RLP
APPROVED

Product Name: VAPORPH3OS PHOSPHINE FUMIGANT

APVMA Approval No: 51209/111367

Label Name:	VAPORPH3OS PHOSPHINE FUMIGANT

Signal Headings:	DANGEROUS POISON KEEP OUT OF REACH OF CHILDREN READ SAFETY DIRECTIONS BEFORE OPENING OR USING

Constituent Statements:	990 g/Kg PHOSPHINE

Mode of Action:	GROUP 24A INSECTICIDE
Statement of Claims:	Vaporph3os is a flammable compressed gas fumigant for control of stored product pests in cereals and other commodities, cut flowers and buildings and for control of darkling beetle in poultry housing.

Net Contents:	13.6-22kg

Restraints:	DO NOT fumigate inhabited buildings or buildings containing livestock DO NOT enter fumigation areas until the concentration of phosphine is below the exposure standard. DO NOT fumigate when commodity temperature is less than 15° C

Other Limitations:	NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION For use by licensed or other authorised personnel only.
Withholding Periods:	WITHHOLDING PERIOD FOR PRODUCE: ALLOW A PERIOD OF 2 DAYS AFTER COMPLETION OF VENTILATION BEFORE USING THE TREATED COMMODITIES FOR HUMAN CONSUMPTION OR STOCK FEED. WITHHODING PERIOD FOR POULTRY HOUSING: ALLOW AT LEAST 24 HOURS AFTER COMPLETION OF VENTILATION BEFORE USING TREATED BUILDINGS FOR OCCUPATION BY LIVESTOCK.

Trade Advice:	Fumigation for quarantine purposes where elimination of specific exotic pests is essential may require different rates than those specified. These rates are specifically designed and administered by quarantine authorities.

General Instructions:	Follow DIRECTIONS FOR USE for the specific fumigation activity/target insect as found on this label. Only experienced and properly instructed persons should use this product. While in the container the product is a liquid under pressure which turns to gas when released. The gas must be confined along with commodities being fumigated in a container or structure that is gastight or equipped with SIROFLO. The minimum standard for a gastight enclosure is one in which an increased or decreased pressure will decay to half the initial value in not less than 5 minutes with the structure filled to normal capacity. The user must prepare a Safe Work Method statement before using this product Use extreme caution when handling this product which is flammable, colourless, highly toxic gas with a garlic-like odour. Users should note that the odour threshold varies widely between individuals so it is not a reliable indicator of the presence of phosphine. Cylinders in use should be in open air or in force ventilated fume room Show following warning signs prominently at all approaches to every fumigation site:“DANGER – POISON GAS – KEEP AWAY” Protect by sealing or otherwise, sensitive electrical and electronic equipment (meters, switches, fire alarm systems etc.) containing copper/copper alloy components. Phosphine corrodes copper based material. Apply the required amount of VAPORPH3OS only with SOLVAY approved high pressure metering and mixing equipment. This product is to be used in accordance with the Australian Standard AS 2476-2008 General Fumigation Procedures and National Health and Medical Research Council’s “Code of practice for the Fumigation of Grain with Phosphine”.

Resistance Warning:	Insecticide Resistance Warning For insecticide resistance management VAPORPH3OS™ is a Group 24A insecticide. Some naturally occurring insect biotypes resistant to VAPORPH3OS™ and other Group 24A insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if VAPORPH3OS™ or other Group24A insecticides are used repeatedly. The effectiveness of VAPORPH3OS™ on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, Solvay accepts no liability for any losses that may result from the failure of VAPORPH3OS™ to control resistant insects.VAPORPH3OS™ may be subject to specific resistance management strategies. For further information contact your local supplier, Solvay representative or local agricultural department agronomist.
Precautions:	DO NOT enter fumigation areas until the concentration of phosphine is below the exposure standard. The use of gas detection tubes or other measuring devices including personal phosphine monitors is recommended for monitoring gas levels in and around fumigation areas during setting up of fumigation equipment, during fumigation and venting. Re-entry Period: Keep animals, children and unauthorised persons away from the area under treatment until the concentration of phosphine is below the exposure standard. Ventilation of structures is complete when phosphine concentrations measured at appropriate locations in the enclosure and work area are below the exposure standard of 0.3 ppm. This may occur before the recommended ventilation time. Structures containing treated commodities: a) Without through flow: 5 days b) With through flow and forced draught (ventilation fan): minimum of 24 hours c) With through flow and natural draught (wind): 2 – 5 days d) Well-sealed bunker storages: 2 days with forced draft (ventilation fan) Empty Buildings a) With through flow and forced draught (flash proof fan): 1 to 2 days b) With through flow and natural draught (wind): minimum 2 days

