

A NIOSH/MSHA approved; full-faced mask with phosphine canister combination may be used at levels up to 15 ppm or to escape from levels up to 1500 ppm. Gas levels above 15 ppm, or in situations where the phosphine concentration is unknown, a NIOSH/MSHA approved, self-contained breathing apparatus (SCBA) or its equivalent must be used. The NIOSH/OSHA Pocket Guide, 8085 DHEW/NIOSH 78-210, lists these and other types of approved respirators and the concentration limits at which they may be used.

8. STORAGE REQUIREMENTS

Handling and Storage: Store KILLZ-ALL 60" under lock and key, in a dry, well-ventilated area away from heat. Post as pesticide storage area. Do not contaminate water, food or feed by storing pesticides in the same areas used to store these commodities.

REPORT ALL THEFTS OF PRODUCT IMMEDIATELY TO PROPER LOCAL OFFICIALS.

Do not store in buildings where humans or domestic animals reside. Keep out of reach of children.

KILLZ-ALL 60" tablets and pellets are supplied in gas tight, re-sealable aluminum flasks. Do not expose the product to atmospheric moisture any longer than is necessary and seal tightly before returning opened flasks to storage.

The shelf life of KILLZ-ALL 60" is virtually unlimited as long as the containers are tightly sealed.

The posting of the storage area should take into account the needs of a variety of organizations. These should include, but not be limited to corporate policy, insurance carrier, Occupational Safety and Health Administration (OSHA), Right to Know and local emergency response professionals. At a minimum, the storage must be marked with the following signs:

1. Danger, Poison (with skull and cross bones)
2. Authorized Personnel Only
3. Pesticide Storage NFPA Hazard Identification Symbols

The National Fire Protection Association (NFPA) has developed Hazard Identification Symbols. This standardized system is designed to provide, at a glance the information regarding the health, fire and reactivity hazards associated with hazardous materials.

The following are the hazard categories and degree of hazard for aluminum phosphide:

Category	Degree of Hazard
Health	4 (Severe Hazard)
Flammability	4 (Severe Hazard)
Reactivity	2 (Moderate)
Special Notice Key	W

NOTE: When using the NFPA Hazard Identification System, the characteristics of all hazardous materials stored in a particular area must be considered. The local fire protection district should be consulted for guidance on the selection and placement of such signs.

We believe this information is to the best of our knowledge, are accurate and reliable, but it is given with no warranty or guarantee or any kind. We assume no responsibility for any loss occurring out of their use.

REVISION DATE: JUNE 2006

ROC ENTERPRISES, LLC.

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Day or Night Telephone 1-800-527-8215
Chemtrec 1-800-424-9300

MATERIAL SAFETY DATA SHEET: ALUMINUM PHOSPHIDE

PRODUCT NAME: KILLZ-ALL 60" PELLETS EPA Reg. No. 81951-2
KILLZ-ALL 60" TABLETS EPA Reg. No. 81951-1

1. PRODUCT INFORMATION

COMMON NAME	CHEMICAL NAME	CAS#	%	PEL/TLV
Aluminum Phosphide	Aluminum Phosphide	20859-73-8	60	N/A

DOT SHIPPING INFORMATION: Aluminum Phosphide mixture, 4.3 UN 1397, PGI, dangerous when wet

DOT PLACARDING: Dangerous when wet (placard required with any quantity)

NFPA PLACARDING: HEALTH (blue) 4, FLAMMABILITY (red) 4, REACTIVITY (yellow) 2, Special Notice Key W
NO WATER DANGEROUS WHEN WET

2. PHYSICAL PROPERTIES

Boiling Point or Range (deg F):	Not liquid at normal temperatures
Vapor Pressure (mm Hg):	unknown
Vapor Density (air=1):	unknown
Solubility in Water:	Alp -not soluble
Form:	Solid, Gray/green tablets, pellets. Gas released has garlic-like odor.
Specific Gravity (water=1):	N/A
% Volatile by Volume:	N/A
Evaporation Rate (n-BuAc=1):	unknown
Physical Hazards:	reacts with water

3. FIRE AND EXPLOSION HAZARD DATA

Flash Point (deg F, method):	not determined
Flammable Limits in Air (LEL/UEL, % by volume):	lower: 1.79%
Extinguishing Media:	Carbon Dioxide, Dry chemical, dry sand, or soda ash.
Special Fire Fighting Procedures:	Do not use water. Evacuate area and let fire burn. Remove container from fire only if it can be done without risk. Wear self-contained breathing apparatus and full protective clothing.
Fire Hazards:	Releases highly toxic fumes on exposure to moist air, water and acids.

