RESTRICTED USE PESTICIDE

(Due To Acute Inhalation Toxicity Of Highly Toxic Phosphine Gas)

FOR RETAIL SALE TO DEALERS AND CERTIFIED APPLICATORS ONLY. FOR USE BY CERTIFIED APPLICATORS OR PERSONS UNDER THEIR DIRECT SUPERVISION, AND ONLY FOR THOSE USES COVERED BY THE CERTIFIED APPLICATOR'S CERTIFICATION. REFER TO THE DIRECTIONS IN THIS APPLICATOR MANUAL FOR REQUIREMENTS OF THE PHYSICAL PRESENCE OF A CERTIFIED APPLICATOR.

APPLICATOR'S MANUAL FOR

Drexel

Drex-PH$_3$™

Pellets / Bags / Tablets

For use against insects which infest stored Commodities and Control of Burrowing Pests.

ACTIVE INGREDIENT:	
Aluminum Phosphide	60.0%
OTHER INGREDIENTS:	40.0%
TOTAL:	100.0%

KEEP OUT OF REACH OF CHILDREN

DANGER PELIGRO

POISON  **VENENO**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle. (If you do not understand the label, find someone to explain it to you in detail.)

See FIRST AID Below

Drex-PH$_3$ PELLETS: **EPA Reg. No. 19713-569**
Drex-PH$_3$ BAGS: **EPA Reg. No. 19713-570**
Drex-PH$_3$ TABLETS: **EPA Reg. No. 19713-571**

EPA Est. No._____ **Net Contents: _____**

Every shipping carton of these products are accompanied by an approved label and an Applicator's Manual. Read and understand the entire label and Applicator's Manual. All parts of the labeling and Applicator's Manual are equally important for safe and effective use of these products. Consult with your State Lead Pesticide Regulatory Agency to determine regulatory status, requirements, and restrictions for fumigation use in that state. Call Drexel Chemical Company at (901) 774-4370 if you have any questions or do not understand any part of the product label or Applicator's Manual.

Drex-PH$_3$ tablets, pellets, and bags are noncombustible, but exposure to moist air or water releases flammable and toxic phosphine gas. Spontaneous combustion may result if contacted by water, acids, or chemicals.

FIRST AID

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 to 20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.

(Continued)

FIRST AID *(Con't.)*

Call a poison control center or doctor for treatment advice. Have this label with you when calling a poison control center or doctor, or going for treatment. 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. Direct the emergency personnel to the First Aid section.

NOTE TO PHYSICIAN (we recommend that this section be given to the attending physician.)

Aluminum phosphide tablets, pellets or bags 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 judgement: 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 to 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 is 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.

Incident Reporting

ALL INCIDENTS MUST BE REPORTED AS PER REQUIREMENTS OF OSHA CFR 29. REGISTRANT MUST BE INFORMED OF ANY INCIDENT INVOLVING THE USE OF THIS PRODUCT. PLEASE REPORT AS SOON AS POSSIBLE TO **DREXEL CHEMICAL COMPANY AT: PHONE (901) 774-4370. ADDRESS: P.O. BOX 13327, MEMPHIS, TN 38113-0327.**

INTRODUCTION

FUMIPHOS fumigants are used to protect stored commodities from damage by insects and for the control of burrowing pests. Fumigation of stored products with this product in the manner prescribed in the label does not contaminate the stored commodity.

This product and other Aluminum Phosphide fumigants are acted upon by atmospheric moisture to product phosphine gas. Tablets, Pellets, and Bags of this product contain aluminum phosphide (ALP) as their active ingredient and will liberate phosphine gas via the following chemical reaction:

$$AlP + 3H_2O \rightarrow Al(OH)_3 + PH_3$$

Phosphine gas is highly toxic to insects, burrowing pests, humans, and other forms of animal life. In addition to its toxic properties, the gas will corrode certain metals and may ignite spontaneously in air at concentrations above its lower flammable limit of 1.8% (v/v). These hazards will be described in greater detail later on in this label for Pellets, Tablets, and Bags of this product.

This product also contains ammonium carbamate, which liberates ammonia and carbon dioxide as follows:

$$NH_2COONH_4 \rightarrow 2NH_3 + CO_2$$

These gases are essentially nonflammable and act as inerting agents to reduce fire hazards. The ammonia gas also serves as a warning agent.

This product is prepared in three forms: tablets, pellets, and bags. The rounded tablets weigh approximately 3 grams and release 1 gram of phosphine gas. They are about 16 mm in diameter and are bulk packaged in resealable aluminum flasks containing 100 to 500 tablets each. The pellets weigh approximately 0.6 grams and release 0.2 grams of phosphine gas. They are about 6 mm in diameter and are packaged in resealable flasks containing either 1660 or 2490 pellets. The bags weigh 34 grams each and release 11 grams of phosphine gas. They are packaged in metal containers of 6, 10, or 100 bags per container.

Upon exposure to air, pellets, tablets, and bags of this product begin to react with atmospheric moisture to produce small quantities of phosphine gas. This reaction starts slowly, gradually accelerates and then tapers off again as the aluminum phosphide is spent. Pellets of this product react somewhat faster than do the tablets and bags. The rates of decomposition of the tablets, pellets and bags will vary depending upon moisture and temperature conditions. For example, when moisture and temperature of the fumigated commodity are high, decomposition of Tablets, Pellets and Bags of this product may be complete in less than 3 days. However, at lower ambient temperatures and relative humidity levels, decomposition of this product may require 5 days or more. After decomposition, this product leaves a gray-white powder composed almost entirely of aluminum hydroxide and other inert ingredients. This will cause no problems if the fumigant has been added directly to commodities such as grain or bulk animal feed. However, the spent powder must usually be retrieved for disposal after space fumigations. If properly exposed, the spent form of this product will normally contain only a small amount of unreacted aluminum phosphide and may be disposed of without hazard. While not considered a hazardous waste, partially spent residual powder from this product incompletely exposed will require special care. Precautions and instructions for further deactivation and disposal will be given later in this label.

Pellets, Tablets and Bags of this product are supplied in gas-tight containers and their shelf life is unlimited as long as the packaging remains intact. Once opened for fumigation, the flasks of tablets and pellets may be tightly resealed and stored for future use. Containers of bags of this product cannot be resealed for future use. Storage and handling instructions will be given in detail later in this Applicator's Manual.

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

DANGER - POISON: Aluminum Phosphide from Tablets, Pellets or Bags of this product may be fatal if swallowed. Do not get in eyes, on skin or on clothing. Do not eat, drink or smoke while handling aluminum phosphide fumigants. If sealed container is opened, or if the material comes in contact with moisture, water or acids, these products will release phosphine which is an extremely toxic gas. If a garlic odor is detected, refer to the Industrial Hygiene Monitoring section of this label for appropriate monitoring procedures. Pure phosphine gas is odorless; the garlic odor is due to a contaminant. Since the odor of phosphine may not be detected under some circumstances, the absence of a garlic odor does not mean that dangerous levels of phosphine gas are absent. Observe proper re-entry procedures specified elsewhere in the labeling to prevent overexposure.

ENVIRONMENTAL HAZARDS

This product is highly toxic to fish and wildlife. Non-target organisms exposed to phosphine gas will be killed. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of wastes.

Physical and Chemical Hazards

Aluminum Phosphide in Tablets, Pellets and Bags will release phosphine if exposed to moisture from the air or if it comes in contact with water, acids and many other liquids. Piling of Tablets, Pellets or Bags may cause a temperature increase and confine the release of gas so that ignition could occur. Always open containers of aluminum phosphide products in open air, as under certain conditions, they may flash upon opening. You may also wish to open containers near a fan or other appropriate ventilation, which will rapidly exhaust contaminated air. When opening, point the container away from the face and body and slowly loosen the cap. Although the chances for a flash are remote, never open the container in a flammable atmosphere. These precautions will also reduce the fumigator's exposure to phosphine.

Pure phosphine gas is practically insoluble in water, fats and oils, and is stable at normal fumigation temperatures. However, it may react with certain metals and cause corrosion, especially at higher temperatures and relative humidities. Metals such as copper, brass and other copper alloys and precious metals such as gold and silver are susceptible to corrosion by phosphine. Thus, small electric motors, smoke detectors, brass sprinkler heads, batteries and battery chargers, fork lifts, temperature monitoring systems, switching gears, communication devices, computers, calculators and other electrical equipment should be protected or removed before fumigation. Phosphine will also react with certain metallic salts and therefore, sensitive items such as photographic film, some inorganic pigments, etc. should not be exposed.

DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling.

Tablets, Pellets and Bags of this product are Restricted Use Pesticides due to the acute inhalation toxicity of phosphine (Phosphine PH3) gas. Read and follow the label and this Applicator's Manual, which contain complete instructions for the safe use of this pesticide.

This product is a highly hazardous material and should be used only by individuals trained in its proper use. Before using, read and follow the label precautions and directions. Additional copies of this Applicator's Manual are available from **DREXEL CHEMICAL COMPANY AT: PHONE (901) 774-4370. ADDRESS: P.O. BOX 13327, MEMPHIS, TN 38113-0327.**

Persons working with this product should be knowledgeable of the hazards of this chemical and trained in the use of required respiratory equipment and detector device, emergency procedures and use of the fumigant.

Prior to fumigation, review the MSDS, Applicators Manual and safety information with appropriate company employees. On an annual basis, or more frequently if required by the Fumigation Management Plan, provide and review with local emergency planning committee officials [as defined by EPCRA section 301(c)] the MSDS, Applicator's Manual, and other relevant safety information, if available, for use in the event of an emergency.