Storage and Disposal:	STORAGE AND DISPOSAL Store VAPORPH3OS™ cylinders in a cool, well ventilated, locked area out of reach of children and unauthorised persons and away from dwellings, animals, food, feedstuffs, seed and fertilizers. Do NOT heat cylinder. Keep away from combustible materials. Use no oil or grease on valve. Use equipment compatible with contents and pressure. Open valve slowly and shut after use. Fully close valve and replace cap wrench tight when not in use. Cylinders always remain the property of Solvay, and should be returned for refilling.

Safety Directions:	Can kill if inhaled. Do not inhale vapour. Avoid contact with eyes and skin. When using the product wear full-face respirator with combined dust and gas cartridge or supplied air respirator .Wash hands after use.

First Aid Instructions:	FIRST AID If poisoning occurs contact a doctor or Poisons Information Centre Phone: 131126 Remove from contaminated area. Apply artificial respiration if not breathing.

First Aid Warnings:	

VAPORPH$_3$OS
DIRECTIONS FOR USE- PRODUCE

MINIMUM APPLICATION RATE[1] IN g/m^3 of VAPORPH$_3$OS^{TM} &
MINIMUM CONCENTRATION[2] IN *ppm* phosphine [PH$_3$]
to be maintained for the required period

Commodities	Stored Product Pests	Commodity Temperature	Minimum Application Rate (g/m^3) & Minimum Phosphine Concentration (ppm)						
			0.1 g/m^3 70 ppm	0.2 g/m^3 140 ppm	0.3 g/m^3 215 ppm	0.5 g/m^3 360 ppm	0.7 gm^3 500 ppm	1.0 g/m^3 700 ppm	1.4 g/m^3 1000 ppm
Cereal grains and oilseeds (wheat, barley, sorghum, rice, maize, rye, millet, oats, triticale, canola, lupins, cotton seed, peanut, almond, pistachio, soy bean, etc.); processed food commodities such as flour, breakfast cereals, dried fruits and vegetables, stock feeds); coffee and cocoa beans, tobacco, propagation seeds	Lesser grain borer *(Rhyzopertha dominica)* Including strongly restistant strains	15 – 19°C	25 days	16 days	14 days	13 days	12 days	10 days	na
		20 – 24°C	24 days	15 days	12 days	10 days	10 days	9 days	na
		25 – 29 °C	Do not fumigate	16 days	10 days	7 days	6 days	5 days	na
		30°C or higher	Do not fumigate	18 days	11 days	7 days	4 days	3 days	na
	Rusty grain beetle (*Cryptolestes ferrugineus*) Including strongly resistant strains	20 – 24°C	na	na	na	30 days	na	23 days	na
		25 – 29 °C	na	na	na	27 days	na	18 days	12 days
		30 - 34°C	na	na	na	na	na	16 days	10 days
		35°C or higher	na	na	na	na	na	15 days	6 days
	All other species and known resistant strains (rice/corn weevil, red flour beetle, etc.)	15 – 19°C	18 days	16 days	14 days	13 days	13 days	12 days	na
		20 – 24°C	16 days	14 days	12 days	10 days	10 days	9 days *	na
		25 – 29 °C	12 days	10 days	8 days	7 days	6 days	5 days	na
		30°C or higher	11 days	6 days	5 days	4 days	4 days	3 days	na

na = not applicable

*** = 10 days if resistant Psocoptera present**

DIRECTIONS FOR USE- PRODUCE (CONTINUED)