4. HEALTH HAZARDS

Signs/Symptoms of Exposure

Inhalation:	Aluminum Phosphide reacts with moist air, water, and acids and many other liquids to release. Hydrogen Phosphide Gas
	Mild exposure to phosphine gas causes feeling of sickness, ringing in the ears, fatigue, nausea and pressure in the chest.
	Moderate poisoning may occur in a few hours to several days resulting in pulmonary edema and may lead to dizziness, cyanosis, unconsciousness and death. Phosphine affects the liver, kidneys, lungs, nervous system and circulatory system.
Eyes:	Can cause irritation.
Skin:	Causes skin irritation.
Ingestion:	Extremely toxic by ingestion.
Medical conditions generally aggravated by exposure:	None known.
Listed as a Carcinogen or Potential Carcinogen by:	None

FIRST AID: Symptoms of overexposure are headache, dizziness, nausea, difficult breathing, vomiting, and diarrhea. In all cases of overexposure, get medical attention immediately. Take victim to a doctor or emergency treatment facility.

If inhaled:

- Get exposed person to fresh air. Keep warm and make sure person can breathe freely.
- If breathing has stopped, give artificial respiration by mouth-to-mouth or other means of resuscitation.
- Do not give anything by mouth to an unconscious person.

If swallowed:

- Call a Poison control center or doctor immediately for treatment advice.
- Drink or administer one or two glasses of water and induce vomiting by touching back of throat with finger, or if available, syrup of ipecac.
- Do not give anything by mouth if victim is unconscious or not alert.

If on skin or clothing:

- Brush or shake material off clothes and shoes in a well-ventilated area.
- Allow clothes to aerate in a ventilated area prior to laundering.
- Do not leave contaminated clothing in occupied and/or confined areas such as automobiles, vans, motel rooms, etc.
- Wash contaminated skin thoroughly with soap and water.

If in eyes:

- Hold eye open and rinse slowly and gently with water for 15 - 20 minutes.
- Remove contact lens, if present, after the first 5 minutes, then continue rinsing eye.
- Call poison control center or doctor for treatment advice.

HOT LINE NUMBER

Have the product container or label or Applicator's Manual with you when calling a poison control center or doctor, or going for treatment. For 24-hour emergency medical treatment, contact the National Pesticide Information Center 1-800-858-7378

ADDITIONAL INFORMATION; Note to Physician (we recommend that this section be given to the attending physician)

Aluminum phosphide tablets and pellets react with moisture from the air, acids and many other liquids to release Phosphine gas. 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 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, Phosphine 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 per vascular 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. Phosphine 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.

The following measures are suggested for use by the physician in accordance with his own judgment: In its milder form, symptoms of poisoning may take some time (up to 24 hours) to make their appearance, and the following is suggested:

1. Give complete rest for 1-2 days, during which the patient must be kept quiet and warm.
2. Should patient suffer from vomiting or increased blood sugar, appropriate solutions should be administered. Treatment with oxygen-breathing equipment is recommended, as is the administration of cardiac and circulatory stimulants.

In cases of severe poisoning (Intensive Care Unit recommended):

1. Where pulmonary edema is observed, steroid therapy should be considered and close medical supervision is recommended. Blood transfusions may be necessary.
2. In case of manifest pulmonary edema, venesection should be performed under vein pressure control. Heart glycosides (I.V.) (in case of hemoconcentration, venesection may result in shock). On progressive edema of the lungs: immediate intubations with a constant removal of edema fluid and oxygen over-pressure respiration, as well as any measures required for shock treatment. In case of kidney failure, extra corporeal hemodialysis is necessary. There is no specific antidote known for the poisoning.
3. Mention should be made here of suicidal attempts by taking solid Aluminum phosphide by mouth. After swallowing: emptying of the stomach by vomiting, flushing of the stomach with diluted potassium permanganate solution of magnesium peroxide until flushing ceases to smell of carbide. Thereafter, apply carbomedicanalis.

This MSDS should address the reaction material hydrogen phosphide gas, if you do not find this, notify ROC ENTERPRISES, LLC. 800-527-8215

5. REACTIVITY

Stability:	Stable dry.
Conditions to avoid:	Water or moist air.
Incompatibility:	Water, dilute mineral acids, dilute or concentrated hydrochloric acid.
Hazardous Decomposition:	Phosphine gas.
Hazardous Polymerization:	Will not occur.

