Safety Data Sheet

Revision Date: 17-January-2020 **Version 1.**1

1. IDENTIFICATION

Product identifier

Product Name PH3 Aluminum Phosphide Fumigant Pellets
PH3 Aluminum Phosphide Fumigant Tablets

Other means of identification

SDS # SDS.PH3 Pellets and Tablets.English.20200117.1

Registration Number(s) EPA Reg. No. 1015-74 (Pellets) 1015-76 (Tablets)
UN/ID No UN1397

Recommended use of the chemical and restrictions on use

Recommended Use AN APPROVED APPLICATORS MANUAL ACCOMPANIES THESE PRODUCTS. REFER TO THE APPLICATORS MANUAL FOR DETAILED PRECAUTIONS, RECOMMENDATIONS AND DIRECTIONS OF USE.

Details of the supplier of the safety data sheet

Supplier Address
Douglas Products and Packaging Company, LLC
1550 East Old 210 Highway
Liberty, MO 64068
Customer Information Number: 800-223-3684

Emergency telephone number

Emergency Telephone 1-844-845-3129 or 1-352-326-7641

2. HAZARDS IDENTIFICATION

This chemical is a product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-EPA registered chemicals. Please see Section 15 for additional EPA information.

Appearance Gray to light green solid or dust **Physical state** Solid **Odor** Garlic, decaying fish or odorless

Classification

Acute toxicity - Oral	Category 2
Acute toxicity - Dermal	Category 3
Acute toxicity - Inhalation (Dusts/Mists)	Category 1
Substances or mixtures which, in contact with water, emit flammable gases	Category 1

Signal Word
Danger

Hazard statements
Fatal if swallowed
Toxic in contact with skin
Fatal if inhaled
In contact with water releases flammable gases which may ignite spontaneously

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Wear protective gloves/protective clothing/eye protection/face protection
Do not breathe dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Wear respiratory protection
Keep away from any possible contact with water, because of violent reaction and possible flash fire
Handle under inert gas. Protect from moisture

Precautionary Statements - Response

IF ON SKIN: Wash with plenty of water and soap
Call a poison center or doctor/physician if you feel unwell
Remove/Take off immediately all contaminated clothing
Wash contaminated clothing before reuse
Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Immediately call a poison center or doctor/physician
IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
Rinse mouth
In case of fire: Use CO2, dry chemical, or foam for extinction

Precautionary Statements - Storage

Store locked up
Store in a well-ventilated place. Keep container tightly closed
Store in a dry place

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

Other hazards

Very toxic to aquatic life

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Weight-%
Aluminum phosphide	20859-73-8	0-60
Ammonium Carbamate	506-87-6	0-20
Inert ingredients	Proprietary	0-20

If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

Description of first aid measures

General Advice

DANGER: TOXIC

ALUMINUM PHOSPHIDE (ALP) REACTS WITH MOISTURE AND WATER TO PRODUCE PHOSPHINE GAS (HYDROGEN PHOSPHIDE) (PH3). When gas forms, may smell like garlic. Since odor might not be detected under certain circumstances, the absence of a garlic odor does not mean that hydrogen phosphide is absent. When container is opened, the contents may react with moisture in the air and cause a release of hydrogen phosphide which may spontaneously burn in air. Ingestion of tablets, pellets or dust will be harmful or fatal.

Eye Contact	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for a minimum of 15 minutes or as directed by physician. Call a poison control center or doctor for treatment advice.
Skin Contact	IF ON SKIN (or hair): Rinse skin immediately with plenty of water for 15-20 minutes. Remove contaminated clothing, wash thoroughly before reuse. Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages. Call a poison control center or doctor for treatment advice.
Inhalation	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If person is not breathing, call 911 or ambulance, begin artificial respiration immediately, preferably mouth-to-mouth, if possible. Immediately call a poison center or doctor/physician.
Ingestion	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Have person sip a glass of water if able to swallow. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

Symptoms Fatal if swallowed. Fatal if inhaled. Toxic in contact with skin.

