



## MATERIAL SAFETY DATA SHEET

**Hacco, Inc.**  
**110 Hopkins Drive**  
**Randolph, WI 53956**  
**(920) 326-2461**  
**(Regulatory Office)**  
**(920) 326-5141**  
**(Manufacturing Location)**

**In Case of Emergency, Call:**  
**1-800-498-5743 (U.S. Medical Emergency)**  
**1-651-523-0318 (International, Medical Emergency)**  
**1-800-424-9300 (U.S. CHEMTREC)**  
**1-703-527-3887 (International, CHEMTREC)**  
**(collect calls will be accepted on all lines)**

### 1. PRODUCT IDENTIFICATION

Product Name: **Zinc Phosphide 82 Technical (for Use in Formulating End-Use Products)**  
EPA Signal Word: **CAUTION**  
Active Ingredient (%): Zinc Phosphide (82.0%) CAS No.: 1314-84-7  
Chemical Name: trizinc diphosphide  
Chemical Class: An inorganic compound.  
EPA Registration Number: 61282-13 **Section(s) Revised: None (Biennial review)**

### 2. COMPOSITION/INFORMATION ON INGREDIENTS

Material	OSHA PEL	ACGIH TLV	Other	NTP/IARC/OSHA Carcinogen
Zinc Phosphide (82.0%)	Not Established	Not Established	Not Established	No

Ingredients not precisely identified are proprietary or non-hazardous. Values are not product specifications.

### 3. HAZARDS IDENTIFICATION

#### Symptoms of Acute Exposure

Irritating to the eyes and skin. Prolonged exposure to zinc phosphide fumes may cause eye irritation and conjunctivitis, i.e., redness, discharge and/or swelling in eyes. Exposure may cause nausea, vomiting, abdominal cramps, chills, headache, restlessness, excitement, agitation, and dizziness. Tightness in the chest, breathing difficulty, cough, and cyanosis indicate the development of pulmonary edema. Other effect may include diarrhea, low blood pressure, change in skin color, garlic breath odor, fever, shock, tremors, fatigue, excessive perspiration, hypertension, dysrhythmia, metabolic acidosis, convulsion, and coma. Other complications may involve jaundice and liver tenderness and enlargement from liver necrosis and anuria from renal tubular injury. **DEATH IS DUE TO SEVERE POISONING.**

#### Hazardous Decomposition Products

May react with acids or water to release toxic and spontaneously flammable phosphine gas. Oxides of phosphorus and zinc.

#### Physical Properties

Appearance: Dark grey crystals, lustrous or dull powder  
Odor: Pungent garlic odor

#### Unusual Fire, Explosion, and Reactivity Hazards

Dangerous when wet. Dangerous fire hazard and slight explosion hazard when exposed to water. Dust mixtures may ignite and/or explode. When heated to decomposition, it emits toxic fumes of phosphorus and zinc oxides (Sax 1984, Pg. 2756). Irritating oxides of phosphorus may be formed in fires (Chris, 1978). Contact with water produces flammable gas. Runoff may create fire or explosion hazard (DOT ERG 2000, Guide 139).

#### 4. FIRST AID MEASURES

Have the product container, label, or Material Safety Data Sheet with you when calling a poison control center or doctor, or going for treatment. **FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL 1-800-498-5743 (U.S. Medical Emergencies) or 1-651-523-0318 (International Medical Emergencies, Collect Calls will be accepted).**

**Any persons applying zinc phosphide products and experiencing signs and symptoms such as nausea, abdominal pain, tightness of the chest, or weakness, should be seen by a physician immediately.**

Ingestion: **CALL PHYSICIAN OR POISON CONTROL CENTER IMMEDIATELY! DO NOT DRINK WATER!** Do not administer anything by mouth or make the patient vomit unless advised to do so by a physician.

Eye Contact: If in eyes: 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: If on skin or clothing: Take off contaminated clothing. Wash skin with soap and water.

Inhalation: If exposed, immediately seek fresh air, assist respiration as needed and watch for signs of poisoning. If person is not breathing call an ambulance and give artificial respiration, preferably mouth-to-mouth, if possible.

##### Notes to Physician

**There is no specific antidote. Very thorough gastric lavage usually indicated. 3-5% sodium bicarbonate gavage has been suggested. Treat supportively and symptomatically.**

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##### Medical Condition Likely to be Aggravated by Exposure

None known.

