BEQUISA
SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identity:	**Gastoxin® Sachets**	EPA Reg. No. 43743-3
	Gastoxin® Tablets	EPA Reg. No. 43743-1
	Gastoxin® Pellets	EPA Reg. No. 43743-2

Recommended use of the chemical and restrictions on use: For use against insects which infest stored commodities. RESTRICTED USE PESTICIDE. Read and understand the entire label before using. Use only according to label directions. It is a violation of Federal law to use this product in a manner inconsistent to label directions.

Manufacturer:	Bequisa Avenida Antonio Bernado, 3950 Parque Industrial Imigrantes- CEP 11349-380 Sao Vicente- Sao Paulo- Brazil	**Supplier:**	Bernardo Chemicals, Inc. P.O. Box 1632 Turlock, CA 95381
Telephone:	+55-13-3565-1212	**Telephone:**	(209) 634-1191
Emergency Phone:	55 13 3565-1212	**Emergency Phone:**	(209) 634-1191 1-800-424-9300 (CHEMTREC- 24 hrs)

SDS Date of Preparation: 6/17/15

2. HAZARDS IDENTIFICATION

GHS Classification:

Physical	Health
Substances and mixtures which, in contact with water, emit flammable gases Category 1	Acute Inhalation Toxicity Category 1 Acute Oral Toxicity Category 2 Acute Dermal Toxicity Category 3 Eye Damage Category 1

GHS Label Elements:

Danger!

Hazard Statements

In contact with water releases flammable gases, which may ignite spontaneously.
Fatal if swallowed.
Toxic in contact with skin.
Causes serious eye damage.
Fatal if inhaled.

Precautionary Statements

Do not allow contact with water.
Handle and store contents under inert gas and protect from moisture.
Do not breathe dust or gas.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves, protective clothing, eye protection and face protection.

In case of inadequate ventilation wear respiratory protection.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor.
IF ON SKIN: Brush off loose particles from skin and immerse in cool water.
IF ON SKIN: Wash with plenty of water.
Call a POISON CENTER or doctor if you feel unwell.
Take off immediately all contaminated clothing and wash it before reuse.
IN INHALED: Remove person to fresh air and keep comfortable for breathing.
Immediately call a POISON CENTER or doctor.
IF SWALLOWED: Immediately call a POISON CENTER or doctor.
Rinse mouth.
In case of fire: Use carbon dioxide or dry chemical to extinguish.
Store in a dry place. Store in a closed container.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Dispose of contents and container in accordance local, state, and national regulations.

Hazards Not Otherwise Classified (HNOC): Reacts with water and acids to form toxic phosphine gas.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No.	Amount
Aluminum Phosphide	20859-73-8	50-60%
Non-Hazardous Components	Mixture	Balance
Ammonium Carbamate	1111-78-0	10-20%

The exact concentration is being withheld as a trade secret.

4. FIRST AID MEASURES

Eye: Immediately flush thoroughly with water for 30 minutes, while holding the eye lids open to be sure the material is washed out. Remove contact lenses if present and easy to do. Get immediate medical attention.
Skin: Immediately flush skin with plenty of water for several minutes, while removing contaminated clothing and shoes. Get immediate medical attention. Launder clothing before re-use. (Discard contaminated shoes).
Inhalation: Immediately remove victim to fresh air. If breathing is difficult, oxygen should be administered by qualified personnel. If breathing has stopped, administer artificial respiration. Get immediate medical attention.
Ingestion: Do NOT induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious or convulsing person. Keep the victim calm and warm. Get immediate medical attention.

Most important symptoms/effects, acute and delayed: Contact with eye may cause severe irritation or burns with possible eye damage. Toxic in contact with skin. Fatal if swallowed or inhaled. This material is highly toxic and may have adverse effects on the liver, kidneys, lungs, nervous system and circulation system. Inhalation of gases may cause phosphine poisoning. Severe acute poisoning may cause permanent damage.

Indication of immediate medical attention and special treatment, if necessary: Immediate medical attention is required for all routes of exposure.

