



# Material Safety Data Sheet

United Phosphorus, Inc.

| NFPA | PPE |  |  |
|------|-----|--|--|
|      |     |  |  |

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Revision Number: 1

## 1. PRODUCT AND COMPANY IDENTIFICATION

### 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)

| <u>Company Information</u> | <u>Contact Information</u> | <u>Phone Number</u> | <u>Available Hrs</u>   |
|----------------------------|----------------------------|---------------------|------------------------|
| UPI                        | R&D Technical Service      | 484-804-6974        | 8:00 am to 5:00 pm EST |
| <b>Product Name</b>        | Elixir                     |                     |                        |
| <b>EPA Reg #</b>           | 70506-298                  |                     |                        |
| <b>Recommended Use</b>     | fungicide                  |                     |                        |
| <b>Product Code</b>        | RD-ELIX                    |                     |                        |

## 2. HAZARDS IDENTIFICATION

### Emergency Overview

Toxic by inhalation  
Irritating to eyes  
May cause sensitization by skin contact

### WARNING!

**Appearance** yellow-green.

**Physical State** Solid. Granular.

**Odor** Woody.

### Potential Health Effects

#### Acute Effects

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Repeated exposure may cause allergic skin reaction.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

#### Ingredients Name

| Chemical Name  | CAS-No    | Weight % | OSHA PEL |
|----------------|-----------|----------|----------|
| Mancozeb       | 8018-01-7 | 62.5     | N/A      |
| Chlorothalonil | 1897-45-6 | 12.5     | N/A      |

### 4. FIRST AID MEASURES

|                           |                                                                                                                                                                                                                                                           |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Eye Contact</b>        | Hold eye open and rinse slowly and gently with water for 15 - 20 minutes.<br>Remove contact lenses, if present, after 5 minutes, then continue rinsing eye<br>Call a poison control center or doctor for treatment advice.                                |
| <b>Skin Contact</b>       | Take off contaminated clothing<br>Rinse skin immediately with plenty of water for 15-20 minutes<br>Call poison control center or doctor for treatment advice.                                                                                             |
| <b>Inhalation</b>         | Move person to fresh air<br>If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible<br>Call a physician or poison control center immediately                                        |
| <b>Ingestion</b>          | Call a physician or poison control center immediately<br>Have person sip a glass of water if able to swallow<br>Do not induce vomiting unless told to do so by a poison control center or doctor<br>Never give anything by mouth to an unconscious person |
| <b>Notes to Physician</b> | No information available                                                                                                                                                                                                                                  |

### 5. FIRE-FIGHTING MEASURES

#### Flammable Explosive Properties

|                                      |                                                                                                                                                                                                                                  |                       |                      |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------|
| <b>Flash Point</b>                   | Not available                                                                                                                                                                                                                    |                       |                      |
| <b>Autoignition Temperature</b>      | Not available                                                                                                                                                                                                                    |                       |                      |
| <b>Flammability Limits in Air</b>    | Not available                                                                                                                                                                                                                    |                       |                      |
| <b>Extnguishing Media</b>            | Water spray, Carbon dioxide (CO2), Dry powder, Foam                                                                                                                                                                              |                       |                      |
| <b>Fire/Explosion Hazard</b>         | Firefighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear and self-contained breathing apparatus. Fire fighting equipment should be thoroughly decontaminated after use. |                       |                      |
| <b>Hazardous Combustion Products</b> | Elevated temperatures can cause decomposition to potentially toxic gases.                                                                                                                                                        |                       |                      |
| <b>NFPA</b>                          | <b>Health</b> 2                                                                                                                                                                                                                  | <b>Flammability</b> 0 | <b>Instability</b> 0 |

## 6. ACCIDENTAL RELEASE MEASURES

|                                  |                                                                                                                                                                                                                                            |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal Precautions</b>      | Avoid contact with the skin and the eyes. Ensure adequate ventilation. Use personal protective equipment.                                                                                                                                  |
| <b>Environmental Precautions</b> | 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. |
| <b>Methods for Clean-up</b>      | Sweep up and shovel into suitable containers for disposal.                                                                                                                                                                                 |

## 7. HANDLING AND STORAGE

|                 |                                                                                                                                   |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------|
| <b>Handling</b> | Avoid breathing dust. Avoid contact with skin and eyes. In case of insufficient ventilation, wear suitable respiratory equipment. |
| <b>Storage</b>  | Keep tightly closed in a dry and cool place. Keep out of the reach of children.                                                   |

