

DANGEROUS POISON

KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR USING

Spectra Toxifos

PHOSPHINE FUMIGATION TABLETS

ACTIVE CONSTITUENT: 330g/kg PHOSPHINE (PH₃)
present as ALUMINIUM PHOSPHIDE
Each 3g tablet liberates 1g PHOSPHINE (PH₃)

GROUP **8B** INSECTICIDE

For control of insect pests of stored products in certain situations as per the Directions for Use Table

IMPORTANT: READ THIS LEAFLET BEFORE USE

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APVMA Approval No.: 63524/1208

DIRECTIONS FOR USE:

BEFORE you can use Spectra Toxifos Phosphine Fumigation Tablets you must consider the following:

Timing of treatment – If it will be necessary to move grain/commodity before the Total Fumigation Period has expired, then fumigation should **NOT** be commenced. Movement of treated commodities or empty containers during application, fumigation exposure or ventilation risks exposure of transport and handling workers and the public to harmful levels of phosphine and is contrary to label instruction.

The Total Fumigation Period is the sum of the time required for exposure to phosphine and the time needed to ventilate the grain. A shortened Exposure Period will not be effective for storage pest control and a reduced Ventilation Period poses a serious risk of phosphine gas poisoning to workers and bystanders. In addition a Withholding Period of two days is required after completion of ventilation before the grain is allowed to be used for human consumption or for animal feed. See Notes 4 & 5 for a detailed description of the Minimum Exposure Period and the Ventilation Period.

Safety and handling of the Phosphine products – Phosphine is a highly dangerous fumigant and fumigation must only be undertaken in situations where the safety of workers and the public can be adequately ensured. Observe all RESTRAINTS, PRECAUTIONS and instructions on the label.

RESTRAINTS:

DO NOT fumigate inhabited buildings.

DO NOT fumigate work situations where there is a risk that phosphine gas could leak from fumigation enclosures into working areas.

DO NOT use on commodities, or in empty containers, railcars or vessels that are in transit or likely to be in transit during the Exposure and/or Ventilation Periods.

DO NOT use in road transport vehicles (including a truck or road hauled container).

DO NOT heap tablets/pellets. Heaped tablets limit gas release.

DO NOT add water to the tablets/pellets.

DO NOT use when the commodity temperature is less than 15°C or the relative humidity within the structure is less than 25% or, with raw cereal grains, when the moisture content is less than 9%.

DO NOT apply in structures that are not well sealed*.

DO NOT apply as a surface-only treatment in a structure whose height exceeds twice its width, unless the structure/enclosure has a gas recirculation device fitted.

PESTS/ COMMODITY / SITUATION	APPLICATION		FUMIGATION PERIOD#		WITHHOLDING PERIOD	TOTAL OF (Exposure + Ventilation + Withholding)
	See note 3		#(TOTAL OF THE MINIMUM EXPOSURE PERIOD PLUS VENTILATION PERIOD)			
	BASIC RATE (g. PHOSPHINE per m ³)	DOSAGE (number of tablets/m ³)	MINIMUM EXPOSURE PERIOD See note 4	VENTILATION PERIOD See Note 5		
Storage pests in: Well-sealed* structures such as:- Fumigation enclosures, grain storage sheds, silos, and structures which are suitable for fumigation; Raw cereal grains (such as barley, maize, millets, oats, rice, rye, sorghum, triticale, wheat); Other food commodities (such as flour and other milled cereal products, breakfast cereals, dried fruits, dried vegetables, dried pulses, other dried foods, peanuts, oilseeds, cocoa and coffee beans); Seeds for propagation; Bulk stockfeeds.	1.5	3 tablets per 2m ³ (15 pellets per 2m ³)	7 days when commodity temperature is above 25°C 10 days when commodity temperature is 15° to 25°C 20 days for surface only application to bulk commodities in well sealed* structures greater than 375 m ³ capacity (e.g. greater than 300 tonnes wheat)	1-5 days	2 days	10-14 days 13-17 days 23-27 days
Tobacco in bales, cases, hogsheads in well sealed* fumigation enclosures.			7 days	2-3 days	NIL	9-10 days
Well-sealed* empty warehouses, elevators, stores, structures and enclosures			7 days when temperature is above 25°C. 10 days when temperature is 15°C to 25°C.	1-5 days	NIL	8-12 days 11-15 days