Indication of any immediate medical attention and special treatment needed

Notes to Physician Aluminum phosphide reacts with moisture to release phosphine gas (hydrogen phosphide) Symptoms of sever poisoning may occur within a few hours up to several days. Aluminum phosphide pellets react with moisture from the air, water, acids and many other liquids to release hydrogen phosphide. Mild exposure by inhalation causes malaise (indefinite feeling of sickness), ringing in the ears, fatigue, nausea and pressure in the chest, which is relieved by removal to fresh air. Moderate poisoning causes weakness, vomiting, and pain just above the stomach, chest pain, diarrhea and dyspnea (difficulty in breathing). Symptoms of severe poisoning may occur within a few hours to several days, resulting in pulmonary edema (fluid in lungs) and may lead to dizziness, cyanosis (blue or purple skin color), unconsciousness, and death. In sufficient quantity, hydrogen phosphide affects the liver, kidneys, lungs, nervous system and circulatory system. Inhalation can cause lung edema (fluid in lungs) and hyperemia (excess of blood in body parts), small perivascular brain hemorrhages and brain edema (fluid in brain). Ingestion can cause lung and brain symptoms but damage to the viscera (body cavity organs) is more common. hydrogen phosphide poisoning may result in (1) pulmonary edema, (2) liver elevated serum GOT, LDH, and alkaline phosphates, reduced prothrombin, hemorrhage, and jaundice (yellow skin color) and (3) kidney hematuria (blood in urine) and anuria (abnormal or lack of urination). Pathology is characteristic of hypoxia (oxygen deficiency in body tissue). Frequent exposure to concentration above permissible levels over a period of days or weeks may cause poisoning. Treatment is symptomatic Pathology is characteristic of hypoxia.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media

Sand. Carbon dioxide (CO2). Dry extinguishing media.

Unsuitable Extinguishing Media DO NOT USE WATER.

Specific Hazards Arising from the Chemical

In contact with water, releases flammable gases which may ignite spontaneously. Keep away from any possible contact with water because of violent reaction and possible flash fire.

Hazardous combustion products Formation of hydrogen phosphide gas, ammonia gas and carbon dioxide.

Protective equipment and precautions for firefighters

EMERGENCY RESPONDERS: MAKE SURE YOU HAVE READ THE APPLICATORS MANUAL. As in any fire, wear self-contained breathing apparatus pressure-demand, NIOSH (approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions In case of spill, evacuate the area and remove all ignition sources. Use personal protection recommended in Section 8. Avoid contact with skin, eyes or clothing.

Environmental precautions

Environmental precautions Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Clean-Up DO NOT USE WATER AT ANY TIME DURING CLEAN UP. Wear gloves when handling aluminum phosphide. Damaged aluminum flasks should be transferred to a dry metal container and immediately sealed and properly labeled as aluminum phosphide. Follow all label instructions for disposal of residual material and/or empty containers.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on Safe Handling Wash face, hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing and eye/face protection. Wear respiratory protection. Do not breathe dust/fume/gas/mist/vapors/spray. Use only outdoors or in a well-ventilated area. Keep away from any possible contact with water because of violent reaction and possible flash fire. Handle under inert gas. Protect from moisture. Extreme caution must be used if package is damaged in shipment. Follow the applicators manual of opening the container away from the body.

Conditions for safe storage, including any incompatibilities

Storage Conditions CONSIDER THE POTENTIAL HAZARDS OF THIS PRODUCT OUTLINED IN SECTION 2. Use process exposures such as local exhaust ventilation, reduce humidity, and reduce access to the product. Store in original labeled container. KEEP LOCKED UP AND OUT OF REACH OF CHILDREN. Keep container tightly closed and store in a cool, dry and well-ventilated place. Protect from moisture. Keep away from incompatible materials, extreme heat or open flame.

Incompatible Materials Acids. Bases. Strong oxidizing agents.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

None noted.

Appropriate engineering controls

Engineering Controls Apply technical measures to comply with the occupational exposure limits. Showers. Eyewash stations. Ventilation systems.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Wear safety goggles or safety glasses to prevent contact. Suggest using single use safety goggles or clean between use. Refer to 29 CFR 1910.133 for eye and face protection regulations.

