

JUN 29 1987

Bernardo Chemicals, LTD, Inc.  
3133 Fleetwood Drive  
Memphis, TN 38116

SUBJECT: Aluminum and Magnesium Phosphide Registration Standard  
Your letter of June 19, 1987  
EPA Reg. Nos. 43743-1  
43743-2 ✓

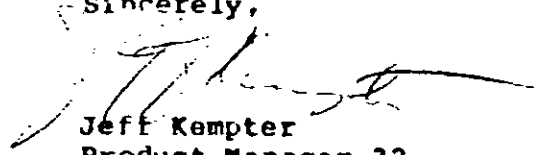
Attention: Flavio G. Simoes

Your submission has been reviewed and found to be acceptable for the products listed above.

Enclosed for each product is a stamped, approved label. Incorporate any comments noted and submit five copies of finished printed labels for our records.

The statement to appear on the shipping container and the sample placards which you submitted are fine, but I am not stamping them accepted since they are not part of labeling.

Sincerely,



Jeff Kempter  
Product Manager 32  
Registration Division (TS-767C)

Enclosure

**ACCEPTED**  
with **COMMENTS**  
in EPA Letter Dated:

**JUN 29 1987**

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

43743-2

PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND  
DOMESTIC ANIMALS  
KEEP OUT OF REACH OF CHILDREN

DANGER - POISON

Aluminum phosphide powder, granules, or pellets 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 fumigant. If a sealed container is opened or if the material comes in contact with moisture, water, or acids, extremely toxic phosphine gas will be released. If a garlic odor is detected, refer to section on application/workers exposure for appropriate monitoring procedures. Pure phosphine gas is odorless; the odor is due to a contaminant. Since an odor may not be detected under certain circumstances, the absence of a garlic odor does not mean that phosphine gas is absent. Observe proper application, aeration, reentry and disposal procedures specified elsewhere in the labeling to prevent over exposure.

**NOTE TO PHYSICIAN:** Aluminum phosphide granules, powder, or pellets react with moisture in the air acids, and many other liquids to release phosphine gas. Mild exposure by inhalation causes malaise, ringing of ears, fatigue, nausea, and pressure in the chest which is relieved by removal to fresh air.

Moderate poisoning causes weakness, vomiting, epigastric pain, chest pain, diarrhea and dyspnea. Severe poisoning may occur in a few hours to several days, resulting in pulmonary edema and may lead to dizziness, cyanosis, unconsciousness and death.

In sufficient quantity, phosphine affects the liver, kidneys, lungs, nervous system, and circulatory system. Inhalation can cause lung edema and hyperemia, small perivascular brain hemorrhages and brain edema. Ingestion can cause lung and brain symptoms, but damage to the viscera is more common. Phosphine poisoning may result in (1) pulmonary edema; (2) liver elevated serum GOT, LDH and alkaline phosphatase, reduced prothrombin, hemorrhage and jaundice; and (3) kidney hematuria and anuria. Pathology is characteristic of hypoxia. Frequent exposure over a period of days or weeks may cause poisoning. Treatment is symptomatic.

ENVIRONMENTAL HAZARDS

This product is highly toxic to wildlife. Non-target organisms exposed to phosphine gas in burrows will be killed. Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Do not contaminate water by cleaning of equipment or disposal of wastes.

STORAGE AND HANDLING

Store in a dry, well ventilated area away from heat, under lock and key. Post as a pesticide storage area. Do not contaminate water, food, or feed by storing pesticides in the same areas used to store these commodities. Do not store in buildings inhabited by humans or domestic animals. Aluminum phosphide products shall not be placed in, or attached to packages intended for retailers.

DIRECTIONS FOR USE

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

Detailed use and disposal instructions for the fumigation of specified raw agricultural commodities, processed foods, animal feeds, tobacco, non food items, cereal mills, feed mills, and warehouses as well as for control of moles and burrowing rodents are to be found in the booklet entitled "Applicators Product Manual for use with GASTOXIN Tablets and GASTOXIN Pellets". Before using this product, read and follow all precautions and directions on the label and in the product manual.

SPILL AND LEAK PROCEDURES

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

(continued on right panel).

