1. Identification of the Substance/Preparation and of the Company/Undertaking

Product identifier
Product Description: PENNCOZEB® 4FL

Other means of identification
Item#: 12-394A
Synonyms Not Available
Registration number(s) 70506-194

Recommended use of the chemical and restrictions on use
Recommended use Fungicide.
Uses advised against Activities contrary to label recommendation

Details of the Supplier of the Safety Data Sheet
Supplier Address
UPI
630 Freedom Business Center
Suite 402
King of Prussia, PA 19406

Emergency telephone number
Chemtrec: (800) 424-9300 (24hrs) or (703) 527-3887
Medical: Rocky Mountain Poison Control Center
(866) 673-6671 (24hrs)

2. Hazards Identification

Classification

OSHA Regulatory Status
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Dermal Category 4
Skin sensitization Category 1
Reproductive Toxicity Category 1B

Label elements

EMERGENCY OVERVIEW

DANGER

hazard statements
Harmful in contact with skin
May cause an allergic skin reaction
May damage fertility or the unborn child
Precautionary Statements - Prevention
Do not handle until all safety precautions have been read and understood
Do not handle until all safety precautions have been read and understood
Wear cold insulating gloves/face shield/eye protection
Do not get in eyes, on skin, or on clothing
Contaminated work clothing should not be allowed out of the workplace
Wear protective gloves

Precautionary Statements - Response
IF exposed or concerned: Get medical advice/attention
IF ON SKIN: Wash with plenty of soap and water
Call a POISON CENTER or doctor if you feel unwell
Wash contaminated clothing before reuse
If skin irritation or rash occurs: Get medical advice/attention

Precautionary Statements - Storage
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

Hazards Not Otherwise Classified (HNOC)
OTHER INFORMATION
• Very toxic to aquatic life
• May be harmful in contact with skin

3. Composition/information on Ingredients

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>Trade secret</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc manganese ethylenebis dithiocarbamate</td>
<td>8018-01-7</td>
<td>37</td>
<td></td>
</tr>
<tr>
<td>Ethylene thiourea</td>
<td>96-45-7</td>
<td>0-0.5</td>
<td></td>
</tr>
</tbody>
</table>

If CAS number is "proprietary", the specific chemical identity and percentage of composition has been withheld as a trade secret.

4. First aid measures

FIRST AID MEASURES

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

Skin contact
Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call poison control center or doctor for treatment advice.

Inhalation
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.

Ingestion
Call a physician or poison control center immediately. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

Protection of First-aiders
Use personal protective equipment.

Most Important Symptoms and Effects, Both Acute and Delayed

Most Important Symptoms and Effects
No information available.
Indication of Any Immediate Medical Attention and Special Treatment Needed

Notes to physician  Treat symptomatically.

5. Fire-fighting measures

Suitable extinguishing media
Carbon dioxide (CO2).
Use: Dry chemical. Water spray. alcohol-resistant foam.

Unsuitable extinguishing media  No information available.

Specific hazards arising from the chemical
Thermal decomposition can lead to release of irritating gases and vapours.

Hazardous combustion products  Carbon disulfide, ethylene thiourea (ETU).

Explosion data

Protective equipment and precautions for firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Personal Precautions  Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Use personal protective equipment.

Environmental Precautions

Environmental precautions  Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.

Methods and material for containment and cleaning up

Methods for Clean-Up  Pick up and transfer to properly labelled containers. Dam up. Soak up with inert absorbent material.

7. Handling and Storage

Precautions for safe handling

Handling  Use only in area provided with appropriate exhaust ventilation. Wear personal protective equipment. Do not breathe vapours or spray mist. Use product only in closed system.

Conditions for safe storage, including any incompatibilities

Storage  Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat. Protect from light. Keep in properly labelled containers.

incompatible materials  Strong oxidizing agents.

8. Exposure Controls(Personal Protection)

Exposure guidelines  This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering controls  Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye/Face Protection  Use eye protection to avoid eye contact. Where there is potential for eye contact have eye
flushing equipment available. Safety glasses with side-shields. Wear protective gloves/clothing. Socks and footwear. Where airborne exposure is likely, use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Full facepiece equipment is recommended and, if used, replaces need for face shield and/or chemical goggles. If exposures cannot be kept at a minimum with engineering controls, consult respirator manufacturer to determine appropriate type equipment for 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. Respiratory protection programs must comply with 29 CFR 1910.134.