#### 5. FIRE FIGHTING MEASURES

##### Fire and Explosion

Flash Point (Test Method):	Not Applicable	
Flammable Limits (% in Air):	Lower: % Not Applicable	Upper: % Not Applicable
Autoignition Temperature:	Not Available	
Flammability:	Not Flammable	
Extinguishing Media:	Dry chemical soda ash, lime, or sand. Avoid water and foam as they may form phosphine gas upon contact with zinc phosphide. For large fires, withdraw from area and let burn. (DOT ERG 2000, Guide 139)	

##### Hazardous Decomposition Products:

May react with acids or water to release toxic and spontaneously flammable phosphine gas. Oxides of phosphorus and zinc.

##### Unusual Fire, Explosion, and Reactivity Hazards

Dangerous when wet. Dangerous fire hazard and slight explosion hazard when exposed to water. Dust mixtures may ignite and/or explode. When heated to decomposition, it emits toxic fumes of phosphorus and zinc oxides (Sax 1984, Pg. 2756). Irritating oxides of phosphorus may be formed in fires (Chris, 1978). Contact with water produces flammable gas. Runoff may create fire or explosion hazard (DOT ERG 2000, Guide 139).

In Case of Fire

Potentially hazardous in fire. Wear self-contained breathing apparatus. If water is used as an extinguishing media, diking is required to keep contaminated water out of all water supplies.

**6. ACCIDENTAL RELEASE MEASURES**

In Case of Spill or Leak

Avoid bodily contact. Avoid dust. Wear protective equipment. Keep out of bodies of water and sewer. Shut off ignition sources. Do not get water on spilled material or inside container. For a small spill, carefully shovel/sweep up/vacuum and package material in clean, covered, and dry labeled containers. For larger spills, dike spill for later disposal. Cover powder spills with plastic sheet or tarp to minimize spreading. Clean up only under supervision of an expert. Keep unnecessary people away. Isolate hazard area and deny entry.

**7. HANDLING AND STORAGE**

Store the material in a well-ventilated, secure area out of reach of children and domestic animals. Do not store food, beverages or tobacco products in the storage area. Prevent eating, drinking, tobacco use, and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**THE FOLLOWING RECOMMENDATIONS FOR EXPOSURE CONTROLS/PERSONAL PROTECTION ARE INTENDED FOR THE MANUFACTURE, FORMULATION, PACKAGING, AND USE OF THIS PRODUCT.**

**FOR COMMERCIAL APPLICATIONS AND/OR ON-FARM APPLICATIONS CONSULT THE PRODUCT LABEL.**

Ingestion: Prevent eating, drinking, tobacco usage and cosmetic application in areas where there is a potential for exposure to the material. Wash thoroughly with soap and water after handling.

Eye Contact: Wear tight-fitting chemical goggles or safety glasses with fitted side-shields.

Skin Contact: Wear chemical resistant (such as nitrile or butyl) gloves.

Inhalation: Respiratory protection is required for normal handling. In the event of exposure, use engineering controls or a NIOSH-approved particulate respirator (N, P, R, or HE filter) to keep exposure below the Occupational Exposure Limit.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance: Dark grey crystals, lustrous or dull powder

Odor: Pungent garlic odor.

Melting Point: 420° C

Boiling Point: Not Available

Specific Gravity/Density: 4.55 @ 13° C

pH: Not Available

Solubility: Insoluble in Water

Vapor Pressure (mmg Hg):  $1.03 \times 10^{-8}$  @ 77° F

Vapor Density: 1.17 (Phosphine)

**10. STABILTY AND REACTIVITY**

Stability: Stable under normal use and storage conditions.

Hazardous Polymerization: Will not occur.

Conditions to Avoid: None known.

Materials to Avoid: None known.

Hazardous Decomposition Products: May react with acids or water to release toxic and spontaneously flammable phosphine gas. Oxides of phosphorus and zinc.