Skin and Body Protection Long sleeve shirts, long pants, socks, rubber boots and dry cotton gloves. Suggest using as much disposable chemical resistant suit and hat, rubber booties, dry cotton gloves. Refer to 29 CFR 1910.138 for appropriate skin and body protection.

Respiratory Protection Wear an approved NIOSH full face mask respirator that provides protection from this product if hydrogen phosphide is released. Suggest that you use disposable approved respiratory mask with hydrogen phosphide cartridge or properly clean before use and store in a sealed plastic bag. Refer to 29 CFR 1910.134 for respiratory protection requirements.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice. Do not eat, drink or smoke when using this product. After removal of application clothing brush off any dust left on your clothing. Wash face, hands and any exposed skin thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Solid		
Appearance	Gray to light green solid or dust	**Odor**	Garlic, decaying fish or odorless
Color	Gray to light green	**Odor Threshold**	Since odor might not be detected under certain circumstances, the absence of a garlic odor does not mean that hydrogen phosphide is absent

Property	**Values**	**Remarks • Method**
pH	Not applicable. Product cannot be dispersed or diluted with water	
Melting point / freezing point	Not available	
Boiling point / boiling range	Boiling point is not achieved as product decomposes before boiling	
Flash point	Not available	
Evaporation Rate	Not available	
Flammability (Solid, Gas)	Not available	
Flammability Limit in Air		
Upper flammability or explosive limits	Not available	
Lower flammability or explosive limits	Not available	
Vapor Pressure	Not available	
Vapor Density	Not available	
Relative Density	2.85	
Water Solubility	Insoluble in water	
Solubility in other solvents	Not available	
Partition Coefficient	Not available	
Autoignition temperature	Not available	
Decomposition temperature	Not available	
Kinematic Viscosity	Not applicable- product is not a liquid	
Dynamic Viscosity	Not applicable- product is not a liquid	
Explosive Properties	End-use product has no impact explosion characteristics	
Oxidizing Properties	Not available	

10. STABILITY AND REACTIVITY

Reactivity

Product will react with exposure to moisture or water.

Chemical stability

Considered stable under normal ambient temperatures except hydrolysis. Aluminum phosphide reacts with moisture to produce hydrogen phosphide gas. Ammonium carbamate produces ammonia and carbon dioxide.

Possibility of hazardous reactions

In contact with water releases flammable gases which may ignite spontaneously.

Hazardous Polymerization Hazardous polymerization does not occur.

Conditions to Avoid
Keep out of reach of children. Exposure to moisture. Water. Extreme temperatures.

Incompatible materials
Acids. Bases. Strong oxidizing agents.

Hazardous decomposition products
Formation of hydrogen phosphide gas, ammonia gas and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Eye Contact Avoid contact with eyes.

Skin Contact Toxic in contact with skin.

Inhalation Fatal if inhaled.

Ingestion Fatal if swallowed.

Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Aluminum phosphide 20859-73-8	= 11.5 mg/kg (Rat)	-	= 15.5 mg/m^3 (Rat) 4 h

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Please see section 4 of this SDS for symptoms.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity Based on the information provided, this product does not contain any carcinogens or potential carcinogens as listed by OSHA, IARC or NTP.

Numerical measures of toxicity
Not available

12. ECOLOGICAL INFORMATION

Ecotoxicity
Very toxic to aquatic life.

Persistence/Degradability
Not determined.

Bioaccumulation
There is no data for this product.

Mobility
Not determined

Other Adverse Effects
Not determined

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Disposal of Wastes

Place spent tablets/pellets into a sealed container and check regulations for disposal. Disposal should be in accordance with applicable regional, national and local laws and regulations.

Partially spent or unreacted material is acutely hazardous. Improper disposal of excess pesticide is a violation of Federal law. If these wastes cannot be disposed of by use according to the Applicator's Manual 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 still have residue. Use the instructions in the applicators manual to facilitate proper disposal. Disposal should be in accordance with applicable regional, national and local laws and regulations.