RESTRICTED USE PESTICIDE  
DUE TO ACUTE INHALATION TOXICITY OF  
HIGHLY TOXIC PHOSPHINE GAS

For retail sale to and use only by Certified Applicators for those uses covered by the applicators certification or persons trained in accordance with the attached product manual working under the direct supervision and in the physical presence of the Certified Applicator must be available on site or on the premises. Read and follow the label and Bernardo Chemicals product manual which contain complete instructions for the safe use of this product.

**gastoxin®**  
FUMIGATION PELLETS

Active ingredient ..... 57% (Aluminum Phosphide)  
Inert ingredients ..... 43%

DANGER



POISON



PELIGRO

**PRECAUCION AL USUARIO:** Si usted no lee ingles, no use este producto hasta que la etiqueta se le haya sido explicado ampliamente.

STATEMENT OF PRACTICAL TREATMENT

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

**IF THE GAS FROM ALUMINUM PHOSPHIDE IS 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 ALUMINUM PHOSPHIDE POWDER, GRANULES, OR PELLETS ARE SWALLOWED:** Drink or administer one of 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 POWDER, GRANULES OR PELLETS OF ALUMINUM PHOSPHIDE GET ON SKIN:** Brush material off clothes and shoes in a well ventilated area. Allow clothes to aerate in a ventilated area prior to laundering. Wash contaminated bare skin thoroughly with soap and water.

**IF IN EYES:** Flush with plenty of water. Get medical attention.

Manufactured by:  
CASA BERNARDO LIMITADA  
Rod. Pda. M. de Nobrega, km.65  
Gleba 37 - Pq. Ind. Imigrantes  
Samarã - S.V. - S. Paulo - BR  
Tel. (0132) 32-8311  
Telex 131300 CBL

Sold by:  
BERNARDO CHEMICALS LTD.  
3133 Flatbrook Drive  
Memphis, TN 38116  
Tel. (901) 398-1721  
Telex 533018

EPA EST. Nº 43743-BR-01  
EPA REG. Nº 43743-02-AA

Contents: 1,660 Pellets - Net Weight: 2.2 Lbs (996 grs.)

Return all intact aluminum flasks to cardboard cases or other suitable packaging which has been properly marked according to DOT regulations. Flakely consignees and shipper of damaged cases. If aluminum flasks have been punctured or damaged so as to leak, the container may be temporarily repaired with aluminum tape or the aluminum phosphide may be transferred from the damaged flasks to a sound metal container which should be sealed and properly labeled as aluminum phosphide. Transport the damaged container to an area suitable for pesticide storage for inspection. Further instructions and recommendations may be obtained, if required, from BERNARDO CHEMICALS LTD.

PHYSICAL/CHEMICAL HAZARDS

Aluminum phosphide in tablets, pellets and partially spent dust will release phosphine gas if exposed to moisture from the air or if it comes into contact with water, acids and many other liquids. Piling of tablets, pellets or dust from their fragmentation may cause a temperature increase and confine the release of gas so that ignition could occur.

Always open containers of aluminum phosphide products outdoors or indoors, in the presence of mechanical ventilation as under certain conditions, they may flash upon opening. When opening, point the container away from the face and body and slowly loosen the cap. Although the chances for flash are very remote, never open these containers in a flammable atmosphere. These precautions will also reduce the applicator's exposure to phosphine gas.

Pure phosphine gas is practically insoluble in water, 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.

STORAGE AND DISPOSAL

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

Unreacted or partially reacted aluminum phosphide is acutely hazardous. Improper disposal of excess pesticide, spray mixture, or residue 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 of guidance. For specific instructions, see Spill and Leak Procedures.

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.

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. Rinse may be disposed of in a sanitary sewer, sanitary landfill or by other approved procedures. It is also permissible to remove flasks and expose empty flasks outdoors until residue in the flasks is reacted. Then puncture and dispose of 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 aluminum phosphide will be grayish-white and contain only a small amount of unreacted material. However, residual dust from incompletely exposed aluminum phosphide will require special care.

WARRANTY

Seller does not make warranties expressed or implied on the usage of this product other than those directed on the label. Customer will risks in handling and use of this material contrary to label requirements.