PEST CONTROLLED

This product has been found effective against the following adult insects and their pre-adult states - that is eggs, larvae, and pupae and burrowing pests:

INSECTS		
Almond moth	European grain moth	Mediterranean flour moth
Angoumois grain moth	Flat grain beetle	Pink bollworm
Bean weevil	Fruit flies	Raisin moth
Bees	Granary weevil	Red flour beetle
Cadelle	Greater wax moth	Rice weevil
Cereal leaf beetle	Hairy fungus beetle	Rusty grain weevil
Confused flour beetle	Indian meal moth	Saw-toothed grain beetle
Cigarette beetle	Hessian fly	Pea Weevil
Dermestid beetles	Khapra beetle	Spider beetles
Dried fruit beetle	Lesser grain borer	Tobacco moth
Dried fruit moth	Maize weevil	Yellow meal worm
Africanized bees and honey bees infested with tracheal mites		Pea weevil

BURROWING PESTS		
Chipmunks	Norway rats	Roof rats
Ground squirrels	Pocket gophers	Voles
Mice	Prairie dogs (except Utah prairie dogs, *Cynomys parvidens*)	Woodchucks
Moles		Yellowbelly marmots (rockchucks)

Although it is possible to achieve total control of the listed burrowing and insect pests, this is frequently not realized in actual practice. Factors contributing to less than 100% control are leaks, poor gas distribution, unfavorable exposure conditions, etc. In addition, some insects are less susceptible to phosphine than others. If maximum control is to be attained, extreme care must be taken in sealing, higher dosages must be used, exposure periods must be lengthened, proper application procedures followed, and temperature and humidity must be favorable.

COMMODITIES WHICH MAY BE FUMIGATED WITH THIS PRODUCT

This product may be used for the fumigation of listed raw agricultural commodities, animal feed and feed ingredients, processed foods, tobacco, and certain other non-food items.

Raw Agricultural Commodities, Animal Feed and Feed Ingredients

Tablets, Pellets and Bags of this product may be added directly to animal feed, feed ingredients and raw agricultural commodities stored in bulk. For these commodities not stored in bulk, this product may be placed in moisture permeable envelopes, on trays, in bags, or other dust retaining devices, and fumigated as with processed foods.

RAW AGRICULTURAL COMMODITES, ANIMAL FEED AND FEED INGREDIENTS WHICH MAY BE FUMIGATED WITH THIS PRODUCT		
Almonds	Filberts	Rye
Animal Feed and feed ingredients	Flower Seed	Safflower Seed
Barley	Grass Seed	Seed & Pod Vegetables
Brazil Nuts	Legumes	Sesame Seeds
Cashews	Millet	Sorghum
Cocoa Beans	Oats	Soybeans
Coffee Beans	Peanuts	Sunflower Seeds
Corn	Pecans	Triticale
Cottonseed	Pistachio Nuts	Vegetable Seed
Dates	Popcorn	Walnuts
	Rice	Wheat

Processed Foods

The listed processed foods may be fumigated with this product. Under no condition shall any processed food or bagged commodity come in contact with Tablets, Pellets, Bags or residual dust of this product except that this product may be added directly to processed Brewer's rice, Malt and Corn grits for use in the manufacture of beer.

Processed Foods Which May be Fumigated with This Product

- Processed candy and sugar
- Cereal flours and bakery mixes
- Cereal foods (including cookies, crackers, macaroni, noodles, pasta, pretzels, snack foods and spaghetti)
- Processed cereals (including milled fractions and packaged cereals)
- Cheese and cheese by-products
- Chocolate and chocolate products (assorted chocolate, chocolate liquor, cocoa, cocoa powder, dark chocolate coating and milk chocolate)
- Processed coffee
- Corn grits
- Cured, dried and processed meat products and dried fish
- Dates and figs
- Dried eggs and egg yolk solids
- Dried milk, dried powdered milk, non-dairy creamers, and nonfat dried milk
- Dried or dehydrated fruits (apples, dates, figs, peaches, pears, prunes, raisins and sultanas)
- Processed herbs, spices, seasonings and condiments
- Malt
- Processed nuts (almond, apricot kernels, Brazil nuts, cashews, filberts, peanuts, pecans, pistachio nuts, and walnuts)
- Processed oats (including oatmeal)
- Rice (brewer's rice, grits, enriched and polished wild rice)
- Processed tea
- Dried and dehydrated vegetables (beans, carrots, lentils, peas, potato products and spinach)
- Yeast (including primary yeast)
- Soybean flour and milled fractions
- Wild rice
- Other processed foods

Non-food Commodities, Including Tobacco

The listed non-food items may be fumigated with this product. Tobacco and certain other of the non-food commodities should not be contacted by Tablets, Pellets, or residual dust.

Non-food Commodities Which May Be Fumigated With This Product

- Processed or unprocessed cotton, wool and other natural fibers of cloth, clothing
- Straw and hay
- Feathers
- Human hair, rubberized hair, vulcanized hair, mohair
- Leather products, animal hides and furs
- Tobacco
- Wood, cut trees, wood chips and wood and bamboo products
- Paper and paper products
- Dried plants and flowers
- Seeds (grass seed, ornamental herbaceous plant seed and vegetable seed)
- Tires (for mosquito control)
- Other non-food commodities

EXPOSURE CONDITIONS

The following conditions may be used as a guide in determining the minimum length of the exposure period at the indicated temperatures:

MINIMUM EXPOSURE PERIODS OF THIS PRODUCT			
Temperature	**Pellets**	**Tablets**	**Bags**
Below 40°F (5°C)	Do not fumigate	Do not fumigate	Do not fumigate
40°-53°F (5-12°C)	8 days (192 hours)	10 days (240 hours)	14 days (336 hours)
54°-59°F (12-15°C)	4 days (96 hours)	5 days (120 hours)	7 days (168 hours)
60°-68°F (16-20°C)	3 days (72 hours)	4 days (96 hours)	4 days (96 hours)
Above 68°F (20°C)	2 days (48 hours)	3 days (72 hours)	3 days (72 hours)

The length of the fumigation must be great enough so as to provide for adequate control of the insect pests, which infest the commodity being treated. Additionally, the fumigation period should be long enough to allow for more or less complete reaction of this product with moisture so that little or no unreacted aluminum phosphide remains. This will minimize exposures during further storage and/or processing of the treated bulk commodity as well as reduce hazards in the disposal of partially spent aluminum phosphide products remaining after space fumigations. The proper length of the fumigation period will vary with exposure conditions, since, in general, insects are more difficult to control at lower temperatures and the rate of phosphine gas production by this product is less at lower temperatures and humidity.

It should be noted that there is little to be gained by extending the exposure period if the structure to be fumigated has not been carefully sealed or if the distribution of gas is poor and insects are not subjected to lethal concentrations of phosphine. Careful sealing is required to ensure that adequate gas levels are retained and proper application procedures must be followed to provide satisfactory distribution of phosphine gas. Some structures can only be treated when completely tarped, while others cannot be properly sealed by any means and should not be fumigated. Exposure times must be lengthened to allow for penetration of gas throughout the commodity when fumigant is not uniformly added to the mass, for example, by surface application or shallow probing. This is particularly important in the fumigation of bulk commodity contained in large storages.

Remember, exposure periods in the table are minimum periods and may not be adequate to control all stored products pests under all conditions nor will they always provide for total reaction of this product, particularly if temperatures and commodity moisture levels or humidity are low during the fumigation.

RECOMMENDED DOSAGES

Phosphine is a mobile gas that will penetrate to all parts of the storage structure. Therefore, dosage must be based upon the total volume of the space being treated and not on the amount of commodity it contains. The same amount of this product is required to treat a 30,000-bushel silo whether it is empty or full of grain unless, of course, the surface of the commodity is sealed off by a tarpaulin. The following dosage ranges are recommended for bulk and space fumigations:

DOSAGE RANGES FOR FUMIGATIONS WITH THIS PRODUCT		
Product	**Per 1000 cu. ft.***	**Per 1000 bu.***
Bags	2 to 6	2 to 6
Pellets	100 to 725	120 to 900
Tablets	20 to 145	25 to 180
*Dosage range for Dates, Nuts & Dried fruits is 100 to 200 Pellets, 20 to 40 Tablets, 2 to 6 Bags/1000 cu. ft.; 125 to 250 Pellets, 25 to 50 Tablets, 2 to 6 Bags/1000 bu.		

These dosages are not to be exceeded. It is important to be aware that a shortened exposure period cannot be fully compensated for with an increased dosage of this product.

The wide range of dosages listed above is required to handle the variety of fumigation situations encountered in practice. Somewhat higher dosages are usually recommended under cooler, drier conditions or where exposure periods are relatively short.

However, the major factor in selection of dosage is the ability of the structure to hold phosphine gas during the fumigation. A good illustration of this point is comparison of the low dosages required to treat modern, well-sealed warehouses with the higher range used for poorly constructed buildings that cannot be sealed adequately. In certain other fumigations, proper distribution of lethal concentrations of gas to reach all parts of the structure becomes a very important factor in dose selection. An example where they may occur is in the treatment of grain stored in tall silos. Poor gas distribution frequently results when the fumigant cannot be uniformly added to the grain and it must be treated by surface application.

Although it is permissible to choose from the full range of dosages listed above, the following dosages are recommended for the various types of fumigation.

