



NATIONAL FUMIGANTS

MATERIAL SAFETY DATA SHEET

FUMAPHOS

PELLETS; TABLETS; SACHETS

1. PRODUCT IDENTIFICATION:

Name: National Fumigants (Pty) Ltd
Address: No. 18 Aschenberg Street
Chamdor
Krugersdorp
Tel. No.: (011) 769 1300
Fax No.: (011) 762 2010
Emergency Tel. No.: 082 451 1569
Trade name: Fumaphos Pellets
Fumaphos Tablets
Fumaphos Sachets

2. COMPOSITION / INFORMATION ON INGREDIENTS:

Chemical Family: Phosphine
Chemical Name: ALUMINIUM PHOSPHIDE
Molecular Formula: AlP
Hazchem code: 4WE
EPG: 4B3
UN No.: 3048
C.A.S. No.: 20859-73-8
Product description: A fumigant for control of commonly occurring insect pests in stored cereal and tobacco.
Hazardous components: Aluminium phosphide 56 – 58 %

3. HAZARD IDENTIFICATION:

EFFECTS OVEREXPOSURE:

Acute hazards /symptoms:

Inhalation: Aluminium Phosphide reacts with moist air, water acids and many other liquids to release hydrogen phosphide gas. Mild exposure to phosphine gas causes feeling of sickness, ringing in the ears, fatigue, nausea and pressure in the chest. Moderate poisoning may occur in a few hours to several days resulting in pulmonary oedema and may lead to dizziness, cyanosis, unconsciousness and death. Phosphine affects the liver, kidneys, lungs, nervous system and circulatory system. Sore throat, cough, shortness of breath, headache, dizziness, nausea, vomiting.

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Skin: Can cause irritation. Redness, burning sensation.

Eyes: Can cause irritation. Redness.

Ingestion: Extremely toxic by ingestion.

Carcinogen: Not a known carcinogen.

4. FIRST-AID MEASURES:

IN ALL CASES CONSULT A DOCTOR!!

Inhalation: Remove patient to well ventilated area and keep him quiet and reassured. Make sure patient can breathe freely. If breathing has stopped, give artificial respiration; do not apply direct mouth – to – mouth respiration. Do not give anything by mouth to an unconscious person.

Skin: Brush or shake material off clothing and shoes in a well-ventilated area. Remove contaminated clothing. Aerate clothing prior to laundering. Do not leave contaminated clothing in occupied or confined spaces, such as automobiles, rooms, etc. Wash contaminated skin thoroughly with soap and water.

Eyes: Flush eyes with plenty of water for 15 minutes, lifting upper and lower lids occasionally. Get medical attention.

Ingestion: Call a physician. Remove patient to well ventilated area and keep him quiet and reassured. Make sure patient can breathe freely. If breathing has stopped, give artificial respiration; do not apply direct mouth – to – mouth respiration. Do not give anything by mouth, or induce vomiting, to an unconscious person. Drink 1 to 2 glasses of water and induce vomiting by touching the back of throat with finger or blunt object. Flush the stomach with one per mille potassium permanganate solution or a solution of magnesium peroxide.

Additional information: Additional symptoms of exposure. Can cause hyperaemia, small perivascular brain haemorrhage and brain oedema. Phosphine poisoning may result in pulmonary oedema; liver elevated serum GOT, LDH and alkaline phosphatase, reduces prothrombine, haemorrhage, and jaundice; and kidney hematuria and anuria. Pathology is characteristic of hypoxia. Frequent exposure to concentrations above permissible levels over a period of days or weeks can cause poisoning.

Note to physician: There is no specific antidote known for PHOSPHINE, therefore treat symptomatically. Watch for the development of pulmonary oedema. In case of severe poisoning, administration of a cardiac tonic and drug to stimulate blood circulation is recommended. Under some circumstances, blood transfusion or infusion of solutions of sodium chloride or glucose into the blood system is indicated. Recovery can be within several hours to several days in cases of mild poisoning and after two weeks in moderate cases.

5. FIRE-FIGHTING MEASURES

Flash point: Not detectable

Flammability: Phosphine concentrations above 3% can cause auto-ignition. Diphosphine impurities in the phosphine given off can enhance flammability.

Acute hazards: Product gives off toxic Phosphine gas when exposed to atmospheric moisture. Gives off irritating or toxic fumes (or gases) in a fire. Risk of fire and explosion on contact with acid(s) and water.

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Prevention:

Fire extinguishing media:

Fire control precautions:

Keep away from open flames and sparks. No smoking. Keep away from water, acids, etc. Keep away from oxidizing agents.

Dry chemical, dry sand or soda ash.

Wear self-contained, positive pressure breathing apparatus and full fire fighting clothing.

Keep unnecessary people away. **NO water.** Evacuate the area and let the fire burn. Remove container from the fire only if it can be done without risk. Do not contaminate personnel or equipment, or handle broken packages or containers without protective clothing. Decontaminate emergency personnel with soap and water before leaving the fire area.

Avoid breathing dusts, vapours and fumes from burning materials. Inform Local Authorities.