5. FIRE FIGHTING MEASURES

Suitable (and Unsuitable) Extinguishing Media: Use dry sand, dry chemical, or carbon dioxide. Do not use water or halons.
Specific Hazards Arising From the Chemical: The product itself will not burn but contact with water may produce flammable and toxic gases such as phosphine gas, ammonia, and carbon dioxide. Phosphorous oxide, phosphoric acid, and hydrogen may be released in phosphine fire. Flammable gasses may accumulate in confined spaces and may form explosive mixtures with air. The toxic gases may spontaneously ignite.
Special Protective Equipment and Precautions for Fire-Fighting Instructions: Fight fire from a protected locations or maximum possible distance. Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing. Contain water used in firefighting from entering sewers or natural waterways.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment, and Emergency Procedures: Evacuate spill area and keep unprotected personnel away. Keep away from heat, flames, sparks and hot temperatures. Avoid generating dust. Do not breathe dust or gases. Prevent contact with eyes, skin and clothing. Wear appropriate protective clothing to prevent eye and skin contact including impervious gloves, safety goggles and respirator if needed. Ventilate area. Do not get water directly on the material or inside the container. Wash skin thoroughly after handling. Do not use water at any time to clean up a spill of this product. Contact with water with unreacted metal phosphides will greatly accelerate the production of hydrogen phosphide gas which could result in a toxic and/or fire hazard.

Methods and Materials for Containment and Cleaning Up: Return all imtact alumnum flasks to cardboard case or other suitable packaging which has been properly marked. Notify consignee and shipper of damaged cases. If aluminum flasks have been punctured or damaged so as to leak, the product may be immediately used, the container may be temporarily repaired with aluminum tape or the Gastoxin® may be transferred from the damaged flask to a sound metal container which should be sealed and properly labeled. Any sachets from damaged tins may be deactivated and disposed. Avoid releases to the environment. Report spills and releases as required to appropriate authorities.

7. HANDLING AND STORAGE

Precautions for Safe Handling:
Prevent contact with eyes, skin and clothing. Do not breathe dust or gases. Wear protective clothing and equipment as described in Section 8. Wash skin thoroughly after handling. Remove contaminated clothing immediately and wash before reuse. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. Keep away from heat, flames, sparks and hot temperatures. Do not eat, drink or smoke in the work area. Keep containers closed when not in use. Refer product label for additional information on use and handling.

Gastoxin® Tablets and Pellets are supplied in gas-tight, resealable aluminum flasks. Gastoxin® Sachets are supplied in a gas-tight sealed tin that is not resealable. The flasks and tins are non-refillable containers. Do not reuse or refill tins or flasks. Empty containers retain product residues and can be hazardous. Offer for recycling, if available. Follow all SDS precautions when handling empty containers.

Conditions for Safe Storage, Including Any Incompatibilities: Store Gastoxin® 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 use to store these commodities. Do not store in buildings where humans or domestic animals reside. Keep out of reach of children. Do not expose the product to atmospheric moisture any longer than is necessary and seal tightly before returning flasks to storage. Tins are not resealable. Protect from moisture. Keep containers closed when not in use.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Aluminum Phosphide (as aluminum, metal and insoluble compounds)	1 mg/m3 TWA ACGIH TLV (Respirable) 5 mg/m3 (respirable fraction), 15 mg/m3 (total dust) TWA OSHA PEL
Non-Hazardous Components	None Established
Ammonium Carbamate (as ammonia)	17 mg/m3 TWA, 24 mg/m3 STEL ACGIH TLV 35 mg/m3 TWA OSHA PEL

