







Material Safety Data Sheet

United Phosphorus, Inc.

NFPA	PPE		
			

Issued Date 21-May-2008

Revision Date 18-Sep-2013

Revision Number: 4

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	Customer Service	1-800-438-6071	8:00 am - 5:00 pm (EST)
Product Name	Quick-Phlo-R Granules		
EPA Reg #	70506-69		
Recommended Use	Restricted Use Pesticide The use of his product is STRICTLY PROHIBITED on single family and multi-family residential properties, nursing homes, schools (except athletic fields) , daycare facilities and hospitals.		
Product Code	12U-142A		

2. HAZARDS IDENTIFICATION

Emergency Overview

Aluminum phosphide - reacts with water to produce phosphine gas (PH₃)

Dangerous when wet

Fatal if swallowed or inhaled

When sealed aluminum foil pouches are opened contact with the moisture in the air will cause phosphine gas to be released

Phosphine is spontaneously flammable in air.

DANGER!

Appearance Greenish, Yellow.

Physical State Solid. Granular.

Odor Garlic like. Pure phosphine gas is odorless but a garlic odor might be detected due to a contaminant. Since odor may not be detected under certain circumstances, the absence of a garlic odor does not mean that phosphine gas is absent.

Potential Health Effects

- Inhalation
- Ingestion
- Skin contact

Acute Effects

Eyes

Skin

Inhalation

Ingestion

Phosphine gas is odorless. Accidental ingestion of aluminum phosphide or inhalation of phosphine gas have been reported to produce CNS depression, pulmonary edema, respiratory distress syndrome, cardiac dysrhythmias, seizures, liver injury and renal failure.

Irritating to eyes.

Irritating to skin.

Fatal if inhaled - Do not breathe mist/vapors.

Fatal if swallowed - Do not eat, drink, or smoke while handling this product.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients Name

Chemical Name	CAS-No	Weight %	OSHA PEL
Aluminum phosphide	20859-73-8	77.5	N/A

4. 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.

Skin Contact

Brush or shake off material. Wash contaminated skin with soapy water in a well ventilated area
Call poison control center or doctor for treatment advice.

Inhalation

If breathing is irregular or stopped, administer artificial respiration
May cause allergic respiratory reaction
Call a physician or poison control center immediately

Ingestion Immediate medical attention is required
Call a physician or poison control center immediately
Do not induce vomiting unless told to do so by a poison control center or doctor
Get medical attention
Do not give water (potential additional formation of phosphine) unless authorized by a physician.

Notes to Physician Aluminum phosphide- This product reacts with moisture from air, water, acids and many other liquids to release hydrogen phosphide (phosphine) gas. Symptoms of severe poisoning may occur within a few hours to several days. Phosphine poisoning may result in; pulmonary edema, liver elevated serum GOT, LDH and alkaline phosphatase, reduced prothrombin, hemorrhage and jaundice, and kidney hematuria and anuria. Pathology is characterized by hypoxia.

5. FIRE-FIGHTING MEASURES

Flammable Explosive Properties

Flash Point Aluminum phosphide - is not flammable. However, it reacts readily with water to produce hydrogen phosphide (phosphine, PH₃) gas which may ignite spontaneously in air concentrations above the LEL of 1.8% v/v.

Autoignition Temperature Not available

Flammability Limits in Air

Lower 1.8% w/v

Lower 1.8% v/v

Extnguishing Media

Carbon dioxide (CO₂) Dry powder Dry chemical Sand

Fire/Explosion Hazard

Alphos = Hydrogen phosphide (Phosphine)/air mixtures at concentrations above the lower flammable limit may ignite spontaneously. Ignition of high concentrations of hydrogen phosphide can produce a very energetic reaction. Explosions can occur under these conditions and may cause personal injury. Never allow the build- up of hydrogen phosphide to exceed explosive concentrations. Containers of metal phosphides should be opened in open air and never in a flammable atmosphere. Do not confine spent or partially spent dust from metal phosphide fumigants as slow release of the hydrogen phosphide from these materials may reuslt in formation of an explosive atmosphere. Spontaneous ignition may occur if large quantities of aluminum phosphide are piled in contact with liquid water. Fires containing hydrogen phosphide or metal phosphides will produce phosphoric acid by the following reaction: $2PH_3 + 4O_2 = H_2O + P_2O_5 = 2H_3PO_4$

Hazardous Combustion Products

Phosphine gas.

