

# **PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS: DANGER**

Phosphine is poisonous with an odor comparable with commercial garlic. Do not eat, drink, or use in food. Do not get contents of bags in eyes, on skin, or on clothing. Phosphine is flammable. Do not get contents of bags in eyes, on skin, or on clothing. Wash hands thoroughly with soap and water after use. Do not eat, drink, or use in food. Do not get contents of bags in eyes, on skin, or on clothing. Wash hands thoroughly with soap and water after use. Do not eat, drink, or use in food. Do not get contents of bags in eyes, on skin, or on clothing. Wash hands thoroughly with soap and water after use.

## **ENVIRONMENTAL HAZARDS:**

This product is toxic to fish, birds, and other aquatic animals. Do not contaminate water by cleaning equipment or disposal of waste.

## **PHYSICAL OR CHEMICAL HAZARDS:**

Delta Gas EX-B Fumigant gas is noncombustible itself, but exposure to moist air or water releases flammable and toxic phosphine gas. Spontaneous ignition may result if the bags are contacted by water, acids, or other chemicals. Do not use bags that have been in contact with water, acids, or other chemicals. Do not use bags that have been in contact with water, acids, or other chemicals. Do not use bags that have been in contact with water, acids, or other chemicals.

## **SYMPTOMS OF PHOSPHINE POISONING:**

Weakness, Dry Cough, Gastric Pain, Intense Thirst, Choking Attack, Sensation of Cold, Dizziness, Disorientation, Loss of Appetite, Enlarged Pupils, Acute Indigestion, Nausea, Vomiting, Diarrhea, Loss of Consciousness, Convulsions, Death.

See also the material, enclosed or attached, concerning the use of this product when such use is in accordance with the label instructions.

Classified by Underwriters Laboratories Inc. as a fire hazard only, when used specifically as directed in the label instructions that are a part of the product. Delta Gas EX-B is a fumigant gas. It is noncombustible itself, but exposure to moist air or water releases acids, or chemicals, or other.

## **DIRECTIONS FOR USE**

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

Delta Gas EX-B is an aluminum phosphide preparation packaged into special paper bags. Each bag contains 34 grams of phosphine gas (PH<sub>3</sub>). Phosphine gas is a colorless, odorless, and tasteless gas. It is highly flammable and explosive. It is also highly toxic to humans and animals. It is used as a fumigant for the control of insects and rodents. It is used in the form of a gas, and it is used in the form of a gas.

The product "Instructions for the use of Delta Gas EX-B, a Phosphine Fumigant," and "Proper Handling, First Aid and Disposal of Delta Gas EX-B, a Phosphine Fumigant," are

# **RESTRICTED USE PESTICIDE**

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



**GAS EX-B**

**ACTIVE INGREDIENT:  
INERT INGREDIENTS:**

Aluminum Phosphide . . . . . 61%  
Inert Ingredients . . . . . 39%



**KEEP OUT OF REACH OF CHILDREN  
DANGER - POISON**



## **STATEMENT OF PRACTICAL TREATMENT**

AT FIRST WARNING OR APPEARANCE THAT SOMEONE HAS BEEN AFFECTED BY PHOSPHINE, TAKE THEM TO FRESH AIR IMMEDIATELY AND CALL A DOCTOR. THE PATIENT SHOULD BE Laid DOWN AND KEPT WARM WITH BLANKETS. SUPPLY PATIENT WITH PURE OXYGEN AND MAINTAIN RESPIRATION, ARTIFICIALLY IF REQUIRED, UNTIL THE DOCTOR ARRIVES. IF SWALLOWED CALL A PHYSICIAN OR POISON CONTROL CENTER. DRINK 1 OR 2 GLASSES OF WATER AND INDUCE VOMITING BY TOUCHING BACK OF THROAT WITH FINGER OR IF AVAILABLE, BY ADMINISTERING SYRUP OF IPECAC. DO NOT INDUCE VOMITING OR GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

See also label for symptoms and additional precautionary statements.

CONTENTS	NET WT. EACH	TOTAL NET WT.
8 Active Bags (Floral Size) . . . . . 34 grams	208 grams (7.2 oz)	
8 Active Bags (Floral Size) . . . . . 34 grams	208 grams (7.2 oz)	

Manufactured by: Delta Freyberg, GMBH, P.O. Box 9  
8941 Leidenbach, F.R.G. of Germany

Distributed by: Research Products Company, Box 1067  
Salina, Kansas 67401

EPA REG. NO. 2548-59  
EPA Est. No. 33132W001  
PAT. NO. 3,372,066

"Delta Gas EX-B Instruction Booklet" are a part of labeling. They contain specific use instructions concerning the fumigation of stored raw agricultural commodities, animal feeds, stored tobacco, processed foods, and non-food products. Information concerning dosage and exposure, and other information necessary to properly use Delta Gas EX-B.

## **STORAGE AND DISPOSAL**

**STORAGE:** STORE ONLY IN DRY, LOCKED, VENTILATED ROOM. PROTECT FROM MOISTURE, OPEN FLAMES, HEAT, ACIDS AND OTHER CHEMICALS. NEVER STORE NEAR HOMES OR LIVING QUARTERS. DO NOT REUSE CANS FOR ANY PURPOSE.

**PESTICIDE DISPOSAL:** Pesticide or chemical that cannot be used according to label instructions must be disposed of according to federal, state, or local procedure under the Resource Conservation and Recovery Act.