Cut Flower Pests: Adult & larval stages (not eggs) of aphids, thrips, light brown apple moth and other leaf-rolling moths, earwigs, psocids, two spotted mites.	Dosage rate: = 1 g/m^3 (700 ppm) Commodity temperature = 15°C min Exposure time @ 15°C - 15 hours

CRITICAL COMMENTS

1. Application rates are based on the internal volume of the enclosure, they apply equally to full, partly full or empty structures.
2. Concentration of phosphine within the commodity must be measured (at least once a day) to ensure that the required minimum is maintained throughout the commodity.
3. Additional VAPORPH_3OS^{TM} should be added to maintain the minimum concentration.
4. Temperatures specified are those within the commodity to be fumigated. Phosphine may not give adequate control at commodity temperature less than 15°C.
5. Additional times required for distribution to achieve uniform concentrations throughout the commodity are:
   A. add one day for recirculation and for small bins less than 300 tonnes.
   B. where recirculation is not employed, add 3 days for surface application in structures greater than 300 tonnes and with height less than twice the width and add 4 days in structures greater than 300 tonnes and with height equal or greater than twice the width.
6. SIROFLO (provides a constant concentration of PH_3 in unsealed storage), SIROFUME (an automatic top-up procedure for gas tight storage) & SIROCIRC (recirculated SIROFLO) are trademarks of CSIRO. These approaches require an additional day to distribute the gas throughout the commodity.

DIRECTIONS FOR USE--EMPTY POULTRY HOUSING

APPLICATION RATE[1] IN g/m³ of VAPORPH$_3$OS^{TM} &

CONCENTRATION[2] IN ppm phosphine [PH$_3$] to

be maintained for the required period.

Target Insect Pests	Temperature	Application Rate (g/m³) Phosphine Concentration and Exposure Time (days)
Darkling beetle/Lesser mealworm *(Alphitobius diaperinus)*	21°C or higher	350 ppm (0.5 g/m³) initial dose and 100 ppm (0.14 g/m³) minimum for 2 days

Critical Comments

1. **Application is to be made to the interior of empty buildings following adequate sealing (refer to General Instructions for minimum standards for gas tight enclosure). All the litter should be taken out of the shed before sealing preparation. The ground should be in dry condition for fumigation. Application rates are based on the internal empty space volume of the enclosure or shed.**

2. **Concentration of phosphine within the empty chicken shed must be measured at least once after completing the gas dispensing and every 4 – 6 hours thereafter to ensure that the required minimum concentration is maintained throughout the structure for the whole exposure time.**

3. **Phosphine gas concentration readings should be taken at three locations (front, middle and back) of the empty chicken shed. Plastic gas sampling tubing at 3.2 mm or 6.4 mm diameter can be installed permanently at the three locations inside the shed with the other end of the tubing outside the shed for connection with the gas monitor during gas reading.**

4. **Additional VAPORPH$_3$OS^{TM} should be added to maintain the minimum concentration in any of the location inside the shed. Amount and frequency of top up could vary depending on the gas tightness and gas sorption rate at the ground of the shed to be fumigated.**

5. **Perimeter monitoring of the gas concentration at 6 m from the wall of the shed should be conducted alongside the gas readings inside the shed to ensure there is no major gas leak (>0.3 ppm) in any of the location around the shed. Check for leaks and seal as needed for safety and to minimise gas loss.**

6. **To prevent bystanders entering the treatment area or working in buildings in the adjacent area, an exclusion zone of a minimum of 3 m wide from the boundary of the chicken shed and fumigation equipment should be established during fumigation. The exclusion zone should be clearly marked as described in the Australian Standard AS 2476-2008 General Fumigation Procedures.**

7. **During ventilation or aeration, an initial exclusion zone of a 50 m in all directions from the boundary of the chicken shed should be established. The exclusion zone should be monitored, adjusted if required and finally cleared by the fumigator in charge prior to general re-entry to the area.**

8. **Phosphine concentrations inside the building should be measured following ventilation to ensure that the concentration is below the TLV-TWA of 0.3ppm prior to clearance and again prior to re-entry and/or re-stocking of the shed to ensure that there has been no significant de-sorption of phosphine from the flooring. If the level of phosphine has increased to above the TLV-TWA, the shed should be re-ventilated and cleared by the fumigator prior to use.**