Appearance:

Grey –green powder or pellet or tablet

Odour:

Strong garlic smell

Boiling Point:

Greater than 1800 ° F

6. ACCIDENTAL RELEASE MEASURES:

Personal protection:

Wear protective clothing depending on the concentration of phosphine in the atmosphere. See Section 8.

Small spill or leaks:

Return all intact aluminium flasks to the cardboard carton. If flasks have been punctured or are leaking, they may be temporarily repaired with aluminium tape or laced in a sound sealed metal container and suitably marked. Keep the product in a well-ventilated area suitable for pesticide storage for inspection. If the spill is only a few minutes old, collect spilt material and return to sealable containers.

NB: These containers may flush upon opening at some later stage. If spill is to a water body, notify Local Authorities immediately.

Large spills:

Ensure the area is well-ventilated. Phosphine disperses rapidly in air. If necessary use mechanical ventilation. Gather the spillage and place it in a small bucket of about 5 litres. Do not add more than one flask of material to the bucket. If on site where deactivation is not possible, the bucket should be carried in an open vehicle to a suitable area. Wet deactivation can then be carried out as follows: Prepare a solution of 4 cups of detergent to 150 litres of water in suitable drum. Wearing appropriate respiratory protection, slowly pour the contents of the bucket in the solution. Allow the contents to react for 24 hours. Disposal in this way does not cause harm to the environment. Do not pour more than 50 kg of material into the 150-liter drum. Never place spilled material in a closed container, such as a dumpster, sealed drum, plastic bag, etc., since flammable concentrations of phosphine are likely to develop.

Waste disposal:

Handle with care, and dispose in a safe manner according to Local regulations, regarding Waste Management. Empty containers with some product residues, should NOT BE RE-USED! Render

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container unusable by crushing and / puncturing, and dispose in a safe manner.

Precautions –Handling /Storage:

Do not inhale dust /gases. Wash contaminated clothing after the day's work. Do not eat, drink or smoke while applying or before washing hands and face. Do not contaminate water, food, or feed by storage or disposal. Store in a secure, dry, well –ventilated separate room, building or covered area. Destroy non –returnable containers by perforation and do not re –use for any other purpose.

7. HANDLING AND STORAGE:

Precautions –Handling /Storage:

Do not remove labels from returnable containers. Keep away from sources of ignition and protect from exposure to fire and heat. Separate from strong oxidizers, food and foodstuffs.

Suitable containers:

Aluminium flasks or hermetically sealed steel tins.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION:

During use, the following good industrial hygiene practice is recommended:

Occupational Exposure Limits:

TLV 0.3 ppm in air.

Respiratory protection:

If the TLV is exceeded an approved full-face gas mask with a hydrogen phosphide canister may be used up to levels of 15 ppm. If exposure is to a higher level for any length of time, then self-contained breathing apparatus must be used. Ventilate by mechanical Means (general or local exhaust) to maintain exposure below the TLV.

Skin:

Wear light cotton gloves. Wear protective gloves. Wear a long sleeve or shirt and a full –length pants and overall. Shower at the end of the workday and change clothing. Launder clothing before re –use.

Eyes:

Wear dust goggles with side shields, in combination with breathing protection.

Ingestion:

Do not eat, drink or smoke during work. Wash hands before eating or smoking.

9. PHYSICAL AND CHEMICAL PROPERTIES:

Ignition temp. (Phosphine):

100 ° C

Lower explosion limit (Phosphine):

1.8 % vol.

Specific gravity:

2.85

Molecular weight:

58

Oxidising properties:

Strong reducing agent

Solubility:

Reacts with water

10. STABILITY AND REACTIVITY:

Stability:

Stable when dry, reacts with moist air, violently with acids, producing phosphine.

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Keep away from water and acids. Keep phosphine concentrations as low as possible. Gives off Phosphine gas. Moisture, acids, strong oxidizers. Phosphine gas.

Moisture, acids, strong oxidizers.

Phosphine gas.

Acute toxicity: Highly Toxic LD₅₀ Rat 11.8 mg /kg (Oral)
15.3 mg .kg (Inhalation)

Chronic Toxicity: Numerous tests show no chronic toxicity.

<u>Aquatic Toxicity:</u>	Keep away from aquatic life although solubility of phosphine in water is low.
<u>Biodegradability:</u>	Phosphine is oxidized in the atmosphere to phosphates, which are harmless to the environment.
<u>Bioaccumulation:</u>	Does not occur.

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See section 6.

Hazardous Description: Aluminium phosphide. Toxic to aquatic organisms, toxic, flammable.
Label: Do not transport with food and foodstuffs.
Flammable

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Flammable

UN hazard class:	4.3
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UN Subsidiary Class: 6.1

UN No.: 3048

Packing Group:

IMCO Class: 3

National Legislation: Registration numbers RSA: L5290; L4799; L5289

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Only adult personnel, who have been well instructed in its use and are familiar with all the precautionary measures, should apply Fumaphos.

Handle Fumaphos with extreme care.

Gas released by this product is toxic to all forms of animal and human life upon inhalation.

PHOSPHINE is inflammable – Keep away from sparks and flame. Keep away from inhabited areas.

Never bring product into direct contact with water or any other liquid.

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.