NOTES:

- 1) FUMIGATION WILL CONTROL ALL STAGES OF INSECTS ONLY IN STRUCTURES/ENCLOSURES THAT ARE WELL **SEALED***. Well sealed structures/ enclosures are fumigation chambers, well sealed silos, sheds and buildings, and other fumigation enclosures made gas-tight with gas-proof sheeting. Well sealed means permanent sealing of porous surfaces, seams and cracks and temporary sealing of intake and/or outlet valves, doors, fan housings, windows and hatches. For further information see appropriate industry advisory documents such as Grains Research and Development Corporation Advice sheet 'Sealed \$ilos \$ave', available from State Departments of Agriculture or Primary Industries. Increasing the application rate will not compensate for gas loss from an unsealed enclosure.

NOTE: STRUCTURES MUST BE WELL SEALED, IF THEY ARE NOT, FUMIGATION WILL NOT GIVE ADEQUATE CONTROL, AND WOULD BE CONTRARY TO LABEL DIRECTIONS.

- 2) **STORAGE PESTS** include: lesser grain borer, cadelle, cigarette beetle, confused flour beetle, dried fruit beetle, flat grain beetle, merchant grain beetle, red-legged ham beetle, rust-red flour beetle, saw-toothed grain beetle, skin and hide beetle, spider beetles, warehouse beetle, Angoumois grain moth, Indian meal moth, Mediterranean flour moth, mottled grain moth, raisin moth, tobacco moth, tropical warehouse moth, psocids, stored products mites, bean weevil, coffee bean weevil, granary weevil, maize weevil, pea weevil and rice weevil. Approved treatment dosages will also kill any cockroaches, rats and mice present.

3) **PHOSPHINE APPLICATION RATES** are based on the internal volume of the structures to be fumigated; they apply equally to full or partly filled or empty structures and they apply to all commodities. The commodity equivalent rates (g/tonne) should only be used when the commodity stowage factor is known, they apply only when the storage structures are full or nearly full or when part-filled structures are closed on the tonnage equivalents of their internal volumes. The calculated commodity equivalent dosage must be based on the rate per volume. The application rate of 1.5g phosphine per 1 metre³ is equivalent to:

Capacity of fumigation enclosure			Number tablets
Tonnes wheat	Bushels	Cubic metres	
20	730	27	40
50	1830	65	100
100	3660	130	200
300	11000	400	600

4) **MINIMUM EXPOSURE PERIODS** are needed to allow products to react to completion and to expose insects for long enough to kill all stages. A SHORTENED EXPOSURE PERIOD CANNOT BE COMPENSATED FOR BY INCREASED DOSAGE. Insect death and reaction of the tablets are both slower at lower temperatures. Temperatures specified are those within the commodity to be fumigated. The minimum exposure period should start from time of completion of application of product.

5) **VENTILATION PERIOD – ON COMPLETION OF EXPOSURE PERIOD:** Ventilation of structures is complete only when phosphine concentrations measured at appropriate locations in the enclosure and work area are below the Threshold Limit Value – Time Weighted Average (TLV-TWA) exposure standard of 0.3ppm. The following are minimum ventilation periods required and may need to be increased to ensure the exposure standard is not exceeded.

Minimum Ventilation Periods:

Structures, including bunker storages, containing treated commodities:

- Without through flow (i.e. access only through the headspace): not less than 5 days.
- With through flow and natural draught (wind): For structures of 300 tonnes or greater capacity: 2 to 5 days depending on size. For structures of less than 300 tonnes capacity: 2 days.
- With through flow and forced draught (flash-proof fan) operated 2 hours on and 2 hours off: not less than 1 day.

Tobacco: In bales: not less than two days. In cases and hogsheads: not less than 3 days.

