant	yes
DOT Special Information	Maneb 80WP, when shipped in the U.S.A. can be shipped as Agricultural Fungicide, Solid, Not Regulated by DOT.

15 REGULATORY INFORMATION

Hazard Categories Under Criteria of SARA Title III Rules (40 CFR Part 370)

Immediate (Acute) Health	Y	Fire	N
Delayed (Chronic) Health	Y	Reactive	N
		Sudden Release of Pressure	N

Ingredient Related Regulatory Information:

SARA Reportable Quantities

CERCLA RQ

SARA TPQ

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SARA Reportable Quantities

	CERCLA RQ	SARA TPQ
Maneb	NE	NE
Ethylene thiourea	10 lbs.	NE

SARA Title III, Section 313

This product does contain chemical(s) which are defined as toxic chemicals under and subject to the reporting requirements of, Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372. See Section 2

Ethylene thiourea

Maneb

California Prop 65 - Carcinogen

This product does contain the following chemical(s), as indicated below, currently on the California list of Known Carcinogens.

Ethylene thiourea

Maneb

California Prop 65 - Developmental Toxin

This product does contain the following chemical(s), as indicated below, currently on the California List of Developmental Toxins.

Ethylene thiourea

Massachusetts Right to Know

This product does contain the following chemical(s), as indicated below, currently on the Massachusetts Right to Know Substance List.

Ethylene thiourea

Maneb

New Jersey Right to Know

This product does contain the following chemical(s), as indicated below, currently on the New Jersey Right-to-Know Substances List.

Ethylene thiourea

Maneb

Pennsylvania Environmental Hazard

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Environmental Hazard List.

Ethylene thiourea

Maneb

Pennsylvania Right to Know

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Hazardous Substance List.

Ethylene thiourea

Maneb

Pennsylvania Special Hazard

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Special Hazard List.

Ethylene thiourea

16 OTHER INFORMATION

Revision Information

Revision Date 12 JUL 2000 Revision Number 1
Supercedes Revision Dated

Revision Summary

Updated to system

Key

NE= Not Established NA= Not Applicable (R) = Registered Trademark

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Miscellaneous

ETU, a trace contaminant and breakdown product of Maneb 80WP, has been categorized as a probable human carcinogen by IARC, and as a group b carcinogen by NTP. ETU has also caused birth defects in laboratory animals.

Conditions to avoid: Elevated temperature, moisture and oxygen breakdown the product and induce flammable and toxic gases.

Dust explosion limits in air: 125 g/m³

Explosive properties: Due to the chemical structure, no explosion reaction is anticipated.

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