

Read the label before opening the container.

For full particulars, see enclosed leaflet.

**ONLY FOR SALE TO AND USE BY REGISTERED PEST CONTROL OPERATORS**

**KEEP OUT OF REACH OF CHILDREN AND ANIMALS**

# ALUMINIUM PHOSPHIDE SACHETS

South Africa Reg. No: L6278 Act No. 36 of 1947

IRAC INSECTICIDE GROUP CODE: 8B

A fumigant for the control of stored product pests in maize, wheat, sorghum, groundnuts, soya beans, sunflower seed, barley, oats, rye, nuts, dried fruit, tobacco and farinaceous products of the above mentioned agricultural products.

## ACTIVE INGREDIENT:

Aluminium phosphide (fumigant).....560g/kg

**Product Information: 072 678 8226**  
**In case of poisoning: 082 446 8946**

## HAZARD STATEMENTS

- In contact with water releases flammable gases which may ignite spontaneously.
- Fatal if swallowed.
- Toxic in contact with skin.
- Fatal if inhaled.
- Very toxic to aquatic life

## PRECAUTIONARY STATEMENTS

- Wear protective gloves/protective clothing/ eye protection/face protection.
- Avoid release to the environment.



**DANGER**

**enviro**  
bio-chem

Registration holder: RT Chemicals CC

Co. Reg. No: CK87/21925

44 Kerk Street, Lichtenburg NW, South-Africa

Tel: +27 87 231 7261 | Fax: +27 86 541 7948

Web: www.envirobiochem.co.za

Expiry Date:

Batch No:

Date of Manufacture:

**UN No. 1397**

## **WARNINGS:**

- Fatal if swallowed.
- Toxic in contact with skin.
- Fatal if inhaled.
- Very toxic to aquatic life.
- The phosphine gas released by these sachets is highly toxic to all forms of animal and human life upon inhalation.
- Store under lock and key in a cool, dry well ventilated place away from food and feedstuffs.
- Keep out of reach of children, uninformed persons and animals.
- Loose sachets may not be sold or stored for future use.
- **ALUMINIUM PHOSPHIDE SACHETS** should only be applied by adult personnel well instructed in its use and familiar with the potential hazards of fumigation and all necessary precautionary measures.
- Recently fumigated grain may, upon removal, liberate harmful concentrations of phosphine gas. Wear a suitable gas mask.
- Phosphine reacts with copper, copper compounds, silver and gold. Pay special attention to electrical equipment. Protect electric boxes, switches and relays adequately by covering with plastic or coating with molten paraffinic wax.
- **FLAMMABLE** – Store away from sparks and flames. Phosphine gas is inflammable.
- **PROTECT THE SACHETS AGAINST WATER OR ANY OTHER LIQUID.** Never bring sachets into contact with water or other liquids.
- In contact with water releases flammable gases which may ignite spontaneously.
- Keep away from inhabited areas.
- Container should be resealed immediately and not be left open for any length of time.
- In case of poisoning, call a doctor and make label available to him.

**Although this remedy has been extensively tested under a large variety of conditions the registration holder does not warrant that it will be efficacious under all conditions because the action and effect thereof may be affected by factors such as abnormal soil, climatic and storage conditions, compatibility with other substances not indicated on the label and the occurrence of resistance of the pest against the remedy concerned as well by the method, time and accuracy of application. The registration holder furthermore does not accept responsibility for damage to crops, vegetation, the environment or harm to man or animal or for lack of performance of the remedy concerned due to failure or the user to follow the label instructions or to the occurrence or conditions, which could not have been foreseen in terms of the registration. Consult the supplier in event of any uncertainty.**