Empty Buildings and Enclosures:

- Without through flow: 5 days.
- With through flow and natural draught (wind): For structures of 300 tonnes or greater capacity: not less than 2 days, depending on structure size, openings and prevailing wind speed. For structures of less than 300 tonnes capacity: 2 days.
- With through flow and forced draught (flash-proof fan) operated 2 hours on and 2 hours off: 1 to 2 days depending on size of structure.

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION

WITHHOLDING PERIOD:

DO NOT USE TREATED PRODUCE FOR HUMAN CONSUMPTION OR FOR STOCK FOOD FOR 2 DAYS AFTER COMPLETION OF FUMIGATION (MINIMUM EXPOSURE PERIOD PLUS VENTILATION PERIOD).

TOBACCO: NOT REQUIRED WHEN USED AND DIRECTED.

TREATED COMMODITIES MAY BE SHIPPED AFTER COMPLETION OF THE MINIMUM EXPOSURE PERIOD PLUS VENTILATION PERIOD.

GENERAL INSTRUCTIONS

Toxifos releases phosphine gas when exposed to air. Phosphine penetrates throughout the commodity to kill eggs, larvae, pupae and adult stages of storage pests in sealed enclosures, but some eggs, pupae and adults will survive in unsealed enclosures.

Protect by sealing or otherwise, sensitive electrical and electronic equipment (computers, meters, switches, fire alarm systems, etc.) containing copper/copper alloy components, photographic film or copy paper. Phosphine corrodes copper based materials.

Application

Fumigation of Commodities in Silos and Bulk Storages:

Place the tablets in a single layer and separated from the commodity e.g.:- on non-flammable trays/sheets which are evenly spread on the commodity surface inside the storage.

Fumigation of Commodities under Gas Proof Sheeting:

Place tablets spaced from each other on non-flammable sheets/trays evenly distributed between and/or alongside stacked commodities in a manner that allows free circulation of gas. Ensure that the sheeting is sealed in a gas-tight manner after application.

Fumigation of empty storages/enclosures:

Place tablets spaced from each other on non-flammable sheets/trays evenly spread in the enclosure; with application starting at the furthest point from the exit door. Ensure the enclosure is made gas-tight. Lock and seal exit door after application.

INSECTICIDE RESISTANCE WARNING

GROUP 8A INSECTICIDE

For insecticide resistance management Toxifos is a group 8B insecticide. Some naturally occurring insect biotypes resistant to Toxifos and other Group 8B insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if Toxifos or other Group 8B insecticides are used repeatedly. The effectiveness of Toxifos on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, Spectra Pacific (Australia) Pty Ltd accepts no liability for any losses that may result from the failure of Toxifos to control resistant insects.

Application of Toxifos in unsealed storages/enclosures and use of low dose rates and shortened exposure periods is contrary to label instruction and will contribute to development of resistance.

RE-ENTRY PERIOD:

After application, wait until the Exposure Period has passed, then thoroughly ventilate for the required Ventilation Period and to the required Standard. Re-entry to fumigation areas is not recommended until measuring device(s)

indicate that they are free of phosphine. The use of gas detection tubes or other measuring devices is recommended for monitoring gas levels in fumigation areas as phosphine gas may still be present even after treatment commodities have been removed and fumigation areas ventilated.

DO NOT re-enter a storage after application has commenced or once treated grain/commodity has been emptied without wearing a full face respirator with particulate (P1) and phosphine gas filter cartridge (canister) or self contained breathing apparatus, until a measuring device indicates that it is free of phosphine or the Total Fumigation Period (minimum exposure period plus ventilation period) has elapsed.

FLAMMABLE:

Keep away from naked flame.

PRECAUTIONS:

Show the following warning sign prominently at all approaches to every fumigation site.

“DANGER – POISON GAS – KEEP AWAY”

Keep animals, children and unauthorised persons away from the area under treatment until the area is shown to be free from phosphine as indicated by a gas measuring device.

WARNING:

Containers must be opened in the open air. Whilst opening containers take care and point containers away from the face and body, as under certain conditions possible build-up of gas may result in flash flame upon exposure to air.