**DISPOSAL OF CANS:** Dispose in a sanitary landfill or by other approved state or local procedure.

**DISPOSAL OF BAGS:** IMPORTANT: The residue of phosphine from Delta Gas EX-B is dependent on temperature and humidity. Be certain minimum temperature requirements have been met before attempting disposal.

MINIMUM EXPOSURE REQUIREMENTS	
Below 40°F . . . . . Do not fumigate	
40°F - 49°F . . . . . 14 days (200 hours)	
50°F - 59°F . . . . . 7 days (100 hours)	
60°F - 69°F . . . . . 4 days (60 hours)	
Above 70°F . . . . . 3 days (40 hours)	

**METHOD ONE:** Collect bags and arrange for their transportation to a burial site or to a pesticide incinerator for burning.

**METHOD TWO:** Collect bags and transport them to an isolated area. While a full faced gas mask fitted with a canister for protection against phosphine. Cut at four open each bag and dump the contents into a receptacle (bucket, barrel, etc.) containing a mixture of water and detergent or preferably a non-toxic surfactant (2% by volume). Stir until all bag has settled. Arrange for transportation at the resulting slurry to a burial site.

Fumigated area must be placarded on all entrances with signs containing at least the signal word DANGER and the words "Delta Gas EX-B" and the words "Area Under Fumigation, do not enter until completely aerated," the date of fumigation, name of the fumigator, emergency telephone number for contact, and the name and address of the fumigator. Do not remove signs until the fumigator has been completely aerated and safe for entry, as indicated by a suitable detector.

**ACCEPTED**  
MAY 17 1983  
EPA Reg. No. 2548-59



**GAS EX-B**

**RESTRICTED USE PESTICIDE**

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

**ACCEPTED**

**MAY 17 1983**

Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under  
EPA Reg. No. **2548-59**

EPA Establishment No. 33982WG01

EPA Registration No. 2548-59

## 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 Mining Enforcement and Safety Administration and by the National Institute for Occupational Safety and Health."

## INTRODUCTION

Detia® Gas EX-B is a fumigant preparation containing 57% aluminum phosphide (by weight) which when removed from its original shipping container will liberate Hydrogen Phosphide (phosphine). The reaction between atmospheric moisture and the aluminum phosphide will continue for several days depending on climatic conditions. To be effective the cargo holds should remain sealed for the duration of the voyage.

## 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), is 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 "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.

## 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. Contact appropriate authorities.

## APPLICATION PROCEDURE BULK DRY CARGO VESSELS

### DOSAGE CALCULATION AND SCHEDULE

Calculate dosage on the basis of cargo hold volume. Dosage is always calculated for total hold volume irrespective of the commodity tonnage in the hold.

Detia® Gas EX-B ..... 2-6 bags per 1000 cubic feet

#### (A) Procedure for DETIA® GAS EX-B (Bag Blanket)

1. After a hold has been filled or completed, dig a shallow trench approximately 15 feet long and 2 feet wide for each blanket being used. Maintain at least a two foot separation between trenches and stay in from side walls at least 10 feet.

2. Open bag blanket containers one at a time; remove the blanket; unroll it until fully extended and position into the trench. Cover with the commodity.

#### (B) Procedure for DETIA® GAS EX-B (Individual bags)

1. After a hold has been filled or completed, open containers and distribute bags uniformly on to commodity surface with spacing between each. Do not place bags within 10 feet of side walls. Step on each after placement or probe bags into the commodity to any depth desired.

#### (C) Procedure for DETIA® GAS EX-B (Bag Belt)

1. After a hold has been filled or completed, open containers and begin inserting (probing) bag belts into the commodity mass with spacing between. Do not probe within 10 feet of sidewalls. Attach a "locator" cord to each belt before insertion, leaving the loose end on the commodity surface.

## IMPORTANT

Observe closing of hatch covers closely. Stop the closing if the cover snags a bag blanket, individual bag, or bag belt. Reposition the blanket, bag or belt and resume closing.

## POST FUMIGATION PROCEDURES

1. Until the ship sails, 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.

2. Review with the Master, or his representative, the following voyage precautions and procedures:

A. DO NOT ENTER FUMIGATED HOLDS OR TANKS.

B. AT REGULAR INTERVALS MONITOR ALL SPACES AND AREAS CONSIDERED TO BE SAFE FOR OCCUPANCY USING APPROPRIATE GAS DETECTION EQUIPMENT.

C. IF PHOSPHINE IS DETECTED, EVACUATE THE SPACE OR AREA, LOCATE AND SEAL OFF THE SOURCE OF THE LEAK, WEARING APPROPRIATE RESPIRATORY PROTECTION EQUIPMENT.

D. DO NOT OPEN, VENTILATE OR AERATE THE FUMIGATED HOLDS DURING THE VOYAGE.

E. UPON ARRIVAL INTO THE PORT OF DISCHARGE, HOLDS OR TANKS MAY BE OPENED.

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 UNTIL IT IS SAFE FOR WORKERS TO ENTER.

### PERSONAL PROTECTIVE EQUIPMENT

Because the release of phosphine from Della® 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.

### 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.

RESEARCH PRODUCTS COMPANY  
1835 East North Street  
Sallina, Kansas 67401  
(913) 825-2181  
Telex 417318 REPCO SAL