RECOMMENDED DOSAGES OF THIS PRODUCT FOR VARIOUS TYPES OF FUMIGATION			
Types of Fumigation	**Bags**	**Pellets**	**Tablets**
Space			
Mills, Warehouses, etc.	2-6/1000 cu. ft.	100-300/1000 cu. ft.	20-60/1000 cu. ft.
Bagged Commodities	2-6/1000 cu. ft.	150-300/1000 cu. ft.	30-60/1000 cu. ft.
Processed Fruits and Nuts	2-6/1000 cu. ft.	100-200/1000 cu. ft.	20-40/1000 cu. ft.
Stored Tobacco	2-6/1000 cu. ft.	100-200/1000 cu. ft.	20-40/1000 cu. ft.
Bee hives	3-4/1000 cu. ft.	150-225/1000 cu. ft.	30-45/1000 cu. ft.
Bulk Stored Commodities			
Vertical Storage's	2-6/1000 cu. ft. 2-6/1000 BU	150-300/1000 cu. ft. 200-375/1000 BU	30-70/1000 cu. ft. 40-75/1000 BU
Tanks	2-6/1000 cu. ft. 2-6/1000 BU	150-350/1000 cu. ft. 200-450/1000 BU	30-60/1000 cu. ft. 40-90/1000 BU
Flat Storage's	2-6/1000 cu. ft. 2-6/1000 BU	250-725/1000 cu. ft. 300-900/1000 BU	50-145/1000 cu. ft. 60-180/1000 BU
Farm Bins	2-6/1000 cu. ft. 2-6/1000 BU	350-725/1000 cu. ft. 450-900/1000 BU	70-145/1000 cu. ft. 90-180/1000 BU
Bunkers and Tarped	2-6/1000 cu. ft.	150-400/1000 cu. ft.	30-80/1000 cu. ft.
Ground Storage's	2-6/1000 BU	200-500/1000 BU	40-100/1000 BU
Railcars	2-6/1000 cu. ft. 2-6/1000 BU	150-325/1000 cu. ft. 200-400/1000 BU	30-65/1000 cu. ft. 40-80/1000 BU
Barges	2-6/1000 cu. ft. 2-6/1000 BU	150-400/1000 cu. ft. 200-500/1000 BU	30-80/1000 cu. ft. 40-100/1000 BU
Ship holds	2-6/1000 cu. ft. 2-6/1000 BU	150-330/1000 cu. ft. 200-375/1000 BU	30-66/1000 cu. ft. 40-75/1000 BU
Higher dosages are recommended in structures that are of loose construction and in the fumigation of bulk stored commodities in which diffusion will be slowed and result in poor distribution of phosphine gas.			

PROTECTIVE CLOTHING

Wear dry gloves of cotton or other material if contact with Tablets, Pellets or Bags of this product 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.

RESPIRATORY PROTECTION

When Respiratory Protection Must Be Worn

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. See "Applicator and Worker Exposure" section of this label for monitoring requirements. Information on phosphine detector tubes may be obtained from **DREXEL CHEMICAL COMPANY AT: PHONE (901) 774-4370. ADDRESS: P.O. BOX 13327, MEMPHIS, TN 38113-0327.**

Permissible Gas Concentration Ranges for Respiratory Protection Devices

NIOSH/MSHA approved; full-faced mask with phosphine canister combination may be used at levels up to 15 ppm or following manufacture's use conditions for escape. 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.

Requirements for Availability of Respiratory Protection

If this product is to be applied from within the structure to be fumigated, an approved full-face gas mask - Phosphine canister combination or self-contained breathing apparatus (SCBA) or its equivalent must be available at the site of application in case it is needed. In addition, SCBA or its equivalent must be available locally, at the fumigation site. (note: the SCBA should be present at the fumigation site) Respiratory protection need not be available for applications from outside the area to be fumigated such as addition of Tablets or Pellets to automatic dispensing devices, outdoor applications, etc. if exposures above the permitted exposure limits will not be encountered.

If monitoring equipment is not available on a farm and application of fumigant cannot be made from outside the structure, an approved canister respirator must be worn during application from within the structure being treated.

TRAINING FOR RECEIPT OF INTRANSIT VEHICLES UNDER FUMIGATION

Persons responsible for receipt of transport vehicles under in-transit fumigation must be trained using the product applicator's manual or by other training which is accepted by local and or state authorities.

- This training must cover the following items found in this manual:
- How to aerate the vehicle and verify that it contains no more than 0.3 ppm phosphine.

  OR
- How to transfer the commodity to another storage area without prior aeration and ensure that worker safety limits are not being exceeded in the work zone during aeration.
- How to determine when respiratory protection must be worn.
- How to protect workers and nearby persons from exposure to levels above the 8-hour TWA of 0.3 ppm or the 15-minute TWA short-term exposure limit (STEL) of 1.0 ppm phosphine.
- Proper removal of placards from the vehicle.
- How to follow proper instructions to dispose spent fumigant.

GAS DETECTION EQUIPMENT

There are a number of devices on the market for the measurement of phosphine gas at both industrial hygiene and fumigation levels. Glass detection tubes used in conjunction with the appropriate hand-operated air sampling pumps are widely used. These devices are portable, simple to use, do not require extensive training and are relatively rapid, inexpensive and accurate. Electronic devices are also available for both low level and high phosphine gas reading. Such devices should be used in full compliance with manufacturers' recommendations.

NOTIFICATION REQUIREMENTS

Authorities and On-Site Workers

On an annual basis, prior to a fumigation, or more frequently if required by the Fumigation Management Plan, provide and review with local emergency planning committee officials [as defined by Emergency Planning and Community Right to Know Act (EPCRA)] section 301(c), the MSDS, Applicator's Manual, and other relevant safety information, if available, for use in the event of an emergency.

Incidents Involving the Product

All incidents must be reported as per requirements of OSHA CFR 29. Registrant must be informed of any incident involving the use of this product. Please report as soon as possible to **DREXEL CHEMICAL COMPANY AT: PHONE (901) 774-4370. ADDRESS: P.O. BOX 13327, MEMPHIS, TN 38113-0327.**

Theft of the Product

Report all thefts of product immediately to proper local police.

APPLICATOR AND WORKER EXPOSURE

Phosphine Exposure Limits

Exposure to phosphine may not exceed 0.3 ppm measured as an eight-hour time-weighted average (TWA), or the 15-minute TWA short-term exposure limit (STEL) of 1.0 ppm phosphine. All persons in the treated site and in adjacent indoor areas are covered by these exposure standards.

Application of Fumigant

At least two persons, a certified applicator and trained person, or two trained persons under the direct supervision of the certified applicator must be present during fumigation of structures when entry into the structure for application of the fumigant is required. If the fumigator's exposure exceeds the allowable limits, approved respiratory protection must be worn. Tablets, Pellets and Bags of this product release phosphine gas slowly under low temperature and humidity conditions. In most cases, this release is slow enough to permit applicators to deposit fumigant in the desired areas and then vacate the premises without significant exposure to the gas. Fumigators must wear approved respiratory protection if exposure is likely to exceed the eight-hour TWA of 0.3 ppm. When required, gas concentration measurements for safety purposes may be made using low-level detector tubes. See the write-up below on Industrial Hygiene Monitoring. Information on phosphine detector tubes may be obtained from **DREXEL CHEMICAL COMPANY AT: PHONE (901) 774-4370. ADDRESS: P.O. BOX 13327, MEMPHIS, TN 38113-0327.**

It is often advisable to use respiratory protection during application of fumigant under hot and humid conditions, particularly when considerable time must be spent inside the structure being treated.

Leakage from Fumigated Sites

Phosphine is highly mobile and given enough time may penetrate seemingly gas tight materials such as concrete and cinder blocks. Therefore, adjacent, enclosed areas likely to be occupied should be examined to ensure that significant leakage has not occurred. Sealing of the fumigated site and/or airflow into the occupied areas must be sufficient to meet exposure standards.

Aeration and Reentry

If an area is to be entered after fumigation, it must be aerated until the level of gas is at or below the permissible levels. The area or site must be monitored to ensure that liberation of gas from the treated commodity does not result in the development of unacceptable levels of phosphine. Re-entry into treated areas, by any person, before this time, unless protected by an approved respirator, is prohibited.

Handling Unaerated Commodities

Transfer of incompletely aerated commodity via bulk handling equipment such as augers, drag conveyors and conveyor belts to a new storage structure is permissible. A Certified Applicator is responsible for training workers who handle the transfer of incompletely aerated listed commodities, and appropriate measures must be taken (i.e., ventilation or respiratory protection) to prevent exposures from exceeding the exposure limits for phosphine. The new storage structure must be placarded if it contains more than 0.3 ppm phosphine. If the fumigation structure must be entered to complete the transfer, at least two trained persons, wearing proper respiratory protection may enter the structure. A certified applicator must be physically present during the entry into the structure. REMEMBER transporting containers or vehicles under fumigation over public roads is prohibited. Workers must not be exposed to phosphine in excess of 0.3 ppm during moving, storage or processing of incompletely aerated commodities. Workers must not be exposed to phosphine in excess of 0.3 ppm during moving, storage or processing of incompletely aerated commodities.

Industrial Hygiene Monitoring

It is necessary that phosphine exposures be documented in an operations log or manual for each site and operation where exposure may occur. Fumigation Management Plan's (FMP) and related documentation, including monitoring records, must be maintained for a minimum of 2 years by the certified applicator. The purpose of monitoring is to prevent excessive exposures and to determine when and where respiratory protection is required. Once exposures have been adequately characterized, subsequent monitoring is not routinely required. However, spot checks should be made occasionally, especially if conditions change significantly or an unexpected garlic odor is detected. Gas measurements should be made in the workers' breathing zone. Monitoring is not required for outdoor operations.