NFPA

Health 4

Flammability 4

Instability 2

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Remove all sources of ignition. Ensure adequate ventilation. Avoid contact with skin, eyes and clothing. Use personal protective equipment. An accidental spill/release of material may produce high levels of gas. A NIOSH/MSHA approved full face gas mask with phosphine cartridge or SCBA must be employed during wet deactivation of partially spent material. Wear protective gloves and clothing.
Environmental Precautions	Do not flush into surface water or sanitary sewer system. Should not be released into the environment.
Methods for Clean-up	Do not use water at any time during clean-up. Wear gloves when handling aluminum phosphide. Damaged aluminum foil pouches should be transferred to a sound dry metal container and immediately seal and properly label as aluminum phosphide. Follow all label instructions for disposal of residual material and/or empty containers.

7. HANDLING AND STORAGE

Handling	Use of this product is STRICTLY PROHIBITED on single and multifamily residential properties and nursing homes, schools (except athletic fields) daycare facilities and hospitals. Keep out of reach of children. Do not eat, drink or smoke when using this product. Remove all sources of ignition. Wear personal protective equipment. It is recommended that aluminum foil pouch be opened in air or near a fan, which exhausts outside immediately. Never open in a flammable atmosphere as the product may, although rare, flash. When opening, point pouch away from the face and body. These precautions will reduce the applications potential for exposure to hydrogen phosphide (phosphine) gas. Do not expose product to atmospheric moisture any longer than is necessary.
Storage	Store in cool/well-ventilated place. Keep away from heat and sources of ignition. Do not transport or store above 38 C/100 F. Do not store in buildings where humans or domestic animals reside.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Engineering Controls

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. Use equipment/monitors for the detection of phosphine gas.

Personal Protective Equipment

Eye/face Protection

Where there is potential for eye contact have eye flushing equipment available. Eye contact should be avoided through the use of chemical safety glasses, goggles, or a faceshield selected in regard to exposure potential.

Skin Protection

Wear protective gloves/clothing.

Respiratory Protection

A NIOSH/MESA approved full face mask with approved canister for phosphine may be employed for concentrations up to 15 ppm. At concentrations above that level, or when concentration is unknown, NIOSH/MESA approved SCBA or equivalent must be worn.

General Hygiene Considerations

Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Wear suitable gloves and eye/face protection. Wear respiratory protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Greenish Yellow	Odor	Garlic like Pure phosphine gas is odorless but a garlic odor might be detected due to a contaminant. Since odor may not be detected under certain circumstances, the absence of a garlic odor does not mean that phosphine gas is absent.
Physical State	Solid Granular	pH	8.13
Boiling Point/Range	Not available	Melting Point/Range	Not available
Specific Gravity	2.85	Solubility	Reacts, PH ₃ generated is slightly soluble
Evaporation Rate	Not available	Vapor pressure	PH 33.5 mmHg (68 F)
Vapor Density	Not available	VOC Content	Not available
Viscosity	Not available	Molecular Weight	no data available
Bulk Density	0.82 g/cm ³	Percent Solids	Not available
Percent Volatiles	Not available		

10. STABILITY AND REACTIVITY

Stability

This product is stable to most chemical reactions except for hydrolysis. A component of this product, aluminum phosphide, reacts with moisture from the air, water, acids and many other liquids to produce toxic and flammable hydrogen phosphine gas. Pure hydrogen phosphide (phosphine) gas is practically insoluble in water, fats and oils and is stable at normal fumigation temperatures.

Conditions to Avoid	Exposure to moisture Protect from water
Incompatible Materials	oxidizers Water - moisture Hydrogen phosphide may react with certain metals (gold, silver, brass, other precious metals and their alloys) and cause corrosion especially at high temperatures and relative humidities. Small electric detectors, brass sprinkler heads, batteries and battery chargers, forklifts, temperature monitoring systems, electrical switch gear, communication devices, computers, calculators, watches and other electronic equipments should be protected or removed before fumigation. Hydrogen phosphide gas will also react with certain metallic salts and, therefore such items as photographic film, copying papers and some inorganic pigments, etc. should not be exposed.
Hazardous Decomposition Products	Phosphine gas
Possibility of Hazardous Polymerization	Hazardous polymerisation does not occur