Engineering Controls: Use with adequate local exhaust ventilation to maintain exposure levels below the occupational exposure limits. Refer product label for additional information.
Respiratory Protection: In operations where the occupational exposure limits are exceeded, an approved respirator with applicable cartridges or supplied air respirator should be used. Respirator selection and use should be based on contaminant type, form and concentration. Follow applicable regulations and good Industrial Hygiene practice.
Skin Protection: Wear impervious gloves such as dry cotton gloves to prevent skin contact. Contact your glove supplier for selection assistance.
Eye Protection: Chemical safety goggles are recommended to avoid eye contact.
Other: Wear long-sleeve shirts, long pants, socks and shoes to prevent skin contact and contamination of personal clothing. Suitable washing facilities should be available in the work area.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Grey or green solid	**Flammable Limits: LEL:** 1.79% **UEL:** Not applicable
Odor: Garlic or carbide-like odor	**Vapor Pressure:** Not applicable
Odor Threshold: Not available	**Vapor Density:** Not applicable
pH: Not applicable	**Relative Density:** 1.8 g/cm3 (tablet form)
Melting/Freezing Point: 2462°F (>1350°C)	**Solubility (ies):** Insoluble in water
Initial Boiling Point/Range: Not applicable	**Partition Coefficient Octanol/Water:** Not applicable
Flashpoint: 212°F (100°C)	**Auto-ignition Temperature:** 212-302°F (100-150°C)
Evaporation Rate: Not applicable	**Decomposition Temperature:** Not available
Flammability (solid, gas): Contact with water will product highly flammable gases	**Viscosity:** Not applicable

10. STABILITY AND REACTIVITY

Reactivity: Reacts violently with water, acids, and moisture to form flammable and toxic gases.
Chemical Stability: Stable under recommended storage and handling conditions. Temperatures above 100°C (212°F) may cause instability.
Possibility of Hazardous Reactions: Water and acids cause aluminum phosphide to decompose in a violent reaction into highly inflammable hydrogen phosphide.

Conditions to Avoid: Avoid generation of dust. Avoid sparks and ignition source in the presence of dust.
Incompatible Materials: Acids, water, metal such as gold, silver, copper, brass and their alloys.
Hazardous Decomposition Products: When heated to decomposition emits phosphorous oxide, phosphoric pentoxide, phosphoric acid, and hydrogen. Contact with water will release phosphine gas, ammonia, and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

HEALTH HAZARDS:
Eye: Contact with dust or gas may cause severe eye irritation or burns with possible eye damage.
Skin: Toxic in contact with skin. Contact with dust may cause dermatitis.
Inhalation: Fatal if inhaled. Dust or gas inhalation may cause a feeling of suffocation, breathing difficulty, and chest tightness immediately after fumigation. Headache, giddiness, numbness and paranesthesia in the fingers, dry mouth, epigastric pain, and anorexia may also occur. These symptoms persist for up to 3 hr. after fumigation. Frequent exposure to gases at low concentrations above permissible levels over a period of days or weeks may cause phosphine poisoning. Phosphine poisoning may cause lungs-pulmonary edema, liver-elevated serum GOT, LDH, and alkaline phosphatase, reduced prothrombin, hemorrhage and jaundice, and kindey-hematura and anuria. Severe acute poisoning may cause permanent damage.
Ingestion: Fatal if ingested. Ingestion of aluminum phosphide causes lung and brain symptoms but also damage to viscera. May cause pain, nausea, vomiting, tachycardia, cardiovascular electrocardiographic abnormalities, dyspnea and palpitation, cyanosis, lungs-pulmonary edema, renal failure, hypotension and shock.
Chronic: None known.

Sensitization: This material is not expected to cause sensitization.
Carcinogenicity: None of the components is listed as a carcinogen or suspected carcinogen by IARC, NTP or OSHA.
Germ Cell Mutagenicity: No data available
Reproductive Toxicity: No data available

Numerical Measures of Toxicity:
Aluminum Phosphide: Oral rat LD50: 11.5-14.13 mg/kg, Inhalation rat LC50: 15.5 mg/m3/ 4hr
Non-Hazardous Components: No toxicity data available
Ammonium Carbamate: Oral rat LD50: 681-1470 mg/kg, Skin rat LD50: >5000 mg/kg

Product Toxicity Data:
Oral ATE: 20 mg/kg
Skin ATE: 526 mg/kg
Inhalation ATE: 0.027 mg/L

12. ECOLOGICAL INFORMATION

Ecotoxicity: This product is expected to be very toxic to the aquatic environment. Releases to the environment should be avoided.