There are a number of devices on the market for measurement of phosphine gas levels for industrial hygiene purposes. These devices are reliable, portable, simple to use, do not require extensive training, and provide relatively rapid, inexpensive, and accurate low-level industrial hygiene monitoring. Contact Drexel Chemical Company for what might be best for you.

Engineering Controls

If monitoring shows that workers are exposed to concentrations in excess of the permitted limits, then engineering controls (such as forced air ventilation) and/or appropriate work practices should be used where possible to reduce exposure to within permitted limits.

PLACARDING OF FUMIGATED AREAS

Signs are to be made of substantial material that can be expected to withstand adverse weather conditions. The applicator must placard or post all entrances to the structure under fumigation with signs bearing, in English and Spanish.

1. The signal word DANGER/PELIGRO and the SKULL AND CROSSBONES symbols in red.
2. The statement: "Area and/or commodity under fumigation, DO NOT ENTER/NO ENTRE."
3. The statement, "This placard may only be removed by a certified applicator or a trained person after the fumigated area is aerated down to 0.3 ppm phosphine or below. Transfer of incompletely aerated commodity to a new site is permissible provided that the new storage is placarded if it contains more than 0.3 ppm. Workers exposure must not exceed the allowable limits."
4. The date and time that fumigation begins and is completed.
5. Name and EPA Registration Number of fumigant used.
6. Name, address and telephone number of the fumigation company and/or applicator.
7. A 24-hour emergency response telephone number.

All entrances to a fumigated area must be placarded. Where possible, placards should be placed in advance of the fumigation to keep unauthorized persons away. For railroad hopper cars, placards must be placed on both sides of the car near the ladders and next to the top hatches into which the fumigant is introduced.

Do not remove placards until the treated commodity is aerated down to 0.3 ppm phosphine or less. To determine whether aeration is complete, each fumigated site or vehicle must be monitored and shown to contain 0.3 ppm or less phosphine gas in the air space around and, if feasible, in the mass of the commodity. Transfer of incompletely aerated commodity to a new site is permissible. However, the new storage must be placarded if it contains more than 0.3 ppm phosphine. Workers who handle incompletely aerated commodity must be informed and appropriate measures taken (i.e., ventilation or respiratory protection) to prevent exposures from exceeding 0.3 ppm phosphine.

Persons responsible for removing placards should be knowledgeable of the hazards of this chemical and trained in the use of required respiratory equipment, detector devices, and emergency procedures.

SEALING OF STRUCTURE

The site to be fumigated must first be inspected to determine if it can be made sufficiently gas tight. Careful sealing is required so that adequate gas levels are retained. Turn off all ventilation; supply air, air conditioning, and any other air moving systems, which could negatively affect the fumigation. Thoroughly inspect the structure to be fumigated and seal cracks, holes and openings. These areas could include, but are not limited to windows, doors, vents, chimneys and structural flaws. Sealing techniques can vary, but most often include polyethylene sheeting, adhesive tapes and adhesive sprays. Expandable foam or caulking material can work well on structural flaws. Proper sealing will insure sufficient gas levels within the fumigated area and will decrease the chance of unwanted exposures outside of the fumigated area.

As with all fumigations, it is required that sealing be inspected for leaks. If phosphine above 0.3 ppm is found in an area where exposure to workers or bystanders may occur, the fumigator, using proper PPE (see "PROTECTIVE CLOTHING" and "RESPIRATORY PROTECTION" sections) must attempt to seal the leak from the exterior of the structure. Failing this, the fumigators, following proper procedures, may enter the structure and seal the leaks from the interior. If the concentration inside the structure has decreased below the target level as a result of the leakage, additional fumigant may be added following the sealing repairs.

DO NOT FUMIGATE A STRUCTURE THAT CANNOT BE SEALED SUFFICIENTLY GAS TIGHT.

AERATION OF FUMIGATED COMMODITIES

Foods and Feeds

Tolerances for phosphine residues have been established at 0.1 ppm for animal feeds and 0.01 ppm for finished foods. To guarantee compliance with these tolerances, it is necessary to aerate these commodities for 48 hours prior to offering to the end use consumer.

Tobacco

Tobacco must be aerated for at least three days (72 hours) when fumigated in hogshead and for at least two days (48 hours) when fumigated in other containers. Tobacco fumigated in containers with plastic liners will probably require longer aeration periods to reach 0.3 ppm.

Non-food commodities

Aerate all non-food commodities to 0.3 ppm or less of phosphine. Monitor densely packed commodities to ensure that aeration is complete.

TRANSPORTATION INSTRUCTIONS

The United States Department of Transportation (DOT) classifies aluminum phosphide as "Dangerous When Wet" material and it must be transported in accordance with DOT regulations.

TRANSPORT DESIGNATIONS - The following transport designations apply to aluminum phosphide.

Proper Shipping Name:	Aluminum Phosphide
Hazard Class:	4.3
Identification No.:	UN 1397
Packing Group:	PG I
Shipping Label:	Dangerous When Wet/Poison
Shipping Placard:	Dangerous When Wet

TRANSPORTATION EXEMPTION FOR THIS PRODUCT

EXEMPTION DOT-E 11342

Purpose and Limitation: This exemption authorizes the transportation in commerce of an aluminum phosphide based fumigant/insecticide in a limited number of specially designed containers transported by certain private motor vehicles without placards. This exemption provides no relief from any regulation other than as specifically stated herein.

Modes of Transportation Authorized: Motor Vehicle

Modal Requirements: A current copy of this exemption must be carried aboard each motor vehicle. (See paragraph 8 for restrictions)

A copy of Exemption DOT-E 11342 can be obtained from **DREXEL CHEMICAL COMPANY AT: PHONE (901) 774-4370. ADDRESS: P.O. BOX 13327, MEMPHIS, TN 38113-0327.**

FUMIGATION MANAGEMENT PLAN

The certified applicator is responsible for working with the owners and/or responsible employees of the site to be fumigated to develop a Fumigation Management Plan (FMP). The FMP is intended to ensure a safe and effective fumigation. The FMP must address characterization of the site, and include appropriate monitoring and notification requirements, consistent with, but not limited to, the following:

1. Inspect the site to determine its suitability for fumigation.
2. When sealing is required, consult previous records for any changes to the structure, seal leaks, and monitor any occupied adjacent buildings to ensure safety.
3. Prior to each fumigation, review any existing FMP, MSDS, Applicator's Manual and other relevant safety procedures with company officials and appropriate employees.
4. Consult company officials to development of procedures and appropriate safety measures for nearby workers that will be in and around the area during application and aeration.
5. Consult with company officials to develop an appropriate monitoring plan that will conform that nearby workers and bystanders are not exposed to levels above the allowed limits during application, fumigation and aeration. This plan must also demonstrate that nearby residents will not be exposed to concentrations above the allowable limits.
6. Consult with company officials to develop procedures for local authorities to notify nearby residents in the event of an emergency.
7. Confirm the placement of placards to secure entrance into any structure and fumigation.
8. Confirm the required safety equipment is in place and the necessary manpower is available to complete a safe effective fumigation.
9. Written notification must be provided to the receiver of a vehicle that is fumigated in transit.

These factors **must** be considered in putting together an FMP. It is important to note that some plans will be more comprehensive than others. All plans should reflect the experience and expertise of the applicator and circumstances at and around the site. In addition to the plan, the applicator must read the entire label and must follow its directions carefully. If the applicator has any questions about the development of a FMP, contact **DREXEL CHEMICAL COMPANY AT: PHONE (901) 774-4370. ADDRESS: P.O. BOX 13327, MEMPHIS, TN 38113-0327** for further assistance. The FMP and related documentation, including monitoring records, must be maintained for a minimum of 2 years.

GUIDANCE FOR PREPARATION OF A FUMIGATION MANAGEMENT PLAN

Purpose

A Fumigation Management Plan (FMP) is an organized, written description of the required steps involved to help ensure a safe, legal, and effective fumigation. It will also assist you and others in complying with pesticide product label requirements. The guidance that follows is designed to help assist you in addressing all the necessary factors involved in preparing for and fumigating a site.

This guidance is intended to help you organize any fumigation that you might perform PRIOR TO ACTUAL TREATMENT. It is meant to be somewhat prescriptive, yet flexible enough to allow the experience and expertise of the fumigator to make changes based on circumstances which may exist in the field. By following a step-by-step procedure, yet allowing for flexibility, safe and effective fumigation can be performed. Before any fumigation begins, carefully read and review this product label. This information must also be given to the appropriate company officials (supervisors, foreman, safety officer, etc.) in charge of the site. Preparation is the key to any successful fumigation. If you do not find specific instructions for the type of fumigation that you are to perform listed in this Guidance Document, you will want to construct a similar set of procedures using this document as your guide or contact Drexel Chemical Company for assistance. Finally, before any fumigation begins you must be familiar with and comply with all applicable federal, state and local laws. The success and future of fumigation are not only dependent on your ability to do your job but also by carefully following all rules, regulations, and procedures required by governmental agencies.

A Checklist Guide for a Fumigation Management Plan

This checklist is provided to help you take into account factors that must be addressed prior to performing all fumigations. It emphasizes safety steps to protect people and property. The checklist is general in nature and cannot be expected to apply to all types of fumigation situations. It is to be used as a guide to prepare the required plan. Each item must be considered.

PRELIMINARY PLANNING AND PREPARATION

1. Determine the purpose of the fumigation
   a. Elimination of insect infestation
   b. Elimination of rodent infestation
   c. Plant pest quarantine
2. Determine the type of fumigation, for example
   a. Space: tarp, mill, warehouse, food plant
   b. Vehicle: railcar, truck, van, container
   c. Commodity: raw agricultural or processed foods
   d. Type of Storage: vertical silo, farm storage, flat storage
   e. Vessels: ship or barge. In addition to this label, read the US Coast Guard Regulations 46 CFR 147A.
3. Fully acquaint yourself with the site and commodity to be fumigated, including:
   a. The general structure layout, construction (materials, design, age, maintenance) of the structure, fire or combustibility hazards, connecting structures and escape routes, above and below ground, and other unique hazards or structure characteristics. Prepare, with the owner/operator/person in charge. Draw or have a drawing or sketch of structure to be fumigated, delineating features, hazards, and other structural issues.
   b. The number and identification of persons who routinely enter the area to be fumigated (i.e., employees, visitors, customers, etc.)
   c. The specific commodity to be fumigated, its mode of storage, and its condition.
   d. The previous treatment history of the commodity, if available.
   e. Accessibility of utility service connections.
   f. Nearest telephone or other means of communication, and mark the location of these items on the drawing/sketch.
   g. Emergency shut-off stations for electricity water and gas. Mark the location of these items on the drawing/sketch.
   h. Current emergency telephone numbers of local Health, Fire, Police, Hospital and Physician responders.
   i. Name and phone number (both day and night) of appropriate company officials.
   j. Check, mark and prepare the points of fumigation application locations if the job involves entry into the structure for fumigation.
   k. Review labeling and Applicator's Manual.
   l. Exposure time considerations.
      1. Product (Tablet, Pellet or Gas Bag) to be used.
      2. Minimum fumigation period, as defined and described in the use directions of this label.
      3. Down time required to be available
      4. Aeration requirements
      5. Cleanup requirements, including dry or wet deactivation methods, equipment, and personnel needs, if necessary.
      6. Measured and recorded commodity temperature and moisture.
   m. Determination of dosage
      1. Cubic footage or other appropriate space/location calculations.
      2. Structure sealing capability and methods.
      3. Label recommendations
      4. Temperature, humidity, wind
      5. Commodity/space volume
      6. Past history of fumigation of structure
      7. Exposure time

PERSONNEL

1. Confirm in writing that all personnel in and around the structure to be fumigated have been notified prior to application of the fumigant. Consider using a checklist that each employee initials indicating they have been notified.
2. Instruct all fumigation personnel to read this label and about the hazards that may be encountered and about the selection of personal protection devices, including detection equipment.
3. Confirm that all personnel are aware of and know how to proceed in case of an emergency situation.
4. Instruct all personnel on how to report any accident and/or incidents related to fumigant exposure. Provide a telephone number for emergency response reporting.
5. Instruct all personnel to report to proper authorities and theft of fumigant and/or equipment related to fumigation.
6. Establish a meeting area for all personnel in case of emergency.

MONITORING

1. Safety
   a. Monitoring of phosphine conditions must be conducted in areas to prevent excessive exposure and to determine where exposure may occur. Document where monitoring will occur.
   b. Keep a log or manual of monitoring records for each fumigation site. This log must at a minimum contain the timing, number of readings taken and level of concentrations found in each location.
   c. When monitoring, document even if there is no phosphine present above the safe levels. In such cases, subsequent monitoring is not routinely required. However spot checks must be made occasionally, especially if conditions significantly change.
   d. Monitoring must be conducted during aeration and corrective action taken if gas levels exceed the allowed levels in an area where bystanders and/or nearby residents or domestic animals may be exposed.
2. Efficacy
   a. Phosphine readings should be taken from within the fumigated structure to insure proper gas concentrations. If the phosphine levels have fallen below the targeted level, the fumigators, following proper entry procedures may re-enter the structure and add additional product.
   b. All phosphine readings should be documented.

NOTIFICATION

1. Confirm the appropriate local authorities (fire departments, police departments, etc.) have been notified as per label instructions, local ordinances, or instructions of the client.
2. Prepare written procedure ("Emergency Response Plan") which contains explicit instructions, names, and telephone numbers so as to be able to notify local authorities if phosphine levels are exceeded in an area that could be dangerous to bystanders and or domestic animals.
3. Confirm that the receivers of in-transit vehicles under fumigation have been notified and are trained according to Section 11 of this applicator manual.

SEALING PROCEDURES

1. Sealing must be adequate to control the pests. Care should be taken to insure that sealing materials will remain intact until the fumigation is complete.
2. If the site has been fumigated before, review the previous FMP for previous sealing information.
3. Make sure that construction/remodeling has not changed the building in a manner that will effect the fumigation.
4. Warning placards must be placed on every possible entrance to the fumigation site.

APPLICATION PROCEDURES AND FUMIGATION PERIOD

1. Plan carefully and apply the product in accordance with the label requirements.
2. When entering into the area under fumigation, always work with two or more people under the direct supervision of a certified applicator wearing appropriate respirators.
3. Apply fumigant from the outside where appropriate.
4. Provide watchmen when entry into the fumigation site by unauthorized persons cannot otherwise be assured.
5. When entering structures, always follow OSHA rules for confined spaces.
6. Document that the receiver of in-transit vehicles/containers under fumigation has been notified.
7. Turn off any electric lights in the fumigated area of the structure as well as all nonessential electrical motors.

POST-APPLICATION OPERATIONS

1. Provide watchmen when you cannot secure the fumigation site from entry by unauthorized persons during the aeration process.
2. Ventilate and aerate in accordance with structural limitations.
3. Turn on ventilating or aerating fans where appropriate.
4. Use a suitable gas detector before re-entry into a fumigated structure to determine fumigant concentration.
5. Keep written records of monitoring to document completion of aeration.
6. Consider temperature when aerating.
7. Ensure aeration is complete before moving a treated vehicle onto public roads.
8. Remove warning placards when aeration is complete.
9. Inform business/client that employees/other persons may return to work or otherwise be allowed to re-enter the aerated structure.

APPLICATION PROCEDURES

General Statement

Regardless of the type of storage to be treated, there are several important factors common to all application procedures. A number of these points have been covered in other sections of this label but are listed again in the following for completeness.

a. A Fumigation Management Plan (Refer to preceding section) should be devised for application, aeration and disposal of the fumigant, to prevent any exposures to phosphine. See the requirements for Industrial Hygiene Monitoring under the Applicator and Worker Exposure section of this label.

b. Tablets, pellets, or bags of this product should be applied so as to provide effective gas concentrations, throughout the storage. When tablets, pellets or bags are not applied uniformly to a bulk commodity (surface application in a tall silo or ship's hold for example), exposure times should be lengthened to allow for penetration of gas throughout the storage.

c. The storage structure should be sealed so as to maintain a suitable gas concentration over the time period required for control of insect pest.

d. Ideally, exposure periods should be long enough to provide for adequate control of insect pests and also more or less completely react the fumigant.

e. Piling of large numbers of Tablets or Pellets, whether applied to a bulk commodity or for space fumigation may prevent complete breakdown of the product by limiting its access to moist air. This can result in decreased efficacy as a result of poor gas release and may leave an active residual unused product for disposal, which contains considerable amounts of un-reacted aluminum phosphide. Piling of product may also result in increase hazard of fire if water should come into contact with the mass of aluminum phosphide.

f. Contact with liquid water should be carefully avoided when applying this product for treatment of bulk commodities or space.

g. Aluminum phosphide fumigants should not be applied to confined spaces where the concentration of phosphine may build up to exceed its lower flammable limit.

h. Observe the precautionary and safety statements mentioned in this manual.

The following instructions are intended to provide general guidance for typical Fumigations. These instructions are not intended to cover every type of situation nor are they meant to be restrictive. Other procedures may be used if they are safe, effective and consistent with the guidelines of this label.

Fumigations of Farm Bins

Leakage is the single most important cause of failures in the treatment of farm storages. Most wooden storage structures are so porous that they cannot be successfully fumigated unless they are completely tarped. Do not fumigate storages, which will be entered by humans or animals prior to aeration. Do not fumigate areas which house sensitive equipment containing copper or other metals likely to be corroded by phosphine gas.

Seal the bin as tightly as possible. It is recommended that the surface of the grain be covered with Poly (4 mil or its equivalent is recommended) after this product has been applied. Tarping the grain surface will greatly reduce the leak rate of the gas as well as reduce the amount of this product required. Only the volume below the tarp must be dosed. If not tarped, the entire volume of the storage must be treated, whether full or empty. Tablets, Pellets, or Bags of this product may be scattered over the surface or probed into the grain using a rigid PVC pipe about 5 to 7 feet in length and having a diameter of 1.25 inches. Use about 20 to 50 Tablets or 100 to 250 Pellets or 2 to 5 Bags. Immediately cover the surface of the grain with a plastic tarpaulin. Place no more than 25 percent of the total dose at the bottom if the bin is equipped with aeration fans. **Precautions:** Make sure that the aeration duct is dry before adding this product. Addition of this product to water in an aeration duct may result in a fire. Seal the aeration fan with 4-mil plastic sheeting. If entering the bin please refer to the section on RESPIRATORY PROTECTION and the section on GAS DETECTION EQUIPMENT.

Post fumigation warning placards on entrances to the bin and near the ladder.

Following aeration of the bin, and approved protection may be applied to the surface of the grain to discourage reinfestation.

Fumigations of Flat Storages

a. Establish a fumigation plan for application of fumigant to the structure, because treatment of these types of storages may require considerable effort; therefore, sufficient manpower should be available to complete the work rapidly enough to prevent excessive exposure to phosphine gas. Vent flasks outside the storage, conduct Fumigations during the cooler periods and employ other work practices to minimize exposures. It is often advisable to wear respiratory protection during application of fumigant to flat storage's. Refer to the section on APPLICATOR AND WORKER EXPOSURE and the section on RESPIRATORY PROTECTION.

b. Seal any vents, cracks and other sources of leaks.

c. Apply Tablets, Pellets, or Bags by surface application, shallow probing, deep probing or uniform addition to the commodity as the bin is filled. Storage requiring more than 24 hours to fill should not be treated by addition of fumigant to the commodity stream as large quantities of phosphine may escape before the bin is completely sealed.

Probes should be inserted vertically at intervals along the length and width of the flat storage. Pellets, tablets or bags may be dropped into the probe at intervals as it is withdrawn.

Surface application may be used if the bin can be sufficiently gas tight to contain the fumigant gas long enough for it to penetrate the commodity. In this instance, it is advisable to place about 25 percent of the dosages in the floor level aeration ducts. Check the ducts prior to addition of this product to make sure that they contain no liquid water.

d. Tarping the surface of the commodity is often advisable, particularly if the overhead of the storage cannot be well sealed.

e. Lock all entrances to the storage and post fumigation warning placards.

Fumigations of Vertical Storages (concrete upright bins and other silos in which grain can be rapidly transferred).

a. Close all openings and seal all cracks to make the structure is as airtight as possible. Prior to the fumigation, seal the vents near the bin top which connects to adjacent bins.

b. Pellets or Tablets may be applied continuously by hand or by an automatic dispenser on the head house/gallery belt or into the fill opening as the commodity is loaded into the bin. An automatic dispenser may not be used to add this product into the commodity stream in the leg of the elevator. It is recommended to do all applications of this product directly into the fill opening.

c. Seal the bin deck openings after the fumigation has been completed.

d. Bins requiring more than 24 hours to fill should not be fumigated by continued addition into the commodity stream. These bins must be fumigated by probing surface application, or other appropriate means. Exposure periods should be lengthened to allow for diffusion of phosphine gas to all parts of the bins in which this product has not been applied uniformly throughout the commodity mass.

e. Place warning placards on the discharge gate and on all entrances.

Fumigations of Mills, Food Processing Plants and Warehouses

a. Using the information presented above in this label, calculate the length of the fumigation and dosage of Tablets, Pellets or Bags to be applied based upon volume of the building, air and/or commodity temperature and the general tightness of the structure.

b. Carefully seal and placard the space to be fumigated.

c. Place trays or sheets of Kraft paper or foil, 12 sq. ft. (1.1 sq. m.) in size, on the floor throughout the structure to hold Pellets or Tablets of this product. Bags should be spread evenly over the floor. Use total floor space.

d. Spread this product on the sheets at a density no greater than 30 tables per sq. ft. This corresponds to slightly more than one-half flask of Tablets or one-half flask of Pellets per 3'x4' sheet. Check to see that this product has not piled up and that it is spread evenly to minimize contact between the individual Pellets, Tablets, and Bags.

e. Doors leading to the fumigated space should be closed, sealed, locked and placarded with warning signs.

f. The fumigation period usually lasts from 2 to 5 days, depending upon the temperature. Upon completion of the exposure period, windows, doors, vents, etc., should be opened and the fumigated structure allowed to aerate for at least two hours before entering. When required, gas concentration readings may be taken using low level detector tubes or similar devices to ensure safety of personnel who re-enter the treated area. Refer to the section APPLICATOR AND WORKER EXPOSURE.

g. Collect the spent bags or residual dust and dispose of them, with or without further deactivation, following the recommendations given under Disposal Instructions.

h. Remove fumigation warning placards from the aerated structure.

Fumigations of Railcars, Containers, Trucks, Vans and other Transport Vehicles

Railcars, containers, trucks, vans and other transport vehicles loaded with bulk commodities to which Tablets, Pellets, or Bags of this product may be added directly are treated in essentially the same way as any other flat storage facility. This product may be added as the vehicle is being filled, the dose may be scattered over the surface after loading has been completed or the Tablets, Pellets, or Bags may be probed below the surface. Carefully seal any vents, cracks or other leaks, particularly if the fumigation is to be carried out in-transit. Remember, railcars and containers shipped piggyback by rail may be fumigated in-transit, but it is illegal to move trucks, trailers, vans, etc., over public roads or highways until they are aerated. Also the aeration of railcars, railroad boxcars containers and other vehicles is prohibited enroute. See the section on PLACARDING FUMIGATED AREAS for the recommendations on placarding. Written notification must be provided to the receiver of railcars, railroad boxcars, shipping containers and other vehicles, which are being fumigated in-transit. A consignee must make notification prior to the actual receipt of a fumigated vehicle or container. A copy of this Applicator's Manual must proceed or accompany all transportation containers or vehicles. Proper handling of treated railcars at their destination is the responsibility of the consignee. The consignee must be familiar with the properties of phosphine fumigants, worker exposure limits and symptoms and first aid treatment for phosphine poisoning and must know how to make gas concentration measurements. Upon receipt of the railcar, railroad boxcars, shipping containers and other vehicles, a trained person must perform the aeration process and must document, in writing, the monitoring has been conducted and the aeration has been completed. This training shall include, proper and safe aeration handling procedures. See the sections on NOTIFICATION REQUIREMENTS and PLACARDING OF FUMIGATED AREAS.

Tarpaulin and Bunker Fumigations

Use of plastic sheeting or tarpaulins to cover commodities is one of the easiest means for providing relatively gas-tight enclosures which are very well suited for fumigation. Poly tarps are penetrated only very slowly by phosphine gas, and tight coverings are readily formed from the sheets. The volume of these enclosures may vary widely from a few cubic feet, for example, a fumigation tarpaulin placed over a small stack of bagged commodity, to a plastic bunker storage capable of holding 600,000 bushels of grain or more.

Covering bulk or packaged commodity with Poly sheeting may form an enclosure suitable for fumigation. The sheets may be Tarped together to provide a sufficient width of material to ensure that adequate sealing is obtained. If the flooring upon which the commodity rests is of wood or other porous material, it should be repositioned onto Poly prior to covering for fumigation. The plastic covering of the pile may be sealed to the floor using sand or water snakes, by shoveling soil or sand onto the ends of the plastic covering or by other suitable procedures. The Poly covering should be reinforced by tape or other means around any sharp corners or edges in the stack so as to reduce the risk of tearing. Thinner Poly, about 2 mil, is suitable for most indoor tarp Fumigations and for sealing of windows, doors and other openings in structures. However, 4 mil Poly or thicker is more suitable for outdoor applications where wind or other mechanical stresses are likely to be encountered.

Tablets, Pellets, or Bags may be applied to the tarped stack or bunker storage of bulk commodity through slits in the Poly covering. Probing or other means of dosing may be used. Avoid application of large amounts of this product at any one point. This product should be added below the surface of the commodity if condensation or other source of moisture is likely to form beneath the Poly. The slits in the covering should be carefully taped to prevent loss of gas once the dose has been applied. Bags of this product are recommended for the treatment of bagged commodities and processed foods although Tablets and Pellets on trays or on sheets of Kraft paper may be used. Care should be taken to see that the Poly is not allowed to cover this product and prevent contact with moist air or confined gas.

Distribution of phosphine gas is generally not a problem in the treatment of bagged commodities and processed foods. However, fumigation of larger bunker storage's containing bulk commodity will require proper application procedures to obtain adequate results.

Place warning placards at conspicuous locations on the enclosure.

Fumigation of Ships

GENERAL INFORMATION

1. IMPORTANT - shipboard, in-transit ship or ship hold fumigation is also governed by U.S. Coast Guard Regulation 46 CFR 147A, Interim Regulations for Shipboard Fumigation. Refer to this regulation prior to fumigation.

   For further Information contact:

   Commandant U.S. Coast Guard
   Hazardous Materials Standards Division GMSO-3
   Washington, DC 20593-0001

   Read and follow the label and this Applicator's Manual which contain complete instructions for the safe use of this pesticide.

PRE-VOYAGE FUMIGATION PROCEDURES

1. Prior to fumigating a vessel for in-transit cargo fumigation, the master of the vessel, or his representative, and the fumigator must determine whether the vessel is suitably designed and configured so as to allow for safe occupancy of the ship's crew throughout the duration of the fumigation. If it is determined that the design and configuration of the vessel does not allow safe occupancy by the ships crew throughout the duration of the fumigation, then the vessel will not be fumigated unless all crew members are removed from the vessel. The crewmembers will not be allowed to reoccupy the vessel until the vessel has been properly aerated and the master of the vessel and the fumigator has made a determination that the vessel is safe for occupancy.
2. The person responsible for the fumigation must notify the master of the vessel, or his representative, of the requirements relating to personal protection equipment*, detection equipment, and that a person qualified in the use of this equipment must accompany the vessel with cargo under fumigation. Emergency procedures, cargo ventilation, periodic monitoring and inspections, and first aid measures must be discussed with and understood by the master of the vessel or his representative.

   * Personal Protection equipment means a NIOSH/MSHA approved respirator or gas mask fitted with an approved canister for phosphine. The canister must be approved for use up to 15 ppm, SCBA or its equivalent must be used above 15 ppm or at unknown concentrations.
3. Seal all openings to the cargo hold or tank and lock or otherwise secure all openings, manways, etc., which might be used to enter the hold. The overspace pressure relief system of each tank aboard tankers must be sealed by closing the appropriate valves and sealing the openings into the overspace with gas-tight materials.
4. Placard all entrances to the treated spaces with fumigation warning signs.
5. If the fumigation is not completed and the vessel aerated before the manned vessel leaves port, the person in charge of the vessel shall ensure that at least two units of personal protection equipment and one gas or vapor detection device, and a person qualified in their operation be on board the vessel during the voyage.
6. During the fumigation or until a manned vessel leaves port or the cargo aerated, the person in charge of the fumigation shall ensure that a qualified person using gas or vapor detection equipment tests spaces adjacent to spaces containing fumigated cargo and all regularly occupied spaces for fumigant leakage. If leakage of the fumigant is detected, the person in charge of the fumigation shall take action to correct the leakage, or shall inform the master of the vessel or his representative of the leakage so that corrective action can be taken.
7. Review with the master of the vessel or his representative, the precautions and procedures for during the voyage.

APPLICATION PROCEDURES FOR BULK DRY CARGO VESSELS AND TANKERS

1. Apply Tablets, Pellets, and Bags or dust retainers by scattering uniformly over the commodity surface. Alternatively, Tablets, or Pellets may be deep- or shallow-probed into the commodity mass.
2. Immediately after application of the fumigant, close and secure all hatch covers, tank tops, butterworth valves, manways, etc.

IN-TRANSIT FUMIGATION OF CONTAINERS ABOARD SHIPS

In-transit fumigations of containers on ships is also governed by DOT RSPA 49 CFR 176.76(i) Transport Vehicles, Freight Containers, and Portable Tanks Containing Hazardous Materials and International Maritime Dangerous Goods Code P9025-1 Amdt. 27-94.

Application procedures for fumigation of raw commodities or processed foods in containers and other transport vehicles are described in the section COMMODITIES WHICH MAY BE FUMIGATED WITH THIS PRODUCT and the section FUMIGATION OF RAILCARS, CONTAINERS, TRUCK, VANS AND OTHER TRANSPORT VEHICLES.

PRECAUTIONS AND PROCEDURES DURING VOYAGE

1. Using appropriate gas detection equipment, monitor spaces adjacent to areas containing fumigated cargo and all regularly occupied areas for fumigant leakage. If leakage is detected, the area should be evacuated of all personnel, ventilated, and action taken to correct the leakage before allowing the area to be occupied.
2. Do not enter fumigated areas except under emergency conditions. If necessary to enter a fumigated area, appropriate personal protection equipment must be used. Never enter fumigated areas alone. At least one other person, wearing personal protection equipment should be available to assist in case of an emergency.

PRECAUTIONS AND PROCEDURES DURING DISCHARGE

If necessary to enter holds prior to discharge, test spaces directly above grain surface for fumigant concentration, using appropriate gas detection and personal safety equipment. Do not allow entry to fumigant areas without personal safety equipment, unless fumigant concentrations are at safe levels, as indicated by a suitable detector. At least one other person, wearing personal protection equipment should be available to assist in case of an emergency.

Fumigation of Barges
Barge Fumigations are also regulated by U.S. Coast Guard regulation 46 CFR 147A as modified by U.S. Coast Guard Special Permit 2-75. This permit, which must be obtained prior to the fumigation, is available from: **U.S. Coast Guard, Hazardous Materials Standards Division, GMSO-3, Washington, DC 20593-0001**
Leaks are a common cause of failures in the treatment of commodities aboard barges. Carefully inspect all hatch covers prior to application of the is product and seal, if necessary. Notify consignee if the barge is to be fumigated in-transit.

Fumigations in Small Sealable Enclosures
Excellent results may be attained in the treatment of small enclosures since it is often possible to control the fumigation and also to make the enclosure virtually gas tight. Take care not to overdose during these Fumigations. A single pellet will treat a space from 1.4 to 10 cubic feet. From 6.9 to 50 cubic feet may be fumigated with a single Tablet or Bag of this product.

Treatment of Beehives, Supers and other Bee Keeping Equipment
Tablets, Pellets and Bags of this product may be used for the control of the greater wax moth in stored beehives, supers and other bee keeping equipment and for the destruction of bees, Africanized bees, and diseased bees including those infested with tracheal mites and foulbrood. The recommended dosage for this use is 30 to 45 Tablets, 150 to 225 Pellets or 3 to 4 Bags per 1000 cu. ft.
Fumigations may be performed in chambers at atmospheric pressure, under tarpaulins, etc. by placing Bag and Tablets or Pellets on trays or in moisture permeable envelopes. Do not add more than 2 Tablets or 10 Pellets to each envelope. Honey from treated hives or supers may only be used for bee food after aeration.

Burrowing Pest Control (Pellets and Tablets Only)

ENVIRONMENTAL HAZARDS
This product is very highly toxic to fish and wildlife. Non-target organisms exposed to phosphine gas in burrows will be killed. Do not apply directly to water, or to areas where surface water is present or to inter-tidal areas below the mean high water mark. Do not contaminate water by cleaning equipment or disposal of wastes.

DIRECTIONS FOR USE
Use Restrictions: This product may be applied to underground burrow systems located in non-crop areas, crop areas, or orchards, and occupied by Woodchucks, Yellowbelly marmots (rockchucks), Prairie dogs (except Utah prairie dogs, *Cynomys parvidens*), Norway rats, Roof rats, House mice, Ground squirrels, Moles, Voles, Pocket gophers, or Chipmunks. All treatments for control of these species in burrows must be made outdoors. Pellets or Tablets must be applied directly to underground burrow systems. Do not use within 15 feet (5 meters) of inhabited structures. Do not apply an Aluminum Phosphide product to any burrow system, which might open into or under occupied buildings. Document any burrows that open under or into occupied buildings, and do not apply to these burrows. In addition, check for any other source through which the gas may enter into occupied buildings as a result of application to burrows. If there is any way gas can move through pipes, conduits etc., from burrows do not treat these burrow. Prior to treating a rodent burrow on a property containing an inhabited structure, the applicant must provide the customer (e.g. tenant, homeowner, or property manager) with an MSDS or appropriate sections of this Manual. Consult Local, State, and Federal Game Authorities to ensure that endangered species do not inhabit the area proposed for treatment. Refer to the following section, ENDANGERED SPECIES CONSIDERATIONS.

APPLICATION DIRECTIONS
Use application procedures appropriate to the type of burrow system being treated. For species with open burrow systems, locate all entrances to each burrow system. Seal all but one entrance to the burrow system tightly by shoveling and packing soil and/or sod to completely seal the opening. Insert 2 to 4 Tablets or 10 to 20 Pellets into each entrance to be treated. Use the lower rates for smaller burrows and/or when soil moisture is high. Use the higher rates for larger burrow systems and when soil moisture is relatively low. Pack the treated entrance with crumpled paper and shovel soil to completely cover the paper. Using crumpled paper will prevent soil from covering the tablets or pellets and slowing down their action. Inspect treated areas 1 to 2 days following treatment for signs of residual activity of target species. Treat all re-opened or previously undiscovered burrows in the manner prescribed above.
For species with closed burrow systems, locate the main underground runway by probing with a smooth-sided rod 12 to 18 inches from a fresh mound. A sudden reduction in soil resistance to the probe indicates that the main runway has been located. Once treatment rate according to the level of soil moisture, using more Pellets or Tablets if the soil is relatively dry. Do not treat if soil is extremely dry or if there are no signs of recent activity. Make a tight seal to close probe hole by using a clod of soil or a sod plug to cover the hole or by using the heel of your shoe to push sod and/or soil over the surface opening. If the probe hole is more than one inch in diameter, place crumpled paper in the hole before closing it with soil and/or sod. Two days after treatment check area for residual pest activity by poking holes in main runways of burrow systems. Flag holes and inspect them two days later. Retreat all re-closed systems on both sides of the plug.

ENDANGERED SPECIES CONSIDERATIONS
The use of this product in a manner that may kill or otherwise harm an endangered or threatened species or adversely modify their habitat is a violation of Federal laws. Before using this pesticide on range and/or pastureland you must obtain the PESTICIDE USE BULLETIN FOR PROTECTION OF ENDANGERED SPECIES for the county in which the product is to be used. The bulletin is available from your County Extension Agent, State Fish and Game Office, or your pesticide dealer. Use of this product in a manner inconsistent with the PESTICIDE USE BULLETIN FOR PROTECTION OF ENDANGERED SPECIES is a violation of Federal laws. Even if applicable county bulletins do not prohibit the use of this product at the intended site of application, you may not use this product for control of prairie dogs in the states of Arizona, Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah or Wyoming unless a precontrol survey has been conducted. Contact the nearest U.S. Fish and Wildlife Service Endangered Species Specialist to determine survey requirements in your area. This survey must be in compliance with the Black-Footed Ferret Survey Guidelines, developed by the U.S. Fish and Wildlife Service, and a determination must be made in accordance with the Guidelines that Black-footed ferrets are not present in the treatment area.
California: (all endangered species)
Fresno, Inyo, Kern, Kings, Madera, Merced, Monterey, San Benito, San Luis Obispo, Santa Barbara, Stanislau and Tulare
See the U.S. EPA Interim Measures Bulletin for your county. To obtain a copy of the bulletin, contact your county agricultural commissioner or visit the following website: http://www.cdpr.ca.gov/docs/es/index.htm. If there is no current bulletin available for your county, contact the U.S. Fish and Wildlife Service office in Portland, OR to determine whether there are endangered species that might be adversely affected by your proposed use of this product and the steps you should take to mitigate any such risks.
Florida: Statewide
Georgia: Appling, Atkinson, Bacon, Baker, Ben Hill, Bleckley, Berrien, Brantley, Brooks, Bryan, Bullock, Calhoun, Camden, Chandler, Charlton, Chatham, Clinch, Coffee, Colquitt, Cook, Crisp, Decatur, Dodge, Dooly, Dougherty, Early, Echols, Effingham, Emmanuel, Evans, Glynn, Grady, Irwin, Jeff Davis, Jenkins, Johnson, Lanier, Laurens, Lee, Liberty, Long, Lowndes, Macon, McClintosh, Miller, Mitchell, Montgomery, Pierce, Pulaski, Screven, Siminole, Telfair, Tattnall, Thomas, Tift, Toombs, Treutlen, Ware, Wayne, Wheeler, Wilcox, and Worth.
New Mexico: Hidalgo
Utah: Beaver, Garfield, Iron, Kane, Piute, Sevier, Washington, and Wayne
Wyoming: Albany