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

|                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Exposure Guidelines</b>            | This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Engineering Controls</b>           | Investigate engineering techniques to reduce exposures. Local mechanical exhaust ventilation is preferred. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Personal Protective Equipment</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Eye/face Protection</b>            | Where there is potential for eye contact have eye flushing equipment available. Use eye protection to avoid eye contact.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Skin Protection</b>                | Long sleeved clothing. Long pants. Chemical resistant gloves. Socks and footwear.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Respiratory Protection</b>         | 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. |
| <b>General Hygiene Considerations</b> | Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing before re-use. Wash hands before breaks and immediately after handling the product.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                       |                |             |                         |
|-----------------------|----------------|-------------|-------------------------|
| <b>Appearance</b>     | yellow-green   | <b>Odor</b> | Woody                   |
| <b>Physical State</b> | Solid Granular | <b>pH</b>   | (1% solution); approx 7 |

|                            |                   |                            |                   |
|----------------------------|-------------------|----------------------------|-------------------|
| <b>Boiling Point/Range</b> | Not available     | <b>Melting Point/Range</b> | Not available     |
| <b>Specific Gravity</b>    | Not available     | <b>Solubility</b>          | Not available     |
| <b>Evaporation Rate</b>    | Not available     | <b>Vapor pressure</b>      | Not available     |
| <b>Vapor Density</b>       | Not available     | <b>VOC Content</b>         | Not available     |
| <b>Viscosity</b>           | Not available     | <b>Molecular Weight</b>    | no data available |
| <b>Bulk Density</b>        | no data available | <b>Percent Solids</b>      | Not available     |
| <b>Percent Volatiles</b>   | Not available     |                            |                   |

## 10. STABILITY AND REACTIVITY

|                                                |                                             |
|------------------------------------------------|---------------------------------------------|
| <b>Stability</b>                               | Stable under recommended storage conditions |
| <b>Conditions to Avoid</b>                     | Excessive heat and open flame               |
| <b>Incompatible Materials</b>                  | No materials to be especially mentioned     |
| <b>Hazardous Decomposition Products</b>        | None under normal use                       |
| <b>Possibility of Hazardous Polymerization</b> | None under normal processing                |

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity

|                              |                                                                                                                                                                                                  |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Component Information</b> | The following relates to the active ingredient(s):<br>Mancozeb:<br>Acute oral LD50 (rat) = >5.0 g/kg<br>Acute dermal LD50 (rabbit) = >2.0 g/kg<br>Acute Inhalation LC50 (rat) = >5.2 mg/L - 4 hr |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Chronic Toxicity

### Carcinogenicity

Mancozeb:

The effects in animals from repeated high inhalation dose 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 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. Chlorothalonil:

No evidence of carcinogenicity in dogs after administration for up to one year. Squamous cell adenomas were observed in the forestomach of both rats and mice. This observation is not relevant to humans as humans have no anatomical equivalent of a forestomach. Comprehensive dietary and worker exposure studies have shown exposure levels for humans to be well below these threshold levels - in addition surveillance of chlorothalonil plant workers for many years has not demonstrated any increase in oncogenic potential to humans.

| Chemical Name  | ACGIH | IARC     | NTP | OSHA |
|----------------|-------|----------|-----|------|
| Chlorothalonil |       | Group 2B |     | X    |

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

Mancozeb:

Aquatic toxicity:

96 hour LC50 = rainbow trout 0.73 mg/L

96 hour LC50 = fathead minnows 0.57 mg/L

96 hour LC50 = Bluegill sunfish 0.84 mg/L

72 hour EC50 = freshwater algae = 0.43 mg/L.

Chlorothalonil:

Bees LC50/EC50 = >181 ug/bee

Invertebrates (Water flea) LC50/EC50 = 0.068 ppm

Fish (trout) LC50/EC50 = 0.04 ppm

Birds (8 day dietary- Bobwhite quail) LC50/EC50 = >5,200 ppm.

## 13. DISPOSAL CONSIDERATIONS

### 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

Empty containers should be taken for local recycling, recovery or waste disposal. Refer to product label.

## 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 substances, solid, n.o.s. mancozeb  
**Hazard Class** 9  
**UN-No** UN3077  
**Packing Group** PG III  
**Marine pollutant** Y.