Persistence and Degradability: Bioaccumulation is not applicable to inorganic substances.
Bioaccumulative Potential: Not determined.
Mobility in Soil: Not determined.
Other Adverse Effects: This product may release toxic and flammable gases in contact with water.

13. DISPOSAL CONSIDERATIONS

Pesticide Disposal: Do not contaminate water, food or feed by storage or disposal. Unreacted or partially spent Gastonix® is acutely hazardous. Improper disposal of excess pesticide 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. For specific instructions, see Disposal instructions and Spill and Leak Procedure in the Applicator's Manual. Some local and state waste disposal regulations may vary from the following. 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.

Container Disposal: For the aluminum flasks that contain Gastoxin® Tablets or Pellets, triple rinse flasks and stoppers with water. For the tins that contain the Sachets, triple rinse containers with water if they have been contacted with spent or partially reacted dust from Gastoxin® Sachets. For all containers, offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedure approved by state and local authorities. Rinsate may be disposed of in a sanitary landfill, by pouring it out on the ground or by other approved procedures. It is also permissible to remove lids and exposure empty containers to atmospheric conditions until residue in the tin is reacted. In this case, 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 residue dust remaining after fumigation with Gastoxin® will be a grayish-white powder. This will be a non-hazardous waste and contain only a small amount of unreacted aluminum phosphide. However, residual dust from incompletely exposed Gastoxin® (so called "green dust") requires special care.

14. TRANSPORT INFORMATION

	UN Number	Proper Shipping Name	Hazard Class	Packing Group	Environmental Hazard
DOT	UN1397	Aluminum Phosphide*	4.3	PG I	Not applicable

* **Hazardous Substance (49CFR172.101):** Aluminum Phosphide (RQ 100 lbs) - (166 lbs. product)

Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code): Not applicable

Special Precautions: None known

15. REGULATORY INFORMATION

This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

FIFRA Labeling:
Sachets:

KEEP OUT OF REACH OF CHILDREN
DANGER-POISON
PRECAUTIONARY STATEMENTS
HAZARDS TO HUMAN AND DOMESTIC ANIMALS

DANGER: The dust from Gastoxin® Sachets 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. When a sealed container is

opened allowing material to come in contact with moisture, water or acids, toxic phosphine gas will be released. If a garlic odor is detected, refer to the section on Industrial Hygiene Monitoring in the Applicator's Manual 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, re-entry and disposal procedures specified elsewhere in the labeling to prevent overexposure.

Environmental Hazards: This product is very highly toxic to wildlife. Non-target organisms exposed to phosphine gas 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.

Physical/Chemicals Hazards: Aluminum phosphide bags 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 Gastoxin® Sachets or their dust may cause a temperature increase and confine the release of the gas so that ignition could occur. It is recommended that you open aluminum phosphide products in open air or near a fan, which exhausts outside immediately. Never open in a flammable atmosphere because on rare occasions a flash may occur. When opening, point the container away from the face and body. These precautions will also reduce the applicators exposure to phosphine gas. 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, especially at high temperatures and humidity. Thus items such as small electric motors, smoke detectors, brass sprinkler heads, batteries and battery chargers, forklifts, temperature monitoring systems, electrical switchgear, communications devices, computers, calculators, watches, and other electric equipment should be protected or removed before fumigation. Phosphine will also react with certain metallic salts and, therefore, such items as photographic film, copying paper and some inorganic pigments, ect. should not be exposed. See Section 4.3 of the Applicator's Manual for more detailed Physical and Chemical Hazards.

Pellets:

KEEP OUT OF REACH OF CHILDREN
DANGER-POISON
PRECAUTIONARY STATEMENTS
HAZARDS TO HUMAN AND DOMESTIC ANIMALS

DANGER: Gastoxin® Pellets or dust 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. When a sealed container is opened allowing material to come in contact with moisture, water or acids, toxic phosphine gas will be released. If a garlic odor is detected, refer to the section on Industrial Hygiene Monitoring in the Applicator's Manual 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, re-entry and disposal procedures specified elsewhere in the labeling to prevent overexposure.

Environmental Hazards: This product is very highly toxic to wildlife. Non-target organisms exposed to phosphine gas 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.