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

Aluminum phosphide -
Acute oral LD50 = 11.5 mg/kg
Acute dermal LD50 = >5,000 mg/kg (1 hr exposure)
Sensitization = Not a sensitizer Hydrogen phosphide (phosphine) gas -
Inhalation = LC50 190 ppm (1 hour)

Chronic Toxicity

Carcinogenicity

Aluminum phosphide:
Chronic effects = Not expected to produce target organ effects
Mutagenicity = No data
Carcinogenicity = Not classified as a carcinogen by IARC, OSHA, or NTP
Reproductive and Developmental Effects = Not expected to produce reproductive or developmental effects. Hydrogen phosphide (phosphine) gas -
Chronic effects = In a 2-year study, rats were exposed to 48-90 g/m³ of feed and no overt systemic toxicity was noted.
Mutagenicity = Increased frequency of cells with structural chromosomal aberrations noted in an invitro cytogenetic assay with Chinese hamster ovary cells.
Carcinogenicity = Not classified as a carcinogen by IARC, OSHA or NTP
Reproductive and developmental effects = Not expected to product reproductive or developmental effects.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Highly toxic to wildlife. Non-target organisms exposed to phosphine gas in burrows will be killed.

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. Follow label for proper disposal instructions.

Contaminated Packaging Empty aluminum foil pouches may contain hazardous residues. Pouches should be handled as instructed by following all container disposal directions.

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name Aluminum phosphide mixture
Hazard Class 4.3
Subsidiary Class 6.1
UN-No UN1397
Packing Group PG I
Reportable Quantity (RQ): 100 lbs

ICAO

UN-No 1397
Proper Shipping Name Aluminum phosphide mixture
Hazard Class 4.3
Subsidiary Class 6.1
Packing Group PG I
Description Forbidden by passenger aircraft

IATA

UN-No 1397
Proper Shipping Name Aluminum phosphide mixture
Hazard Class 4.3
Subsidiary Class 6.1
Packing Group PG I
ERG Code 4PW

IMDG/IMO

Proper Shipping Name Aluminum phosphide mixture
Hazard Class 4.3
Subsidiary Class 6.1
UN-No 1397
Packing Group PG I
EmS No. F-G, S-N

15. REGULATORY INFORMATION

International Inventories

Chemical Name	TSCA	DSL	NDSL	EINECS/ ELINCS	ENCS	CHINA	KECL	AICS
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12U-142A
Quick-Phlo-R Granules

Aluminum phosphide	Present		X	X		X	KE-01021	X
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USA

Federal Regulations

SARA 313

Y

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values
Aluminum phosphide	20859-73-8	77.5	1.0

SARA 311/312 Hazardous Categorization

Chronic Health Hazard	No
Acute Health Hazard	Yes
Fire Hazard	Yes
Sudden Release of Pressure Hazard	No
Reactive Hazard	Yes

Clean Water Act

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

This product does not contain any HAPs.

CERCLA

Component	RQ
Aluminum phosphide 20859-73-8 (77.5)	100 lb

Component	CERCLA EHS RQs
Aluminum phosphide 20859-73-8 (77.5)	100 lb

RCRA

Component	RCRA - D Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Aluminum phosphide 20859-73-8 (77.5)		P006	

Pesticide Information

Component	FIFRA - Restricted Use	FIFRA - Pesticide Product Other Ingredients	FIFRA - Listing of Pesticide Chemicals	California Pesticides - Restricted Materials
Aluminum phosphide 20859-73-8 (77.5)	Under further evaluation as sole active ingredient for agricultural crop uses No mixtures registered.		X	

State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

State Right-to-Know

Chemical Name	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Aluminum phosphide	X	X	X		

International Regulations

Mexico - Grade Not available

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

16. OTHER INFORMATION

Revision Date 18-Sep-2013

Revision Summary

Update section 1

UPI, Inc. believes that the information and recommendations contained herein (including data and statements) are accurate as of the date hereof. NO WARRANTY OF FITNESS FOR ANY PARTICULAR PURPOSE, WARRANTY OF MERCHANTABILITY, OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, IS MADE CONCERNING THE INFORMATION PROVIDED HEREIN. The information provided herein relates only to the specific product designated and may not be valid where such product is used in combination with other materials or in any process. Further, since the conditions and methods of use are beyond the control of UPI, Inc. UPI, Inc. expressly disclaims any and all liability as to any results obtained or arising from any use of the product or reliance on such information.

End of MSDS