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

Product identifier
Product Description: Manzate Pro-Stick

Other means of identification
Item#: 12-371CAN
UN-No UN3077
Synonyms Not Available
Registration number(s) PMRA # 28217

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

Details of the Supplier of the Safety Data Sheet
Supplier Address
United Phosphorus Inc.
630 Freedom Business Center
Suite 402
King of Prussia, PA 19406

Emergency telephone number
Company Phone Number 1-800-438-6071
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)

<table>
<thead>
<tr>
<th>Acute toxicity - Dermal</th>
<th>Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity - Inhalation (Vapors)</td>
<td>Category 4</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>Category 1</td>
</tr>
<tr>
<td>Reproductive Toxicity</td>
<td>Category 2</td>
</tr>
</tbody>
</table>

Label elements

EMERGENCY OVERVIEW

WARNING

hazard statements
Harmful in contact with skin
May cause an allergic skin reaction
Suspected of damaging fertility or the unborn child
HARMFUL IF INHALED
Precautionary Statements - Prevention
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
Use only outdoors or in a well-ventilated area
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
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Call a POISON CENTER or doctor/physician

Precautionary Statements - Storage
Store locked up
Store in a well-ventilated place. Keep container tightly closed

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>Mancozeb</td>
<td>8018-01-7</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>Ethylene thiourea</td>
<td>96-45-7</td>
<td>0.0-0.1</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  
Remove contaminated clothing and shoes. Rinse skin immediately with plenty of water for 15-20 minutes. Call poison control center or doctor for treatment advice. Remove and wash contaminated clothing before re-use.
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
Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice. Call a physician or poison control center immediately.

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

Unsuitable extinguishing media
No information available.

Specific hazards arising from the chemical
No information available.

Hazardous combustion products

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

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
Dam up. Soak up with inert absorbent material. Pick up and transfer to properly labelled containers.

7. Handling and Storage

Precautions for safe handling

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

## 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**

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.

**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. Goggles.

**Skin protection**

Wear protective gloves/clothing. Socks and footwear.

**Respiratory protection**

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. Wear suitable gloves and eye/face protection. Wash hands and face before breaks and immediately after handling the product. Avoid contact with skin, eyes and clothing.

## 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>solid</td>
<td></td>
</tr>
<tr>
<td>appearance</td>
<td>Yellow</td>
<td></td>
</tr>
<tr>
<td>color</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Odor</td>
<td>Slight Rotten egg-like</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Property</th>
<th>VALUES</th>
<th>Remarks/ Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>No information available</td>
<td></td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No information available</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></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>No information available</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>205 C / 401 F</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>
</tbody>
</table>

**Viscosity, kinematic**

No information available
Oxidizing properties No information available

OTHER INFORMATION

Softening point No information available
molecular weight No information available
VOC Content No information available
density No information available
Bulk density 40-45 lb/cu ft

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.
Conditions to avoid
To avoid thermal decomposition, do not overheat. Keep away from children.
incompatible materials
Strong oxidizing agents. Acids.
Hazardous decomposition products

11. Toxicological Information

Information on Likely Routes of Exposure

Product information Manzate Pro Stick :
Oral LD50 (rat) = >5,000 mg/kg
Dermal LD50 (rabbit) = > 2,000 mg/kg
Inhalation LC50 (rat) 4 hr = >5.4 mg/L

Inhalation
Mild to moderate eye irritant. Mild to slight skin irritant. Sensitizer.

Eye contact
May cause irritation of respiratory tract.

Eye contact
Moderately irritating to the eyes.

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 96-45-7</td>
<td>-</td>
<td>Group 3</td>
<td>Reasonably Anticipated</td>
<td>X</td>
</tr>
</tbody>
</table>

IARC: (International Agency for Research on Cancer)
A trace contaminant, Ethylene thiourea (ETU) a breakdown product of Maneb, has been categorized as a probable human carcinogen by NTP.

Reproductive effects Not Available.
STOT - Single Exposure
No information available.

STOT - repeated exposure
No information available.

Chronic toxicity
Avoid repeated exposure.

Target organ effects
Respiratory System, EYES.

Aspiration hazard
No information available.

Numerical Measures of Toxicity - Product information

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 Oral</td>
<td>&gt; 5,000 mg/kg (rat)</td>
</tr>
<tr>
<td>LD50 Dermal</td>
<td>&gt; 2,000 mg/kg (rat)</td>
</tr>
<tr>
<td>LC50 Inhalation</td>
<td>LC50/inhalation/4h/rat = &gt; 5.4 mg/l (rat) (4-hr)</td>
</tr>
</tbody>
</table>

12. Ecological Information

Marine Pollutant.

ecotoxicity

Mancozeb = Rainbow trout = 0.73 mg/L 96 hr
Fathead minnow 0.57 mg/L 96 hr
Bluegill sunfish = 0.84 mg/L 96 hr
Freshwater algae = 0.43 mg/L 72 hr

Persistence/Degradability
No information available.

Bioaccumulation/ Accumulation
No information available.

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:</td>
<td>K123, K124, K125, K126</td>
<td>U116</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.

UN-No
UN3077

Proper shipping name
Environmentally hazardous substances, solid, n.o.s Mancozeb

Hazard class
9

Packing group
PG III

Marine Pollutant
Marine Pollutant.
TDG

UN-No: UN3077
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Mancozeb)
Hazard class: 9
Packing group: PG III
Marine Pollutant: Y or N [List Ingredient(s) with %]

This product contains a chemical which is listed as a marine pollutant according to TDG.

ICAO

UN-No: UN3077
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. Mancozeb
Hazard class: 9
Packing group: PG III
Description: Marine Pollutant

IATA

UN-No: UN3077
Proper shipping name: Environmentally hazardous substances, solid, n.o.s Mancozeb
Hazard class: 9
Packing group: PG III
Description: Marine Pollutant

IMDG/IMO

UN-No: UN3077
Proper shipping name: Environmentally hazardous substances, solid, n.o.s (Mancozeb)
Hazard class: 9
Packing group: PG III
Marine Pollutant: This product contains a chemical which is listed as a marine pollutant according to IMDG/IMO

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 absorbed through the skin. Causes moderate eye irritation. Toxic to aquatic organisms.

International Inventories

USINV: Not determined
DSL/NDSL: Not determined
EINECS: Does not comply
ELINCS: Does not comply
ENCS: Does not comply
China: Does not comply
KECL: Does not comply
PICCS: Does not comply
AICS: Does not comply
TSCA: Does not comply
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:

<table>
<thead>
<tr>
<th>Chemical name</th>
<th>SARA 313 - Threshold Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethylene thiourea</td>
<td>0.1</td>
</tr>
</tbody>
</table>

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</td>
<td>96-45-7</td>
<td>RQ 10 lb final RQ 4.54 kg final</td>
<td></td>
</tr>
</tbody>
</table>

CERCLA

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

SARA Product RQ

| RQ               | 0    |

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</td>
<td></td>
<td></td>
<td>U116</td>
</tr>
</tbody>
</table>

Pesticide Information

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>Mancozeb</td>
<td>8018-01-7</td>
<td>Carcinogen</td>
<td>Carcinogen</td>
<td></td>
</tr>
<tr>
<td>8018-01-7 (75)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethylene thiourea 96-45-7</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>Mancozeb</td>
<td>X</td>
<td></td>
<td></td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Ethylene thiourea</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

International regulations

U.S. EPA Label information
EPA Pesticide registration number: 70506-234
Preparation Date: 20-May-2015
Revision date: 08-Jul-2015
Revision Summary: Update to GHS format

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End of MSDS