General hygiene considerations
Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands and face before breaks and immediately after handling the product.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>VALUES</th>
<th>Remarks/ • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>liquid</td>
<td></td>
</tr>
<tr>
<td>appearance</td>
<td>Yellow Green</td>
<td></td>
</tr>
<tr>
<td>color</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>9 °C / 48 °F</td>
<td></td>
</tr>
<tr>
<td>Boiling Point/Range</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flash Point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Evaporation Rate</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>flammability (solid, gas)</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Flammability limit in air</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Upper Flammability Limit</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Lower Flammability Limit</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>vapor pressure</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Vapor Density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.27-1.33</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Solubility in Other Solvents</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>decomposition temperature</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Dynamic viscosity</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No information available</td>
<td></td>
</tr>
</tbody>
</table>

OTHER INFORMATION

<table>
<thead>
<tr>
<th>Property</th>
<th>VALUES</th>
<th>Remarks/ • Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Softening point</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>molecular weight</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>VOC Content</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>density</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Bulk density</td>
<td>1270 kg/m³</td>
<td></td>
</tr>
</tbody>
</table>

10. Stability and Reactivity

Reactivity
no data available

Chemical stability
Stable under normal conditions. Hazardous polymerisation does not occur.
Possibility of hazardous reactions
None under normal processing.

Hazardous polymerization  Hazardous polymerisation does not occur.

Conditions to avoid
No information available.

 incompatible materials
Strong oxidizing agents.

 Hazardous decomposition products
Carbon oxides.

11. Toxicological Information

Information on Likely Routes of Exposure

Product information  Maneb
Single exposure 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 
lightly irritating to rabbit eyes and skin. 
An increased risk of retinal degeneration was observed in some workers. 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 and one strain, 
but not in three other strains. No effects were seen on the ability of male and female rats to 
reproduce when exposed orally for multiple generations, although adverse effects were 
noted in the liver and thyroid. Developmental delays, but not birth defects, were observed 
in the offspring of rats exposed orally during pregnancy, but only at doses that produced 
adverse effects on the mothers. No genetic changes were observed in tests using bacteria, 
animal cells or animals.

Inhalation  HARMFUL IF INHALED.

Eye contact  May cause irritation.

Skin contact  May be harmful if absorbed through the skin.

Ingestion  MAY BE HARMFUL IF SWALLOWED.

Information on Toxicological Effects

Symptoms  No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

sensitization  No information available.
Mutagenic effects  No information available.
Carcinogenicity  The information below indicates whether any agency has listed any ingredient as a 
carcinogen.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>ACGIH</th>
<th>IARC</th>
<th>NTP</th>
<th>OSHA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene thiourea</td>
<td>-</td>
<td>Group 3</td>
<td>Reasonably Anticipated</td>
<td>X</td>
</tr>
</tbody>
</table>

Reproductive effects  Not Available.

STOT - Single Exposure  No information available.
STOT - repeated exposure  No information available.
Chronic toxicity  Avoid repeated exposure.
Aspiration hazard  No information available.

Numerical Measures of Toxicity - Product information

<table>
<thead>
<tr>
<th>LD50 Oral</th>
<th>&gt; 5,000 mg/kg (rat)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 Dermal</td>
<td>&gt; 2,000 mg/kg (rat)</td>
</tr>
</tbody>
</table>
12. Ecological Information

Marine Pollutant.

**Ecotoxicity**

Toxic to aquatic organisms

**Persistence/Degradability**

No information available.

**Bioaccumulation/Accumulation**

Does not bioaccumulate.

**Other Adverse Effects**

No information available

13. Disposal Considerations

**Waste Treatment Methods**

**Waste Disposal Method**

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide or rinsate is a violation of Federal law. If the wastes cannot be disposed of by use or according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

**Contaminated packaging**

Refer to product label.

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>RCRA</th>
<th>RCRA - Basis for Listing</th>
<th>RCRA - D Series Wastes</th>
<th>RCRA - U Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene thiourea</td>
<td>U116</td>
<td>Included in waste streams: K123, K124, K125, K126</td>
<td>U116</td>
<td></td>
</tr>
</tbody>
</table>

14. Transport Information

**DOT**

When shipped domestically by highway in non-bulk containers this product can be shipped as not regulated. When shipped in bulk, by vessel, or internationally use the IMDG shipping description:

- **Proper shipping name**: Environmentally hazardous substance, liquid, n.o.s (Mancozeb)
- **Hazard class**: 9
- **Packing group**: PG III
- **Marine Pollutant**: Marine Pollutant.

**TDG**

When shipped in Canada domestic highway non-bulk this product can be shipped as Not regulated as per TDG 1.45.1

- **UN-No**: UN3082
- **Proper shipping name**: Environmentally hazardous substance, liquid, n.o.s. (Mancozeb)
- **Hazard class**: 9
- **Packing group**: PG III
- **Marine Pollutant: Y or N [List Ingredient(s) with %]**: Marine pollutant.

