Material Safety Data Sheet

United Phosphorus, Inc.

NFPA	PPE

Issued Date 22-Aug-2007 **Revision Date** 04-Jan-2011 **Revision Number:** 10

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)

Company Information	Contact Information	Phone Number	Available Hrs
UPI	Customer Service	1-800-438-6071	8:00 am to 5:00 pm EST
	R&D Technical Service	610-878-6100	8:00 am - 5:00 pm (EST)

Product Name WEEVIL-CIDE® Tablets, WEEVIL-CIDE® Pellets
EPA Reg # 70506- 13, 70506-14
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-142

2. HAZARDS IDENTIFICATION

Emergency Overview

Aluminum phosphide - reacts with water to produce phosphine gas (PH3).
Ammonium carbamate releases ammonia and carbon dioxide.
Dangerous when wet
Fatal if swallowed or inhaled.
When sealed containers are opened contact with the moisture in the air will cause phosphine gas to be released.
Phosphine is spontaneously flammable in air.

DANGER!

Appearance light grey, to, Greenish.

Physical State Solid. Pellet/tablet.

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 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.

Eyes Irritating to eyes.
Skin Irritating to skin.
Inhalation Fatal if inhaled - Do not breathe mist/vapors..
Ingestion 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
Ammonium carbamate	1111-78-0	>20	N/A
Aluminum phosphide	20859-73-8	60	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	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artifical respiration. Call a physician or Poison Control Centre 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 Vomiting may off-gas and release phosphine, which could pose a risk of secondary contamination. Do not give water (potential additional formation of phosphine) unless authorized by a physician.
Notes to Physician	Aluminim 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, hemmorhage and jaundice, and kidney hematuria and anauria. 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% 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: 2PH3 + 4O2 = H2O + P2O5 = 2H3PO4

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.

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 phsophide . Damaged aluminum flasks 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 the gas-tight, aluminum flask be opened in open 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 container away from the face and body. These precautions will reduce the applicators 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. Store in original container. . Keep away from heat and sources of ignition. Do not store in buildings where humans or domestic animals reside..

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL
Aluminum phosphide	1 mg/m³ Respirable fraction.	

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	light grey to Greenish	**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 Pellet/tablet	**pH**	No data available
Boiling Point/Range	Not available	**Melting Point/Range**	Not available
Specific Gravity	2.85	**Solubility**	Insoluble
Evaporation Rate	Not available	**Vapor Pressure**	Not available
Vapor Density	Not available	**VOC Content**	Not available
Viscosity	Not available	**Molecular Weight**	No data available
Bulk Density	No data available	**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 humdities. 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 shoul dbe protected or removed before fumigation. .
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/m^3 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

Non refillable container. Do not reuse this container. . Trple rinse (or equivalent) promptly after emptying. . Clean container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application requipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. The offer for recycling if avilable or puncture and dipose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. . It is permissible to remove lids and expose empty flasks to atmospheric conditions until te residue is reacted. Then puncture and dispose of in a sanitary landfill or other approved site, or by other procedures approved by state and local authorities.

If properly exposed the residual dust remaining after afumigation with the tablets will be a grayish white powder and contain only a small amount of unreacted aluminum phosphide. HOWEVER, residual dust from incompletely exposed tablets may require special care. .

14. TRANSPORT INFORMATION

DOT Aluminum flasks are covered under DOT special permit DOT -SP 13307

Proper Shipping Name	For flasks: when transported by single motor vehicle containing not more than 21 kilograms of aluminum phosphide pesticide and stowed within metal boxes or metal compartments within the motor vehicle: Aluminum phosphide pesticides
Hazard Class	6.1
UN-No	UN3048
Packing Group	PG I
Reportable Quantity (RQ):	100 lbs
Special Provisions	For shipments not covered under DOT 13307 the following description must be used: UN1397, Aluminum phosphide mixture, 4.3,(6.1), PG I

ICAO

UN-No	1397
Proper Shipping Name	Aluminum phosphide
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
Hazard Class	4.3
Subsidiary Class	6.1

14. TRANSPORT INFORMATION

Packing Group	PG I
ERG Code	4PW

IMDG/IMO

Proper Shipping Name	Aluminum phosphide
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

Ammonium carbamate

DSL	Listed
EINECS/ELINCS	Listed
ENCS	Listed
CHINA	Listed
KECL	Listed

Aluminum phosphide

NDSL	Listed
EINECS/ELINCS	Listed 31 Jan 2014
CHINA	Listed
KECL	Listed

USA

Federal Regulations

SARA 313
Y

Chemical Name	CAS-No	Weight %
Ammonium carbamate	1111-78-0	>20
Aluminum phosphide	20859-73-8	60

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

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Ammonium carbamate	5000 lbs			Listed.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product does not contain any HAPs.

CERCLA

Chemical Name	RQ
Ammonium carbamate	Listed.
Aluminum phosphide	Listed.

Chemical Name	CERCLA EHS RQs
Aluminum phosphide	100 lbs

RCRA

Chemical Name	RCRA - D Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Aluminum phosphide		P006	

Pesticide Information

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
Ammonium carbamate	Listed.	Substance no. 0091 Listed.	Listed.	Listed.	
Aluminum phosphide	Listed.	Substance no. 0063 Listed.	Listed.	Listed.	

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 04-Jan-2011

Revision Summary
Update section 8 Update section 13

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End of MSDS