## **PRECAUTIONS:**

- Keep away from any possible contact with water, because of violent reaction and possible flash fire.
- Avoid breathing dust/fume/mist/vapours/spray.
- Wash hands, forearms, and face thoroughly after handling.
- Do not eat, drink, or smoke when using this product.
- Wear protective gloves/protective clothing/eye protection/face protection.
- [[In case of inadequate ventilation] wear respiratory protection
- Do not inhale the fumes. Normally fumigation may be carried out without the use of a gas masks but gas mask should be at hand and be equipped with special canister for phosphine in case of emergence. Never enter fumigated area when phosphine concentration exceeds 1 ppm without a gas mask. Phosphine has a carbide odour which acts as a warning of the presence of the gas. If a strong smell of phosphine is noticed before the charging operation is completed, a gas mask must be used.
- Use rubber gloves when handling the sachets.
- On accidental contact with skin, wash off with soap and water.
- Wear a gas mask when handling recently treated grain. Use a gas detector to determine the level of gas present.
- Use total contents of immediate container in one operation if possible. When contents are not fully used, reseal the container and store in a cool dry place.
- Dispose of contents/container in accordance with local/regional/ national regulations and do not re-use for any other purpose.
- Inhabited buildings must not be fumigated. If warehouses are attached to inhabited buildings the latter must be evacuated before fumigation takes place.

## **RELEVANT SUBSTANCES:**

Ammonium carbamate <50%

## **SYMPTOMS OF PHOSPHINE POISONING:**

Small quantities: Fatigue, tinnitus, headache, nausea, tight chest, uneasiness.

Large quantities: The above symptoms as well as vomiting, stomach pain, diarrhoea, vertigo, chest pains and dyspnea.

Further exposure will result in cyanosis, ataxia, anoxemia, convulsions, unconsciousness and death.

## **FIRST AID TREATMENT**

**INHALATION:** Remove person to fresh air and keep comfortable for breathing.

**INGESTION:** Immediately call a POISON CENTER or doctor/physician.

**SKIN CONTACT:** Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention.

**EYE CONTACT:** Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing.

## **NOTE TO PHYSICIAN:**

Treat symptomatically. In case of swallowing, perform gastric lavage.

Should hypotension develop, consider the cardiac tonic, Dopamine at 5 to 10 g/kg/min.

## **Complications are:**

- Incipient pulmonary oedema - consider glucocorticoids e.g. 500 to 1000 mg Prednisolone on first day.
- Progressive lung oedema - give oxygen and by intubation, continuous fluid removal. Counter enzyme-blockage oxygen deficiency by exchange blood transfusion.
- Renal failure - consider hemodialysis.
- Watch for hepatic failure, electrocardiac and electrolyte disturbances.
- Twenty (20) mL of 20% Calcium gluconate plus 1 to 2 g of 10% Sodium thiosulphate I.V. in an adult may also be considered in severe cases.

## **RESISTANCE WARNING:**

For resistance management, **ALUMINIUM PHOSPHIDE SACHETS** is a **group code 8B** insecticide. Any insect population may contain individuals naturally resistant to **ALUMINIUM PHOSPHIDE SACHETS** and other **group code 8B** insecticides. The resistant individuals can eventually dominate the insect population if these insecticides are used repeatedly. These resistant insects may not be controlled by **ALUMINIUM PHOSPHIDE SACHETS** or any other **group code 8B** insecticide.

To delay insecticide resistance:

- Avoid exclusive repeated use of insecticide from the same insecticide group code. Alternate with products from different insecticide group codes.
- Integrate other control methods (chemical, biological) into insect control programmes.

For specific information on resistance management contact the registration holder of this product.

## **DIRECTIONS FOR USE:** Use only as directed.

**ALUMINIUM PHOSPHIDE SACHETS** generate phosphine (PH<sub>3</sub>) with the reaction starting immediately the sachets are exposed. Total reaction period takes 40 to 60 hours depending on ambient temperature and humidity. Place the sachets wherever possible to facilitate gas release and rapid gas dissipation.

Phosphine easily penetrates into a grain mass killing the adult insects as well as the pre-adult stages. Phosphine effectively controls the following insects:

## INSECTS

Angoumois Grain Moth Cadella Flour Beetle Tobacco (Cigarette) Beetle Lesser Grain Borer Saw-Toothed Grain Beetle Bean Weevil Pea Weevil Granary Weevil Rice Weevil	<i>Sitotroga Cerealella</i> <i>Tenebroides Mauritanicus</i> <i>Tribolium Spp.</i> <i>Lasioderma Serricornae</i> <i>Rhizopertha Dominica</i> <i>Oryzaephilus Surinamensis</i> <i>Acanthoscelides Obtectus</i> <i>Bruchus Pisorum</i> <i>Sithophilus Granarius</i> <i>Sithophilus Oryzae</i>
---	---

## INSECTS

Indian Meal Moth Tropical Warehouse Moth Mediterranean Flour Moth Flat Beetle Maize Weevil Tobacco Moth	<i>Plodia Interpunctella</i> <i>Ephestia Cautella</i> <i>Ephestia Kühniella</i> <i>Cryptolestes Spp</i> <i>Sithophilus Zeamais</i> <i>Ephestia Cautella</i>
--	--

The powder residue (aluminium hydroxide) is contained in the sachet. For bulk grain, the sachets can remain in the grain indefinitely. Removal can take place when grain is discharged by passing the grain over pre-cleaner sieves.