Application rates higher than label directions and contrary to label instruction could cause the gas concentrations to reach the lower flammability level which is 1.79% by volume (17,900 parts per million). When used according to the label directions, the amount of gas produced remains far below the lower flammability level.

PROTECTION OF LIVESTOCK:

Disturbance of untreated phosphide powder residue results in release of more phosphine gas. Residues of phosphine gas or untreated of more phosphine gas. Residues of phosphine gas or unreacted phosphide powder in treated grain/commodity will be harmful if fed to animals, including poultry. Ensure feed is well mixed and that such residues are not present before feeding. DO NOT feed treated grain/commodity to animals, including poultry, until the Total Fumigation Period (Exposure plus Ventilation) plus the Withholding Period has expired.

PROTECTION OF WILDLIFE, FISH, CRUSTACEA AND ENVIRONMENT:

This product is highly toxic to wildlife. Dangerous to fish. DO NOT contaminate streams, rivers or waterways with the chemical or used containers.

STORAGE AND DISPOSAL:

Store in the closed, original container in a cool, dry, well ventilated locked area, out of the reach of children and unauthorised persons and away from all dwellings, animals, food, feedstuffs, seed and fertilizers.

DO NOT store or carry container in vehicle cabins (this includes glove compartments, luggage compartments or other common air-spaces). Keep away from water and liquids. Water and many liquids cause immediate release of phosphine from the product. Uncontrolled release of phosphine may result in fire or explosion and release of gas will pose a serious risk of injury to workers and bystanders.

After fumigation with the product on trays/sheets remove the spend tablets and ensure residual phosphide is destroyed before disposal, e.g. by swamping with dilute acid or soapy water in open air until bubbling ceases. Dispose of deactivated

residues below 500mm in an approved disposal pit specifically marked and set up for this purpose, clear of waterways, desirable vegetation and tree roots.

Triple rinse the empty containers with soapy water to ensure residual phosphide is destroyed. Dispose of rinsings in an approved disposal pit. Destroy empty containers by breaking, crushing or puncturing them. Dispose of the containers at a local authority landfill. If no local authority landfill is available, bury the containers below 500mm in an approved disposal pit. DO NOT burn empty containers or product.

SAFETY DIRECTIONS:

Very dangerous. Product releases dangerous phosphine gas slowly in moist air and immediately if wet. Can kill if inhaled or swallowed. DO NOT inhale dust or vapour. Avoid contact with eyes and skin. Open container in the open air. Keep away from water and liquids. Keep away from naked flames. Forms toxic gas. Use the entire contents in one operation; if not possible, seal container thoroughly with waterproof adhesive tape or air-tight closure. Wash hands after use. When opening the container or using the product wear elbow length PVC gloves and full face piece respirator with combined dust and gas cartridge (canister) or supplied air respirator. After each days use wash gloves and respirator (if rubber wash with detergent and warm water).

FIRST AID:

If poisoning occurs, contact a doctor or Poisons Information Centre on 131126. DO NOT give direct mouth-to-mouth resuscitation if swallowed. To protect rescuer, use air-viva, oxy-viva or one-way mask. Resuscitate in a well-ventilated area.

MSDS:

Additional information is listed in the material safety data sheet for Spectra Toxifos Phosphine Fumigation Tablets available from Spectra Pacific (Australia) Pty Ltd on request. Call (07) 3907 0744. MSDS should be readily available in all workplaces storing or using the product.

In a transport emergency: phone 000, Police or Fire Brigade.

For specialist advice in an emergency dial 1800 033 111 (24 hours Australia wide).

CONDITIONS OF SALE:

The use of Toxifos Fumigation Tablets is beyond the control of the manufacturer, no warranty expressed or implied is given by Spectra Pacific (Australia) Pty Ltd regarding its suitability, fitness, or efficiency for any purpose for which it is used by the buyer, whether in accordance with the directions or not and Spectra Pacific (Australia) Pty Ltd accepts no responsibility for any consequence whatsoever from the use of this product.

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