US EPA Waste Number

Chemical name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Aluminum phosphide 20859-73-8	P006			

Chemical name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
Aluminum phosphide 20859-73-8		P006		

14. TRANSPORT INFORMATION

Note

Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances. By Domestic Motor Vehicle, product may be eligible for regulatory relief under DOT Special Permit 11329. Please contact manufacturer for details.

DOT

UN/ID No	UN1397
Proper Shipping Name	Aluminum Phosphide
Hazard class	4.3
Subsidiary Hazard Class	6.1
Packing Group	I
Reportable Quantity (RQ)	100lbs
Marine Pollutant	Yes, if in containers larger than 882 lbs (400 kg)

IATA

UN number	UN1397
Proper Shipping Name	Aluminum Phosphide
Transport hazard class(es)	4.3
Subsidiary hazard class	6.1
Packing Group	I
Marine Pollutant	Yes

IMDG

UN number	UN1397
Proper Shipping Name	Aluminum Phosphide
Transport hazard class(es)	4.3
Subsidiary Hazard Class	6.1
Packing Group	I
EmS-No	F-G, S-N
Marine Pollutant	Yes

15. REGULATORY INFORMATION

International Inventories

Chemical name	TSCA	DSL/NDSL	EINECS/ELINCS	ENCS	IECSC	KECL	PICCS	AICS
Aluminum phosphide	X	X	X		X	X	X	X
Ammonium carbamate	X	X	X	X	X		X	X

Legend:

TSCA *- United States Toxic Substances Control Act Section 8(b) Inventory*

DSL/NDSL *- Canadian Domestic Substances List/Non-Domestic Substances List*

EINECS/ELINCS *- European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances*

ENCS *- Japan Existing and New Chemical Substances*

IECSC *- China Inventory of Existing Chemical Substances*

KECL *- Korean Existing and Evaluated Chemical Substances*

PICCS *- Philippines Inventory of Chemicals and Chemical Substances*

AICS *- Australian Inventory of Chemical Substances*

US Federal Regulations

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical name	Hazardous Substances RQs	CERCLA/SARA RQ	Reportable Quantity (RQ)
Aluminum phosphide 20859-73-8	100 lb	100 lb	RQ 100 lb final RQ RQ 45.4 kg final RQ
Ammonium carbamate 506-87-6	5000 lb		RQ 5000 lb final RQ RQ 2270 kg final RQ

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 Title 40 of the Code of Federal Regulations, Part 372

Chemical name	CAS No.	Weight-%	SARA 313 - Threshold Values %
Aluminum phosphide - 20859-73-8	20859-73-8	0-60	1.0
Ammonium carbamate	506-87-6	0-20	1.0

CWA (Clean Water Act)

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Ammonium carbamate	5000 lb			X

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Chemical name	New Jersey	Massachusetts	Pennsylvania
Aluminum phosphide 20859-73-8	X	X	X
Ammonium carbamate 506-87-6	X	X	X

EPA Pesticide Registration Number EPA Reg. No. 1015-74 (Pellets) 1015-76 (Tablets)

EPA Statement

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:

EPA Pesticide Label

Signal Word: DANGER

Pellets or dust of this product may be fatal if swallowed

Difference between SDS and EPA pesticide label

	EPA	OSHA
Signal Word	Danger	Danger
Acute toxicity - Oral	May be fatal if swallowed	Fatal if swallowed
Acute toxicity - Dermal	N/A	Toxic in contact with skin
Acute toxicity - Inhalation (Dusts/Mists)	N/A	Fatal if inhaled

16. OTHER INFORMATION

NFPA	**Health Hazards**	**Flammability**	**Instability**	**Special Hazards**
	4	4	2	~~W~~
HMIS	**Health Hazards**	**Flammability**	**Physical hazards**	**Personal Protection**
	4	4	2	X

Issue Date: 28-Jan-2019
Revision Date: 07-March-2019
Revision Note: Eliminated reference to MSA in Sections 5 & 8: “NIOSH/MSA” to “NIOSH”

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet