

PRECAUTIONARY STATEMENTS

Detia® Tablets reacts with atmospheric moisture to form and release the poisonous gas phosphine (Syn: Hydrogen Phosphide). The reaction begins about 3 hours after exposure to air. Atmospheric and/or commodity temperature dictates the rate and duration of the reaction.

HAZARDS TO HUMANS: DANGER - Wear gloves when handling. Open containers in well ventilated areas, preferably outside. Do not breathe vapors. Do not breathe dust. Do not get tablet dust in eyes or on hands, skin or clothing. Do not eat, drink or smoke while handling. Wash hands thoroughly with soap and water after handling. Have available a gas mask and canister approved by the U.S. Department of Interior, Bureau of Mines, for phosphine protection.

PHYSICAL OR CHEMICAL HAZARDS: Spontaneous ignition may result if tablets come into contact with water or other liquids. Phosphine reacts corrosively with copper, brass, gold and other precious metals.

SYMPTOMS OF PHOSPHINE POISONING: Sensation of cold, diarrhea, gastric pains, acute indigestion, dizziness, dry cough, loss of appetite, intense thirst, vomiting, enlarged pupils, choking attacks, reeling.

ANTIDOTE—FIRST AID: Any of the above may be taken as symptoms of phosphine poisoning. At first warning take victim to fresh air immediately. CALL A DOCTOR! Lay the victim down, keep warm with blankets. Supply pure oxygen and maintain respiration, artificially if necessary, until the doctor arrives. If the tablets or the tablet dust has been swallowed remove victim to open air and induce vomiting with 1 teaspoon of salt dissolved in a glass of warm water. Repeat until the vomit fluid is clear. TAKE VICTIM DIRECTLY TO HOSPITAL! Lay the victim down after removal of any contaminated clothing. Keep warm.

ACCEPTED

JUN 3 1980

Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under
EPA Reg. No. 2548-62

RESTRICTED USE PESTICIDE

For Retail Sale To And Use Only By
Certified Applicators Or Persons Under Their
Direct Supervision And Only For Those Uses
Covered By The Certified Applicator's
Certification



TABLETS

A Phosphine Fumigant In Tablet Form
For Use Against Listed Insects Which Infest Listed
Raw Agricultural Commodities And Animal Feeds

Active Ingredient: Aluminum Phosphide ... 57%
Inert Ingredients: ... 43%
TOTAL ... 100%

KEEP OUT OF REACH OF CHILDREN



DANGER-POISON



Statement of Practical Treatment

- If Swallowed: Induce vomiting with teaspoonful of salt in a glass of warm water. Repeat until vomit fluid is clear. TAKE VICTIM TO HOSPITAL.
- If Inhaled: Remove victim to fresh air, immobilize and keep warm. Sustain breathing, artificially if necessary. CALL A PHYSICIAN IMMEDIATELY.

See Side Panels For Additional First Aid Procedures

Manufactured by: Dr. Werner Freyberg, Chemische Fabrik,
694 Weinheim, Bergstrasse, F.R.G. of Germany
Distributed by: Research Products Company, Box 1057,
Salina, Kansas 67401

EPA Establishment No. 33982WG01
EPA Registration No. 2548-62

Net Contents: 500 Tablets
Net Weight: 1500 grams (3 lbs. 4.8 ozs.)

ENVIRONMENTAL HAZARDS

This product is toxic to fish. Keep out of lakes, streams and other aquatic environments. Do not contaminate water by cleaning equipment or disposal of wastes.

DIRECTIONS FOR USE

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

Refer to the instruction booklet titled "APPLICATION PROCEDURES FOR DETIA® PELLETS AND DETIA® TABLETS" for detailed use instructions. Used as directed therein Detia® Tablets will aid in the control of granary weevil, rice weevil, lesser grain borer, red flour beetle, Indian meal moth, saw toothed grain beetle, confused flour beetle, bean weevil, and their pre-adult stages (egg-larvae-pupae).

STORAGE AND DISPOSAL

STORAGE: Store in cool, dry, locked ventilated room or building. Protect from moisture, open flames, heat, acids and other chemicals. Never store near homes or living quarters.

DISPOSAL OF EMPTY CONTAINERS: Flush several times with water, crush and bury. Bury closures.

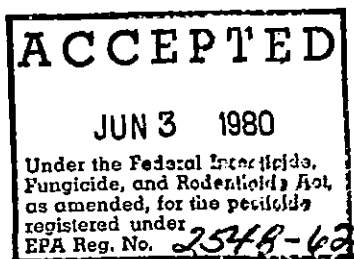
The booklets "APPLICATION PROCEDURES FOR DETIA® PELLETS AND DETIA® TABLETS" and "INSTRUCTIONS FOR INTRANSIT FUMIGATION OF SHIP-HOLDS CONTAINING BULK COMMODITIES WITH DETIA® GAS EX-9, DETIA® PELLETS AND DETIA® TABLETS" are a part of labeling. They contain specific use instructions concerning the fumigation of listed Raw Agricultural Commodities, Animal Feeds, and Stored Tobacco; information concerning dosage and exposure, and other information necessary to properly use Detia® Tablets.

CONTAINING BULK COMMODITIES WITH
DETIA® GAS EX-B, DETIA® PELLETS, AND DETIA® TABLETS

RESTRICTED USE
PESTICIDE

For Retail Sale To And Use Only By
Certified Applicators Or Persons Under Their
Direct Supervision And Only For Those Uses
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Certification

EPA Establishment No. 33982WG01
EPA Registration No. 2548-59
EPA Registration No. 2548-63
EPA Registration No. 2548-62



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NOTICE

1. Prior to fumigating a vessel for intransit 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 by 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 for safe occupancy by the ship's crew throughout the duration of the fumigation, then the vessel will not be fumigated unless all crew members are removed from the vessel. The crew members will not be allowed to reoccupy the vessel until the vessel has been properly aerated and a determination has been made by the master of the vessel and the fumigator 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.
3. During the fumigation or until a manned vessel leaves port or the cargo is aerated, the person in charge of the fumigation shall insure that a qualified person using gas or vapor detection equipment tests spaces adjacent to spaces containing fumigated cargo and all regularly occupied spaces for fumigation 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.

4. If the fumigation is not completed and the vessel aerated before the manned vessel leaves port, the person in charge of the vessel shall insure 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.

*"Personal protection equipment means a gas mask fitted with a canister designed for phosphine gas which is approved by the U.S. Dept. of Interior, Bureau of Mines or its equivalent."

INTRODUCTION

Detia® Gas EX-B, Detia® Tablets and Detia® Pellets are fumigant preparations containing 57% aluminum phosphide (by weight) which when removed from their original shipping containers will liberate Hydrogen Phosphide (phosphine). The reaction between atmospheric moisture and the aluminum phosphide will continue for several days depending on climatic conditions.

IMPORTANT

1. Shipboard fumigation is regulated by the U.S. Coast Guard Regulations 46 CFR 147A.
2. Detia® Gas EX-B (EPA Reg. No. 2548-59), Detia® Tablets (EPA Reg. No. 2548-62) and Detia® Pellets (EPA Reg. No. 2548-63) are classified by the U.S. Environmental Protection Agency as RESTRICTED USE PESTICIDES, for retail sale to and use only by Certified Applicators or Persons Under Their Direct Supervision And Only for Those Uses Covered by The Certified Applicator's Certification.
3. For additional information refer to labels and booklets entitled "APPLICATION PROCEDURES FOR DETIA® PELLETS AND DETIA® TABLETS", "DETIA GAS EX-B INSTRUCTION BOOKLET", and "PROPER HANDLING FIRST AID AND DISPOSAL OF DETIA® GAS EX-B A PHOSPHINE FUMIGANT".
4. This product is toxic to fish. Keep out of lakes, streams and other aquatic environments. Do not contaminate water by cleaning equipment or disposal of wastes.

PROCEDURES

Bulk Dry Cargo Vessels

Prefumigation Procedures

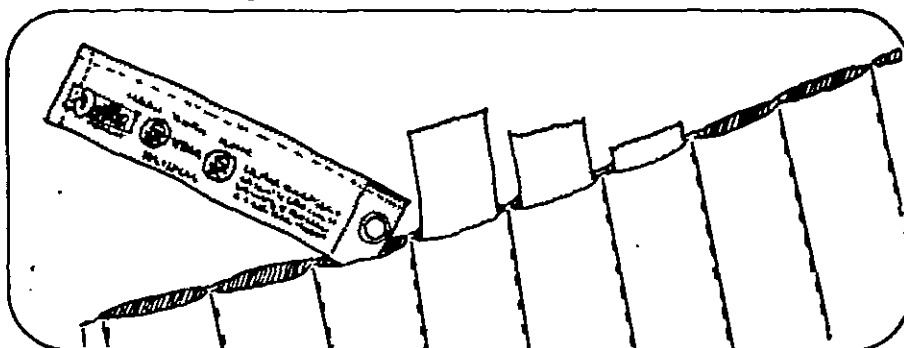
1. Refer to and comply with the regulations and procedures found in U.S. Coast Guard Regulations, 46 CFR 147A.
2. Determine fumigation suitability of vessel (ship) and be certain that the hold or holds to be fumigated are of such sealable construction to permit an in-transit fumigation without danger to the crew during the application and subsequent voyage.
3. Excluding the main hatch opening, seal all other openings to the hold using suitable, water proof, gas tight materials. Lock and or otherwise secure all openings, manways, etc. normally used to enter the hold. Post appropriate "DANGER" signs on same.
4. Arrange for enough manpower to make application of the fumigant preparations in two hours or less (per hold).
5. Contact appropriate authorities.

800-843

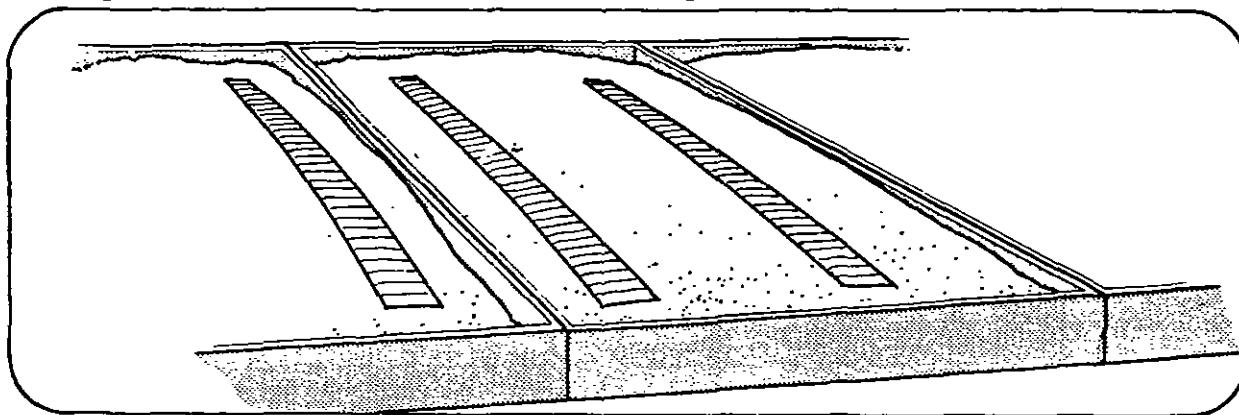
Application Procedures

Detia® Gas EX-B....Method One.

1. Calculate dosage on the basis of 3 bags per 1000 cubic feet. Dosage is always calculated on total hold volume irrespective of the amount or quantity of commodity loaded into the hold.
2. Open cans, remove bags and insert into the pockets of "bag blankets":



3. Place the "bag blankets" fully extended onto the commodity surface. Space several feet apart. Don't overlap.



4. Close the hatch cover immediately after blankets are in place.
5. Post "DANGER" signs in prominent locations on the outside of the hatch cover.

Detia® Gas EX-B....Method Two.

This method utilizes pre-packed bag blankets (100 bags per can).

1. Open cans and remove the bag blankets.
2. Place the rolled-up blankets onto the commodity surface and unroll until fully extended.
3. See steps 3, 4, 5, under Method One.

END

Detia® Gas EX-B...Method Three.

In lieu of either Method One or Method Two the bags may be uniformly scattered onto the commodity surface or probed in to any depth desired, with spacing between each. These methods necessitate securing the bags to one or more continuous lengths of stout cord to facilitate easy removal at the port of discharge.

Detia® Tablets

1. Calculate dosage on the basis of 33 tablets per 1000 cubic feet. Dosage is always calculated for total hold volume irrespective of the amount or quantity of commodity loaded into the hold.
2. Apply the tablets by scattering them uniformly onto the commodity surface utilizing as much of the total surface area as possible. To reduce gas loss and in order to delay the generation of phosphine as long as possible it may be appropriate to step the tablets into the surface of the commodity, or, to probe them in to any depth desired.
3. See steps 4 and 5 under Detia® Gas EX-B Method One.

Detia® Pellets

1. Calculate dosage on the basis of 165 pellets per 1000 cubic feet. Dosage is always calculated for the total hold volume irrespective of the amount or quantity of commodity loaded into the hold.
2. See steps 2 and 3 under Detia® Tablets.

TANKERS

Prefumigation Procedure

1. Refer to and comply with the regulations found in U.S. Coast Guard Regulations 46 CFR 147A.
2. Determine fumigation suitability of vessel (ship) and be certain that the tank or tanks to be fumigated are of such sealable construction and/or integrity to permit an in-transit fumigation without danger to the crew during the application and subsequent voyage.
3. The overspace pressure relief system of each tank must be sealed by (1) the closure of appropriate valves, and (2) sealing the opening into the overspace with gas tight materials.

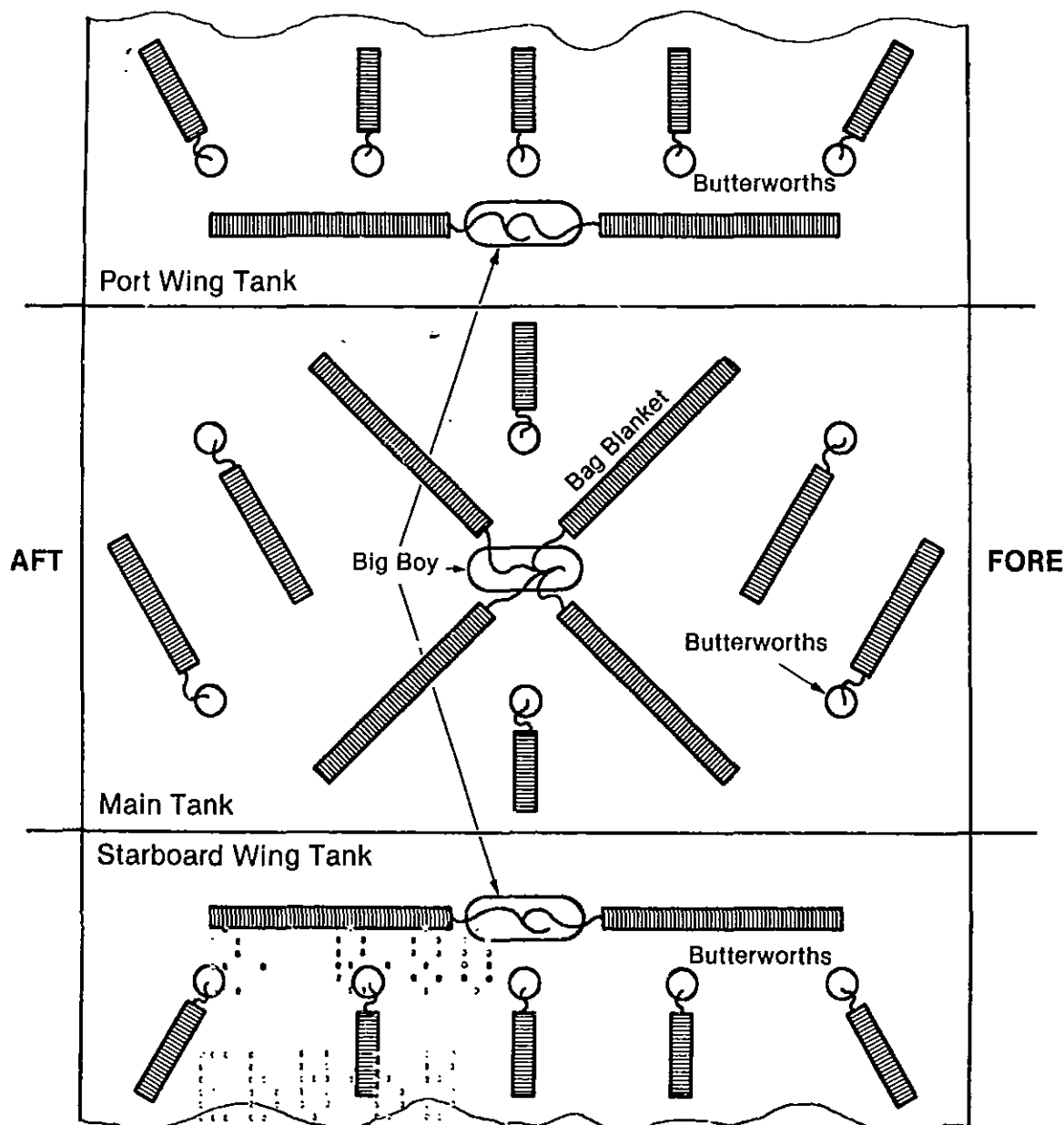
Application Procedures

Detia® Gas EX-B....Method One.

1. Calculate dosage on the basis of 3 bags per 1000 cubic feet. Dosage is always calculated on the total tank volume irrespective of the amount of commodity loaded into the tank.

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2. A portion of the total number of bags designated for each tank must be allotted for placement in each butterworth and main hatch opening according to the portion of the tank served by that opening.
3. Determine the length and number of bag blankets required for each tank and cut to length accordingly.
4. Open cans and begin inserting the bags into the blankets. As each blanket is filled position it on to the commodity surface, fully extended. This generally necessitates first rolling up the blanket, lowering it into the tank through the butterworth and then unrolling down the slope of the commodity. For those blankets being applied through the Big Boy it will mean entering the tank, selecting an unobstructed slope and unrolling. See diagram below showing a typical bag blanket placement scheme.



5. Secure each blanket with a stout cord. Tie or otherwise secure the loose end to each butterworth opening plus the Big Boy. Do not leave any slack in the cord.
6. Close, secure and seal each butterworth and the Big Boy immediately following placement of the blankets.
7. Post "DANGER" signs.

Detia® Gas EX-B....Method Two.

This method utilizes pre-packed bag blankets.

1. See steps 1 and 2 under method one for tankers.
2. Determine the length and number of bag blankets required for each butterworth and the Big Boy. Be certain that the selected blanket "path" is unobstructed.
3. Open cans and remove the bag blankets. Open only enough cans to accommodate one butterworth at a time.
4. Unroll the blanket and cut them to length. Form a new roll, lower into position and unroll down the slope of the commodity until fully extended.
5. Repeat Step 4 for each butterworth and the Big Boy.
6. See Steps 5, 6, and 7 under TANKERS, Method One.

Detia® Tablets

1. Calculate dosage on the basis of 33 tablets per 1000 cubic feet. Dosage is always calculated for total hold volume irrespective of the amount of commodity loaded into the hold.
2. Apply the tablets by scattering them uniformly onto the commodity surface utilizing as much of the total surface area as possible.
3. See steps 6 and 7 under TANKERS, Method One.

Detia® Pellets

1. Calculate dosage on the basis of 165 pellets per 1000 cubic feet. Dosage is always calculated for the total hold volume irrespective of the amount of commodity loaded into the hold.
2. See steps 2 and 3 under Detia® Tablets.

Post Fumigation Procedures

1. Until the ship leaves port it will be necessary to regularly monitor all areas and spaces of the ship for the presence of hydrogen phosphide (phosphine) using appropriate phosphine detection equipment. Special attention

should be given to living quarters, kitchens, storerooms, mess halls, keel ducts, day rooms, the bridge, engine room and any other enclosed spaces occupied or frequented by crew members during a voyage.

Check the tanks and/or holds for leaks and re-seal if necessary.

VOYAGE PRECAUTIONS AND PROCEDURES

Generally speaking crew members are free to move about the vessel in the usual manner. As a guide, however, the following minimum precautions should be followed:

1. DO NOT ENTER FUMIGATED HOLDS OR TANKS.
2. AT REGULAR INTERVALS MONITOR ALL SPACES AND AREAS CONSIDERED TO BE SAFE FOR OCCUPANCY USING APPROPRIATE GAS DETECTION EQUIPMENT.
3. IF PHOSPHINE IS DETECTED, EVACUATE THE SPACE OR AREA, LOCATE AND SEAL OFF THE SOURCE OF THE LEAK WEARING APPROPRIATE RESPIRATORY PROTECTION EQUIPMENT.
4. DO NOT OPEN OR OTHERWISE VENTILATE OR AERATE THE FUMIGATED HOLDS.

DISCHARGE PRECAUTIONS AND PROCEDURES

Upon arrival into the port of discharge holds or tanks may be opened. Any hydrogen phosphide in the free air space above the commodity will rapidly dissipate to atmosphere. There may be some gas remaining in the commodity mass itself which will disappear as discharge takes place.

If it is necessary for workers to enter holds the air space directly above the commodity mass should be tested for phosphine. If found in excess of allowed limits, it will be necessary to allow for additional aeration and/or ventilation.

DISPOSAL OF SPENT FUMIGANT PREPARATIONS

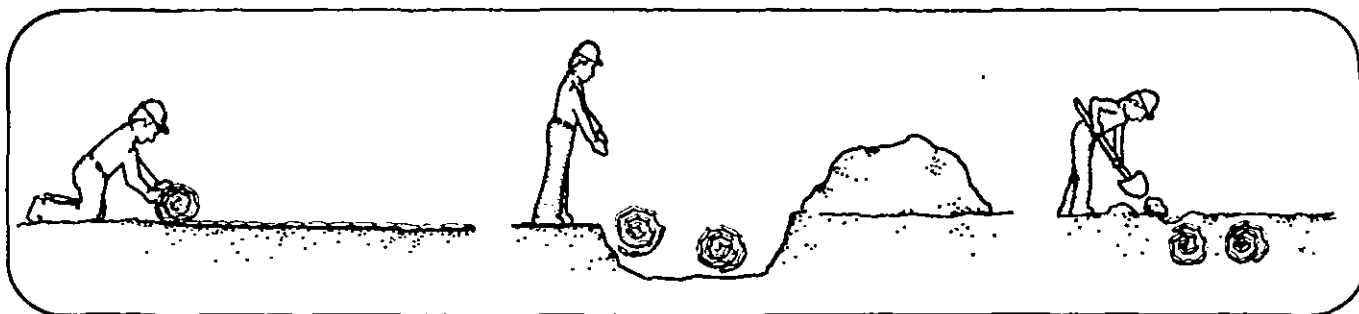
Detia® Tablets: Not necessary.

Detia® Pellets: Not necessary.

Detia® Gas EX-B:

1. Remove from the commodity surface before discharge begins.
2. Roll up blankets and either burn or bury in an appropriate site. If individual bags were used collect and either burn or bury in an appropriate site.

END



PERSONAL PROTECTIVE EQUIPMENT

Because the release of phosphine from Detia® Pellets, Detia® Tablets, and Detia® Gas EX-B is delayed after exposure to air, it is usually not necessary for operators to wear gas masks. However, suitable respiratory protective equipment should be immediately available. Use full face masks with canisters meeting U.S. Bureau of Mines specifications for phosphine. Gloves should be worn when handling Detia® Pellets and Tablets.

GAS DETECTION EQUIPMENT

All users of fumigants should have, as standard equipment, gas detection devices designed specifically for phosphine. There are several devices readily available. Consult local suppliers of such equipment or contact Research Products Company for more information.

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