**ICAO**

- **UN-No**: UN3082
- **Proper shipping name**: Environmentally hazardous substance, liquid, n.o.s (Mancozeb)
- **Hazard class**: 9
15. Regulatory Information

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

**Signal word**: CAUTION

**Ventilation Control**: PESTICIDE APPLICATORS & WORKERS THESE WORKERS MUST REFER TO PRODUCT LABELING AND DIRECTIONS FOR USE IN ACCORDANCE WITH EPA WORKER PROTECTION STANDARD 40 CFR PART 170.

**Keep out of Reach of Children. Harmful if swallowed. Harmful if inhaled or absorbed through skin. Toxic to aquatic organisms.**

**International Inventories**

<table>
<thead>
<tr>
<th>Inventory</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>USINV</td>
<td>Not determined</td>
</tr>
<tr>
<td>DSL/NDSL</td>
<td>Not determined</td>
</tr>
<tr>
<td>EINECS</td>
<td>Does not comply</td>
</tr>
<tr>
<td>EILINCS</td>
<td></td>
</tr>
<tr>
<td>ENCS</td>
<td>Complies</td>
</tr>
<tr>
<td>China</td>
<td>Complies</td>
</tr>
<tr>
<td>KECL</td>
<td>Complies</td>
</tr>
<tr>
<td>PICCS</td>
<td>Complies</td>
</tr>
<tr>
<td>AICS</td>
<td>Complies</td>
</tr>
<tr>
<td>TSCA</td>
<td>Does not comply</td>
</tr>
</tbody>
</table>

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List  
**EINECS/EILINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances  
**ENCS** - Japan Existing and New Chemical Substances  
**IECSC** - China Inventory of Existing Chemical Substances  
**KECL** - Korean Existing and Evaluated Chemical Substances  
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances  
**AICS** - Australian Inventory of Chemical Substances

**Federal Regulations**

**SARA 313**  
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and and Title 40n of the Code of Federal Regulations, Part 372:
Chemical name | SARA 313 - Threshold Values
---|---
Ethylene thiourea - 96-45-7 | 0.1

SARA 311/312 Hazardous.

Categorization
- Acute health hazard: yes
- Chronic health hazard: yes
- Fire hazard: No
- Sudden release of pressure hazard: No
- Reactive Hazard: yes

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>RQ</th>
<th>CERCLA EHS RQs</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene thiourea 96-45-7</td>
<td>10 lb</td>
<td>RQ 10 lb final RQ</td>
<td>RQ 4.54 kg final RQ</td>
</tr>
</tbody>
</table>

CERCLA

<table>
<thead>
<tr>
<th>Component</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene thiourea 96-45-7 (0-0.5)</td>
<td>10 lb</td>
</tr>
</tbody>
</table>

SARA Product RQ

<table>
<thead>
<tr>
<th>Component</th>
<th>RQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene thiourea 96-45-7 (0-0.5)</td>
<td></td>
</tr>
</tbody>
</table>

RCRA

<table>
<thead>
<tr>
<th>Component</th>
<th>RCRA - D Series Wastes</th>
<th>RCRA - P Series Wastes</th>
<th>RCRA - U Series Wastes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene thiourea 96-45-7 (0-0.5)</td>
<td></td>
<td></td>
<td>U116</td>
</tr>
</tbody>
</table>

Pesticide Information

<table>
<thead>
<tr>
<th>Component</th>
<th>FIFRA - Restricted Use</th>
<th>FIFRA - Pesticide Product Other Ingredients</th>
<th>FIFRA - Listing of Pesticide Chemicals</th>
<th>California Pesticides - Restricted Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc manganese ethylenebis dithiocarbamate 8018-01-7 (37)</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Ethylene thiourea 96-45-7 (0-0.5)</td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

State Regulations

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>CATEGORY</th>
<th>California Prop. 65</th>
<th>Non-additive, corrosive chemical type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc manganese ethylenebis dithiocarbamate 8018-01-7 (37)</td>
<td>8018-01-7</td>
<td>Carcinogen</td>
<td>Carcinogen</td>
<td></td>
</tr>
<tr>
<td>Ethylene thiourea 96-45-7 (0-0.5)</td>
<td>96-45-7</td>
<td>Carcinogen</td>
<td>Carcinogen Developmental</td>
<td></td>
</tr>
</tbody>
</table>

State Right-to-Know

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>Massachusetts</th>
<th>New Jersey</th>
<th>Pennsylvania</th>
<th>Illinois</th>
<th>Rhode Island</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zinc manganese ethylenebis dithiocarbamate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethylene thiourea</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

International regulations

U.S. EPA Label information

EPA Pesticide registration number 70506-194

16. Other Information

**NFPA**

<table>
<thead>
<tr>
<th>HEALTH</th>
<th>flammability</th>
<th>Instability</th>
<th>Physical hazard</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0</td>
<td>0</td>
<td>-</td>
</tr>
</tbody>
</table>

Preparation Date 07-Jul-2015
Revision date 07-Jul-2015
Revision Summary Update to GHS format

End of MSDS