Physical/Chemicals Hazards: Aluminum phosphide 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 Pellets or dust from their fragmentation may cause a temperature increase and confine the release of the gas so

that ignition could occur. It is recommended that you open aluminum phosphide products in open air or near a fan, which exhausts outside immediately. Never open in a flammable atmosphere because on rare occasions a flash may occur. When opening, point the container away from the face and body. These precautions will also reduce the applicators exposure to phosphine gas. 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, especially at high temperatures and humidity. Thus items such as small electric motors, smoke detectors, brass sprinkler heads, batteries and battery chargers, forklifts, temperature monitoring systems, electrical switchgear, communications devices, computers, calculators, watches, and other electric equipment should be protected or removed before fumigation. Phosphine will also react with certain metallic salts and, therefore, such items as photographic film, copying paper and some inorganic pigments, ect. should not be exposed. See Section 4.2 of the Applicator's Manual for more detailed Physical and Chemical Hazards.

Tablets:

KEEP OUT OF REACH OF CHILDREN
DANGER-POISON
PRECAUTIONARY STATEMENTS
HAZARDS TO HUMAN AND DOMESTIC ANIMALS

DANGER: Gastoxin® Tablets or dust 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. When a sealed container is opened allowing material to come in contact with moisture, water or acids, toxic phosphine gas will be released. If a garlic odor is detected, refer to the section on Industrial Hygiene Monitoring in the Applicator's Manual 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, re-entry and disposal procedures specified elsewhere in the labeling to prevent overexposure.

Environmental Hazards: This product is very highly toxic to wildlife. Non-target organisms exposed to phosphine gas 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.

Physical/Chemicals Hazards: Aluminum phosphide Tablets 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 or dust from their fragmentation may cause a temperature increase and confine the release of the gas so that ignition could occur. It is recommended that you open aluminum phosphide products in open air or near a fan, which exhausts outside immediately. Never open in a flammable atmosphere because on rare occasions a flash may occur. When opening, point the container away from the face and body. These precautions will also reduce the applicators exposure to phosphine gas. 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, especially at high temperatures and humidity. Thus items such as small electric motors, smoke detectors, brass sprinkler heads, batteries and battery chargers, forklifts, temperature monitoring systems, electrical switchgear, communications devices, computers, calculators, watches, and other electric equipment should be protected or removed before fumigation. Phosphine will also react with certain metallic salts and, therefore, such items as photographic film, copying paper and some inorganic pigments, ect.

should not be exposed. See Section 4.2 of the Applicator's Manual for more detailed Physical and Chemical Hazards.

CERCLA 103 Reportable Quantity: This product has an RQ of 166 lbs (based on the RQ of Aluminum Phosphide of 100 lbs present at 50-60%). Some states have more stringent reporting requirements. Report all spills in accordance with local, state, and federal regulations.

SARA TITLE III:

Hazard Category for Section 311/312: Acute Health, Reactive

Section 313 Toxic Chemicals: This product contains the following chemicals subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372): Aluminum Phosphide 50-60%

Section 302 Extremely Hazardous Substances (TPQ): Aluminum Phosphide (500 lbs)

Chemical Inventories:
EPA TSCA Inventory: This product is an EPA registered pesticide, EPA Registration No 43743-3.
Canadian Environmental Protection Act: This product contains a component that is listed on the Non-Domestic Substances List (NDSL).

16. OTHER INFORMATION

NFPA Rating:	Health = 3	Flammability = 0	Instability = 2
HMIS Rating:	Health = 3	Flammability = 0	Physical Hazard = 1

Date of Current Revision: 6/19/15
Revision Summary: New SDS.
Date of Previous Revision: -

NOTICE

This above information is believed to be correct but does not propose to be all inclusive and shall be used only as a guide. Bequisa shall not be held liable for any damage resulting from handling or from contact with the above product. This information relates only to the product designated herein and does not relate to its use in combination with any other material or process. Before buying or using this product, read the Warranty Disclaimer and Limitation of Remedies statements on the label. It is a violation of Federal law to use this product in a manner inconsistent with its labeling.