## 11. TOXICOLOGICAL INFORMATION

### Acute Toxicity/Irritation Studies (Finished Product)

Ingestion:	<u>Toxic</u> Oral (LD <sub>50</sub> Rat) :	= 40 mg/kg body weight
Dermal:	<u>Practically Non Toxic</u> Dermal (LD <sub>50</sub> Rabbit) :	> 2,000 mg/kg body weight
Inhalation:	<u>Not Available</u>	
Eye Contact:	See "Other Toxicity Information," Section 11	
Skin Contact:	See "Other Toxicity Information," Section 11	
Skin Sensitization:	Not Available	

### Other Toxicity Information

Irritating to the eyes and skin. Prolonged exposure to zinc phosphide fumes may cause eye irritation and conjunctivitis, i.e., redness, discharge and/or swelling in eyes. Exposure may cause nausea, vomiting, abdominal cramps, chills, headache, restlessness, excitement, agitation, and dizziness. Tightness in the chest, breathing difficulty, cough, and cyanosis indicate the development of pulmonary edema. Other effect may include diarrhea, low blood pressure, change in skin color, garlic breath odor, fever, shock, tremors, fatigue, excessive perspiration, hypertension, dysrhythmia, metabolic acidosis, convulsion, and coma. Other complications may involve jaundice and liver tenderness and enlargement from liver necrosis and anuria from renal tubular injury. **DEATH IS DUE TO SEVERE POISONING.**

## 12. ECOLOGICAL INFORMATION

Do not discharge effluent containing this product directly to water. Do not contaminate water when disposing of equipment wash water.

## 13. DISPOSAL CONSIDERATIONS

### Container Disposal

*Plastic Containers:* Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.  
*For containers 1 gallon or less:* Do not reuse empty container (bottle, can, bucket). Wrap container and put in trash.

### Pesticide Disposal

Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use 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.

## 14. TRANSPORT INFORMATION

### DOT Classification

Proper Shipping Name:	RQ, Zinc Phosphide, 4.3, DANGEROUS WHEN WET, POISON, ERG Guide 139
Hazard Class:	Not Applicable
UN Number:	1714
Packing Group:	I
Label:	DANGEROUS WHEN WET, POISON
Special Instructions:	PLACARD ALL QUANTITIES.

### IMDG Classification

Proper Shipping Name:	RQ, Zinc Phosphide, 4.3, DANGEROUS WHEN WET, POISON, ERG Guide 139
Hazard Class:	Not Applicable
UN Number:	1714
Packing Group:	I
Label:	DANGEROUS WHEN WET, POISON
Special Instructions:	PLACARD ALL QUANTITIES.

IATA Classification

Proper Shipping Name: RQ, Zinc Phosphide, 4.3, DANGEROUS WHEN WET, POISON, ERG Guide 139  
Hazard Class: Not Applicable  
UN Number: 1714  
Packing Group: I  
Label: DANGEROUS WHEN WET, POISON  
Special Instructions: PLACARD ALL QUANTITIES.

Canadian Classification

Proper Shipping Name: RQ, Zinc Phosphide, 4.3, DANGEROUS WHEN WET, POISON, ERG Guide 139  
Hazard Class: Not Applicable  
UN Number: 1714  
Packing Group: I  
Label: DANGEROUS WHEN WET, POISON  
Special Instructions: PLACARD ALL QUANTITIES.

**15. REGULATORY INFORMATION**

EPA SARA Title III Hazard Classification (For Reporting Under Sections 311 & 312)

Immediate Y Fire N Sudden Release of Pressure N  
Delayed N Reactive Y

Section 313 Toxic Chemicals

Zinc Phosphide (CAS No. 1314-84-7) 82%

California Proposition 65

Not Applicable

CERLA/SARA 302 Reportable Quantity (RQ)

Zinc Phosphide (CAS No. 1314-84-7) 82% Reportable Quantity: 100 lbs.

RCRA Hazardous Waste Classification (40 CFR 261)

P122 (For concentrations of greater than 10%)

TSCA Status

Exempt from TSCA, subject to FIFRA

**16. OTHER INFORMATION**

NFPA Hazard Ratings

Health: 1  
Flammability: 1  
Instability: 2

HMIS Hazard Ratings

Health: 1  
Flammability: 1  
Reactivity: 2

0 - Minimal  
1 - Slight  
2 - Moderate  
3 - Serious  
4 - Extreme

For Non-Emergency Questions About This Product Call:

1-800-621-8829

Neogen Corporation

Lexington, KY

Original Issue Date: April 2004  
Revision Date: March 1<sup>st</sup>, 2010  
Replaces: June 4<sup>th</sup>, 2008

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