### ICAO

**UN-No** UN3077  
**Proper Shipping Name** Environmentally hazardous substance, solid, n.o.s mancozeb  
**Hazard Class** 9  
**Packing Group** PG III

### IATA

**UN-No** UN3077  
**Proper Shipping Name** Environmentally hazardous substances, solid, n.o.s. mancozeb  
**Hazard Class** 9  
**Packing Group** PG III  
**ERG Code** 9L

### IMDG/IMO

**Proper Shipping Name** Environmentally hazardous substances, solid, n.o.s. (Mancozeb)  
**Hazard Class** 9  
**UN-No** UN3077  
**Packing Group** PG III  
**EmS No.** F-A, S-F  
**Marine pollutant** yes

## 15. REGULATORY INFORMATION

### International Inventories

| Chemical Name  | TSCA    | DSL | NDSL | EINECS/<br>ELINCS | ENCS                 | CHINA | KECL     | AICS |
|----------------|---------|-----|------|-------------------|----------------------|-------|----------|------|
| Mancozeb       |         |     |      |                   | (2)-2127<br>(2)-1841 | X     | KE-13636 | X    |
| Chlorothalonil | Present | X   |      | X                 | (3)-1805             | X     | KE-33285 | X    |

### USA

#### Federal Regulations

#### SARA 313

Y

| Chemical Name  | CAS-No    | Weight % | SARA 313 - Threshold Values |
|----------------|-----------|----------|-----------------------------|
| Chlorothalonil | 1897-45-6 | 12.5     | 0.1                         |

#### SARA 311/312 Hazardous Categorization

**RD-ELIX**  
**Elixir**

-

|                                          |     |
|------------------------------------------|-----|
| <b>Chronic Health Hazard</b>             | Yes |
| <b>Acute Health Hazard</b>               | Yes |
| <b>Fire Hazard</b>                       | No  |
| <b>Sudden Release of Pressure Hazard</b> | No  |
| <b>Reactive Hazard</b>                   | No  |

**Clean Water Act**

**Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)**

This product contains the following HAPs:

| <b>Chemical Name</b> | <b>CAS-No</b> | <b>Weight %</b> | <b>HAPS data</b> | <b>VOC Chemicals</b> | <b>Class 1 Ozone Depletors</b> | <b>Class 2 Ozone Depletors</b> |
|----------------------|---------------|-----------------|------------------|----------------------|--------------------------------|--------------------------------|
| Mancozeb             | 8018-01-7     | 62.5            |                  |                      |                                |                                |

**CERCLA**

**RCRA**

**Pesticide Information**

| <b>Component</b>                     | <b>FIFRA - Restricted Use</b> | <b>FIFRA - Pesticide Product Other Ingredients</b> | <b>FIFRA - Listing of Pesticide Chemicals</b> | <b>California Pesticides - Restricted Materials</b> |
|--------------------------------------|-------------------------------|----------------------------------------------------|-----------------------------------------------|-----------------------------------------------------|
| Mancozeb<br>8018-01-7 ( 62.5 )       |                               |                                                    | X                                             |                                                     |
| Chlorothalonil<br>1897-45-6 ( 12.5 ) |                               |                                                    | X                                             |                                                     |

**State Regulations**

**California Proposition 65**

This product contains the following Proposition 65 chemicals:

| <b>Chemical Name</b> | <b>CAS-No</b> | <b>Category</b> | <b>California Prop. 65</b> | <b>Non-additive, corrosive chemical type</b> |
|----------------------|---------------|-----------------|----------------------------|----------------------------------------------|
| Mancozeb             | 8018-01-7     | Carcinogen      | Carcinogen                 |                                              |
| Chlorothalonil       | 1897-45-6     | Carcinogen      | Carcinogen                 |                                              |

**State Right-to-Know**

| <b>Chemical Name</b> | <b>Massachusetts</b> | <b>New Jersey</b> | <b>Pennsylvania</b> | <b>Illinois</b> | <b>Rhode Island</b> |
|----------------------|----------------------|-------------------|---------------------|-----------------|---------------------|
| Mancozeb             |                      |                   |                     | X               |                     |
| Chlorothalonil       | X                    | X                 | X                   |                 |                     |

**International Regulations**

**Mexico - Grade**

Mexico - Grade

| <b>Component</b>                     | <b>Category</b> | <b>Carcinogen Status</b> | <b>Exposure Limits</b> |
|--------------------------------------|-----------------|--------------------------|------------------------|
| Mancozeb<br>8018-01-7 ( 62.5 )       | Carcinogen      |                          |                        |
| Chlorothalonil<br>1897-45-6 ( 12.5 ) | Carcinogen      |                          |                        |

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

**WHMIS Hazard Class**  
Not determined

|                              |
|------------------------------|
| <b>16. OTHER INFORMATION</b> |
|------------------------------|

**Revision Date** 29-Jul-2013

**Revision Summary**  
Add to system

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**End of MSDS**