6. SPILL AND LEAK PROCEDURES

A spill other than incidental to application or normal handling may produce high levels of gas and, therefore, attending personnel must wear SCBA or its equivalent when the concentration of phosphine gas is unknown. Other NIOSH/MSHA approved respirator protection may be worn if the concentration is known. Do not use water at any time to clean up a spill of ALUMINUM PHOSPHIDE. Water in contact with unreacted tablets and pellets will greatly accelerate the production of phosphine gas, which could result in a toxic and/or fire hazard. Wear cotton gloves or other material when handling aluminum phosphide.

Return all intact aluminum flasks to fiberboard cases or other packaging, which has been suitably constructed and marked according to DOT regulations. Notify consignee and shipper of damaged cases.

If aluminum flasks have been punctured or damaged so as to leak, the container may be temporarily repaired with aluminum tape or the ALUMINUM PHOSPHIDE may be transferred from the damaged flask to a sound metal container which should be sealed and properly labeled as aluminum phosphide. Transport the damaged containers to an area suitable for pesticide storage for inspection.

Further instructions and recommendations may be obtained from ROC Enterprises, LLC 800-527-8215

If a spill has occurred which is only a few minutes old, collect the tablets and pellets and place them back into the original flasks, if they are intact, and stopper tightly. Place the collected tablets and pellets in a sound metal container if the original flasks are damaged. Caution: these flasks may flash upon opening at some later time.

If the age of the spill is unknown or if the tablets and pellets have been contaminated with soil, debris, water, etc., gather up the spillage and place it into small open bucket having a capacity no larger than about 1 gallon. Do not add more than one flask of spilled material, 1 to 5 kg. (2 to 3 lbs.) to the bucket. If on-site, wet deactivation is not feasible, these containers should be transported in open vehicles to a suitable area. Wet deactivation may then be carried out as described below. Alternatively, small amount of spillage from 4 to 5 flasks (4 to 8 kg.) (9 to 18 lbs.) may be spread out in an open area away from inhabited buildings, and deactivated by atmospheric moisture.

Directions for Deactivation by the Wet Method

If the contaminated material is not to be held until completely reacted by exposure to atmospheric moisture, deactivate the product by the Wet Method as follows:

1. Deactivating solution is prepared by adding the appropriate amount of low sudsing detergent or surface-active agent to water in a drum or other suitable container. A 2% solution of 4 cups in 30 gallons is suggested. The container should be filled with deactivation solution to within a few inches of the top.
2. The tablets and pellets are poured slowly into the deactivating solution and stirred so as to thoroughly wet all of the aluminum phosphide. This should be done in the open air. Aluminum Phosphide tablets and pellets should be mixed with no less than about 15 gallons of water-detergent solution for each case of spent material. Wear appropriate respiratory protection during wet deactivation.
3. Allow the mixture to stand, with occasional stirring, for about 36 hours. The resultant slurry will then be safe to dispose of.
4. Dispose of the slurry of deactivated material, with or without preliminary decanting, at a sanitary landfill or other suitable site approved by local authorities. Where permissible, this slurry may be poured into a storm sewer or out onto the ground.
5. Caution: Respiratory protection is required during wet deactivation of unexposed aluminum phosphide. Never place pellets and tablets in a closed container such as a dumpster, sealed drum, plastic bag, etc. as flammable concentrations and a flash of phosphine gas is likely to develop.
6. The EPA has determined that proper disposal of aluminum phosphide will cause no unreasonable effects to the environment.

7. PROTECTIVE EQUIPMENT

Wear dry gloves of cotton or other material if contact with aluminum phosphide tablets and pellets are likely. Wash hands thoroughly after handling aluminum phosphide products. Aerate used gloves and other contaminated clothing in a well-ventilated area prior to laundering.

NIOSH/MSHA approved respiratory protection must be worn if worker exposure limits cannot be met through controls (such as forced air ventilation) and/or worker practices. Respiratory protection is required if exposure is likely to exceed the 8-hour TWA of 0.3 ppm or the 15-minute TWA short-term exposure limit (STEL) of 1.0-ppm Phosphine. For example, respiratory protection is required to be worn upon re-entry into a partially aerated structure if the phosphine concentration is above 0.3 ppm. When required, gas concentration measurements for safety purposes may be made using low-level detector tubes. Information on phosphine (Phosphine, PH₃) detector tubes may be obtained from: ROC Enterprises, LLC 800-527-8215