Areas Inhabited by Endangered or Threatened Species

1. Black-footed Ferret – States of Arizona, Colorado, Kansas, Montana, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah and Wyoming
2. Blunt-nosed Leopard Lizard – Counties of Kern, Kings, Fresno, Madera, Merced, and Tulare in the State of California
3. Desert Tortoise – Washington County in the State of Utah
4. Eastern Indigo Snake – States of Florida and Georgia
5. San Joaquin Kit Fox – Counties of Kern, Kings, Fresno, Merced, Monterey, San Benito, San Luis Obispo, Santa Barbara, Tulare, and Ventura in the State of California

SPECIAL LOCAL RESTRICTIONS

1. **North Carolina:** Tablets, Pellets and Bags of this product may only be used for control of Rats and Mice (except house mice) in the State of North Carolina. Use against other burrowing pests is not permitted.
2. **Oklahoma:** A special permit for black-tailed prairie dog control by poisoning is required in Oklahoma. Contact the Oklahoma State Department of Wildlife Conservation to obtain this permit.
3. **Wisconsin:** A state permit is required for use of pesticides in Wisconsin to control small mammals, except Rats or Mice (Note: This product is not for use in house mice). Please contact your local Department of Natural Resources office for information.
4. **Indiana:** Use of Tablets, Pellets or Bags of this product for mole control is not legal in the State of Indiana.
5. **Missouri:** A state permit is required for use of pesticide in Missouri to control small mammals, except Rats and Mice (Note: This product is not for use in house mice). Please contact the Missouri Department of conservation office for information.
6. **Kansas:** A special permit for black-tailed prairie dog control by poisoning is required in Kansas. Contact the Kansas Fish and Game Commission to obtain this permit.
7. **California:** Use of Tablets, Pellets and Bags of this product for chipmunk control is not legal in the State of California.

STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage and disposal.

PESTICIDE STORAGE INSTRUCTIONS

Store this product 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. Tablets, Pellets, and Bags of this product are supplied in gas tight, re-sealable aluminum flasks. Bag containers of this product cannot be resealed; once opened, it has to be used up or disposed of properly. 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 this product is virtually unlimited as long as the containers are tightly sealed.

PROPER POSTING OF STORAGE

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	₩

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.

PESTICIDE DISPOSAL INSTRUCTIONS

General

1. Do not contaminate water, food or feed by storage or disposal.
2. Untreated or partially spent pellets, tablets or bags of this product are acutely hazardous. Improper disposal of excess pesticides 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.
3. Some local and state waste disposal regulations may vary from the following recommendations. Disposal procedures should be reviewed with appropriate authorities to ensure compliance with local regulations. Contact your state Pesticide or Environmental Control Agency or Hazardous Waste Specialist at the nearest EPA regional office for guidance.
4. Triple rinse flasks and stoppers with water. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by other procedures approved by state and local authorities. Rinsate may be disposed of in a sanitary landfill by pouring it out onto the ground or by other approved procedures, or it is permissible to remove lids and expose empty flasks to atmospheric conditions until residue in flasks is reacted. Then puncture and dispose of exposed flasks 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 a fumigation with this product will be a grayish-white powder containing only a small amount of unreacted aluminum phosphide. However, partially spent residual dust (green dust) of this product from incompletely exposure will require special care and handling.

Directions for Disposal of Residual Spent Dust from This Product

1. Confinement of partially spent residual dust, as in a closed container, or collection and storage of large quantities of dust may result in a fire hazard. Small amounts of phosphine may be given off from unreacted aluminum phosphide, and confinement of the gas may result in a flash.
2. In open areas, small amounts of residual dust, up to about 5 to 8 kg may be disposed of on site by burial or by spreading over the land surface away from inhabited buildings.

(Continued)

STORAGE AND DISPOSAL *(Con't.)*

3. Spent residual dust from this product may also be collected and disposed of at a sanitary landfill, incinerator or other approved sites or by other procedures approved by Federal, State or Local authorities. "Green Dust" must be further deactivated before disposal at a landfill.
4. From 2 to 3 kg (4 to 7 lbs.) of spent dust from 2 to 3 flasks of this product may be collected for disposal in a one gallon bucket. Larger amounts, up to about one-half case, may be collected in burlap, cotton, or other types of porous cloth bags for transportation in an open vehicle to the disposal site. Do not collect dust from more than 7 flasks of Tablets or 10 flasks of Pellets (about 11 kg or 25 lbs.) in a single Bag. Do not pile cloth bags together. Do not use this method for partially spent or "green dust." Precaution: Do not collect dust in large drums, dumpsters, plastic bags or other containers where confinement may occur.

Directions for Deactivation of Partially Spent Residual Dust from This Product

Partially spent dust may be deactivated prior to ultimate disposal. This is especially true in cases of incomplete exposure, which has resulted in so-called "green dust", or following a fumigation which has produced large quantities of partially spent material. "Green dust" must be further deactivated prior to disposal in landfills.

Green Residual Dust from This Product May Be Deactivated as Follows Using the "Wet Method."

a. Deactivating solution is prepared by adding the appropriate amount of low-subsiding detergent or surface-active agent to water in a drum or other suitable container. A 2% solution of detergent is suggested. The container should be filled with deactivating solution to within a few inches of the top.
b. Residual dust is poured slowly into deactivating solution and stirred so as to thoroughly wet all of the particles. This should be done in the open air and not in the fumigated structure. Dust from tablets, pellets, or bags from this product should be mixed into no less than 10 gallons of water-detergent solution for each case of material used. Wear appropriate respiratory protection during wet deactivation of partially spent dust. See the section, RESPIRATORY PROTECTION.
c. Dispose of the deactivated dust-water suspension, with or without preliminary decanting, at a sanitary landfill or other suitable site approved by local authorities. Where permissible, the slurry may be poured out onto the ground. If the slurry has been held for 36 hours or more, it may be poured into a storm sewer.
d. Precautions: Respiratory protection is required during wet deactivation of partially spent material. Do not cover the container at any time. Do not dispose of dust in a toilet. Do not allow quantities of dry residual dust from this product to be collected or stored without deactivation.

Residual Dust from This Product may also be Deactivated as Follows Using the "Dry Method."

a. Extension of the fumigation period is the simplest method for further deactivation of "green dust" or partially spent dust prior to ultimate disposal.
    1. Small amounts of partially spent dust, from 2 to 3 kgs. (4 to 7 lbs.) may be further deactivated by storage in a 1-gallon bucket in an open area away from inhabited buildings. Larger amounts of dust (about 11 kg or 25 lbs.) may be held for deactivation in porous cloth bags (burlap, cotton, etc.) in open air away from inhabited buildings. Precaution: Transport these bags in open vehicles, do not pile up bags.

SPILL AND LEAK PROCEDURES

General Precautions and Directions

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 this product. Water in contact with unreacted tablets, pellets or bags 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 this product 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.

(Continued)

SPILL AND LEAK PROCEDURES *(Con't.)*

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

If the age of the spill is unknown or if the Tablets, Pellets, and Bags have been contaminated with soil, debris, water, etc., gather up the spillage and place it into a 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 open uninhabited area. Wet deactivation may then be carried out as described below under DIRECTIONS FOR DEACTIVATION BY THE WET METHOD. 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, Pellets, or Bags are poured slowly into the deactivating solution and stirred so as to thoroughly wet all of this product. This should be done in the open air. Tablets, Pellets, and Bags of this product 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. Precautions: Respiratory protection is required during wet deactivation of this products unexposed state. Never place Pellets, Tablets, or Bags 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. Further instructions and recommendations may be obtained from Drexel Chemical Company:

PHONE: (901) 774-4370
TELEFAX: (901) 774-4666
E-MAIL: info@drexchem.com
www.DrexChem.com

LOCATION:
1700 CHANNEL AVE.
MEMPHIS, TN 38113-0327

MAIL ADDRESS:
POST OFFICE BOX 13327
MEMPHIS, TN 38113-0327

WARRANTY—CONDITIONS OF SALE

OUR RECOMMENDATIONS FOR USE of this product are based upon tests believed reliable. Follow directions carefully. Timing and method of application, weather and crop conditions, mixtures with other chemicals not specifically recommended and other influencing factors in the use of this product are beyond the control of the Seller. Buyer assumes all risks of use, storage and handling of this material not in strict accordance with directions given herewith.

In no case shall the Manufacturer or the Seller be liable for consequential, special or indirect damages resulting from the use or handling of this product when such use and/or handling is not in strict accordance with directions given herewith. The foregoing is a condition of sale by the Seller and is accepted as such by the Buyer.

Drex-PH_3 PELLETS: EPA Reg. No. 19713-569
Drex-PH_3 BAGS: EPA Reg. No. 19713-570
Drex-PH_3 TABLETS: EPA Reg. No. 19713-571

EPA Est. No. _____

Manufactured By:
Drexel Chemical Company
P.O. BOX 13327, MEMPHIS, TN 38113-0327
SINCE 1972