### DOSAGE:

The dosage of **ALUMINIUM PHOSPHIDE SACHETS** is influenced by:

- Temperature:** Higher temperatures result in increased insect activity and increased susceptibility to phosphine. Thus at higher temperatures the gas is more effective and consequently a lower dosage rate is required.
- Gas tightness:** For insect mortality a specific minimum concentration of phosphine is required for a minimum exposure period. In less gas tight storage sheds etc. gas losses have to be compensated for by a higher initial dose.
- Exposure period:** The minimum exposure period for phosphine is 5 days regardless of dosage rate. The dosage may be reduced if a longer exposure period can be applied.

The applicable dosage rate can then be calculated taking into account the prevailing climatic conditions, temperature of commodity to be fumigated, gas tightness of structure, bag stacks etc. and with reference to the following table and dosage indicated by the various market organisations/boards.

FUMIGATION SITUATION	DOSAGE	APPLICATION
Bulk grain in silo bins	1 sachet per 4 - 5tons (2.72 - 2.20g PH <sub>3</sub> /ton)	Sachets must be applied to the grain as a silo bin is filled. Calculate the application rate as follows: $\frac{\text{Grain flow} - 160\text{ton/h}}{40} = 40 \text{ sachets/hour}$ Dosage(4ton/1 sachet) Thus: $\frac{60 \text{ minutes}}{40 \text{ sachets}} = 1.5 \text{ minutes}$ Apply 1 sachet every 1.5 minutes. Minimum exposure period is 14 days.

FUMIGATION SITUATION	DOSAGE	APPLICATION
Bulk grain in silo bins by recirculation system	1 sachet per 5 - 6tons (2.2 - 1.8g PH <sub>3</sub> /ton)	Consult the distributor. Application only by patented recirculation system. Minimum exposure period is 14 days.
Bagged commodities under gas tight tarpaulins (excluding shelled groundnuts)	1 sachet per 2 - 4 m <sup>3</sup> (5.50 - 2.75g PH <sub>3</sub> /m <sup>3</sup> )	Distribute sachets uniformly over the bagged stack. Cover and seal stacks with gas tight tarpaulins. Minimum exposure period is 5 days.
Shelled groundnuts	1 sachet per 3m <sup>3</sup> (3.67g PH <sub>3</sub> /m <sup>3</sup> )	Place the sachets around the sides of the stacks. Cover and seal stack with gas tight tarpaulins. Minimum exposure period is 5 days.
Space fumigation of bagged commodities in warehouses	1 sachet per 3 - 4m <sup>3</sup> (3.67 - 2.75g PH <sub>3</sub> /m <sup>3</sup> )	Seal all windows, doors and obvious leakages. Distribute sachets uniformly throughout the warehouse. Minimum exposure period is 5 days.
Tobacco in hogsheads, crates, bales in warehouses and under gas tight tarpaulins	1 sachet per 11m <sup>3</sup> (1g PH <sub>3</sub> /m <sup>3</sup> )	Distribute sachets throughout warehouse or around stacks. Seal warehouse or stacks. Minimum exposure time is 5 days.
Empty warehouses, silo bins, etc.	1 sachet per 22 - 44m <sup>3</sup> (0.50 - 0.25g PH <sub>3</sub> /m <sup>3</sup> )	Seal warehouse, silo bin etc. Distribute sachets throughout warehouse, silo bin etc. Minimum exposure time is 30 days.
Empty bags in fumigation chamber or under gas tight tarpaulins	1 sachet per 2 - 4m <sup>3</sup> (5.50 - 0.25g PH <sub>3</sub> /m <sup>3</sup> )	Distribute sachets throughout chamber or around stack. Minimum exposure time is 5 days.