MAGFUME **PharmoChem Company**

SAFETY DATA SHEET

Product name:	**MAGFUME**
Other names:	Magnesium phosphide 66% (min) Pellets
Recommended use:	Fumigant
Importer details:	**PHARMOCHEM COMPANY** **6 CEBEL PLACE, ALBANY** **AUCKLAND 0632** **Telephone: 09 915 3330**
24 hour emergency contact:	09 – 915 3330 021 493 893
National Poisons Centre:	0800 POISON (0800 764 766)

Section 2: Hazard identification

Product is classified as hazardous according to the Hazardous Substances (Classification) Notice 2020 of the HSNO Act, 1996.

HSNO Approval: HSR001634

Hazardous classification:
Water reactive, Flammable gas Category1,
Acute inhalation toxicity Category 1,
Eye irritation Category 2,
Specific target organ toxicity (repeated exposure) Category 1, Hazardous to the aquatic environment acute Category 1,
Hazardous to terrestrial vertebrates

Signal word: **DANGER**

Hazard statements:
H260 In contact with water releases flammable gases which may ignite spontaneously
H319 Causes serious eye irritation
H330 Fatalif inhaled
H372 Causes damage to organs through prolonged or repeated exposure
H400 Verytoxictoaquaticlife
Hazardous to terrestrial vertebrates

Prevention statements:	P102 Keep out of reach of children. P103 Read label before use. P223 Do not allow contact with water P232 Protect from moisture. P260 Do not breathe dust/fume/gas/vapours. P264 Wash hands thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P271 Use only outdoors or in well-ventilated place. P273 Avoid release to the environment. P280 Wear protective clothing, gloves and eye protection. P284 Wear respiratory protection.
Response statements:	P314 Get medical advice/attention id you feel unwell. P302+P352 IF ON SKIN: Wash with plenty of soap and water. P332+P313 If skin irritation occurs; Get medical advice/attention. P362 Take off contaminated clothing and wash before re-use. P304+P340 IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. P310 Immediately call a POISON CENTRE or doctor. P370+P378 In case of fire: Use CO2 or Dry agent to extinguish. P391 Collect spillage.
Storage statement/s:	P402+P404Storein adryplace. Storeinaclosed container. P403+P233 P405Store locked up.
Disposal statement/s:	P501 Dispose of product and containers in accordance with local Regulations. See section 13 for more details.
Additional label requirements:	-

Section 3: Composition/information on ingredients

Chemical identity of ingredients with health or environmental hazards:

Ingredient	*CAS No.*	*Proportion w/w*
Magnesium phosphide	12057-74-8	66
Ammonium carbamate	1111-78-0	>20<40
Other ingredients	Trade secret	To balance
This is a commercial product and slight variations may occur within approved specification limits		

Section 4: First-aid measures

First aid measures:	For advice contact National Poisons Centre (phone New Zealand 0800 764 766) or a doctor. Have product label or Safety Data Sheet at hand. **Symptoms of Poisoning** may include pressing sensation in the chest, nausea and diarrhoea. **Immediate medical attention required.** Fatal if ingested or absorbed. Phosphine gas generated in the stomach on ingestion is rapidlyabsorbed into the blood stream.
Inhalation:	Can be fatal if inhaled. Safely move person to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical assistance.
Ingestion:	Can be fatal is swallowed. Note that contact with product will liberate toxic flammable phosphine gas. Do NOT induce vomiting. Do NOT rinse mouth with water. Get immediate medicalassistance.
Skin contact:	Take off contaminated clothing and wash skin with soap and water. Get medical attention if irritation occurs.
Eye contact:	Hold eyelids apart and rinse the eye cautiously for at least 15 minutes. Remove contact lenses, if present and easy to do, continue rinsing. Immediately call a POISON CENTRE or doctor for advice.
First aid facilities:	Provide eye baths and safety showers close to areas where product contact may occur. Note that contact with product will liberate toxic flammable phosphine gas.
Advice to doctor:	Magnesium phosphide reacts with moisture to release hydrogen phosphide (Phosphine gas). Symptoms of severe poisoning may occur within a few hours up to several days. Phosphine poisoning mayresult in pulmonary edema, liver elevated serum GOT, LDH and alkaline phosphate, reduced prothrombin, hemorrhage and jaundice and kidney hematuria and anuria. For severe poisoning administration of a cardiac tonic and a drug to stimulate blood circulation isrecommended. Under some circumstances blood transfusion or infusion of isotonic solutions of sodium chloride or glucose into bloodsystem are indicated. Pulmonary oedema and convulsions may occur. Absolute rest is essential.

Section 5: Fire-fighting measures	
Flammability:	Not flammable. Exposure of product to water/humidity will result in phosphine gas that is highly flammable.
Appropriate extinguishing media:	Dry chemical, carbon dioxide. Water must NOT be used.
Combustion products:	Smoke, and unspecified compounds.
Special protective equipment and precautions for fire-fighters:	Self-contained breathing apparatus and full chemical protective clothing required. Contact with water will liberate toxic and flammable phosphine gas. Do not allow contaminated runoff to enter drains or waterways.
HAZCHEM code:	4W

Section 6: Accidental release measures	
Personal precautions:	Use appropriate protective equipment as listed in section 8. Keep unprotected persons away.
Environmental precautions:	This substance istoxic to aquatic life. Use according to label. Avoid contamination of any waterway, drain or water supply with the substance or empty container. Toxic flammable phosphine gas will be liberated. Notify local authority if contamination of any waterway.
Procedure for clean up:	Wear protective clothing and equipment. Contain and then collect into an appropriate, labelled salvage container that can be sealed. Do not generate dust. Avoid contact with water as contact will result in toxic flammable phosphine gas. Dispose of waste safely to an approved hazardous waste facility.

Section 7: Handling and storage

Safe handling:	Read label before use. For use only in workplaces. Certified Handler and CSL for Fumigants required. Wear personal protective equipment. Do not breathe dust. Avoid contactwith water. Never add water to this product. After removal of protective clothing brush off any dust/residues left on your clothing. Wash your hands, and do not eat, drink or smoke until you have removed all residues of product. Ensure all contaminated clothing is cleaned before re-use. Do not allow contaminated clothing out of the workplace.
Safe storage:	Keep out of reach of children. Store in locked up original container, tightly closed and in adry, cool, well-ventilated area away from foodstuffs, feeds, seeds, fertilisers, insecticides, or fungicides. Refer to Section 15 for HSNO Controls.

Section 8: Exposure controls/personal protection

Occupational exposure limits: WES values are set for components as of 15th edition of WES values published by WorkSafe February 2025
WES and BEI values.

Ingredient	*Exposure route*	*WES-TWA*	*WES-STEL*
Phosphine (CAS No 7803-51-2)	Inhalation	0.3 ppm 0.42 mg/m^3	1 ppm 1.4 mg/m^3

Biological limit value:	No Biological Index values have been set as of the 15thedition of WES and BEI values published by WorkSafe in February 2025.
Engineering controls:	Ensure air concentrations are below WES limits. Use explosion proof equipment.
Respiratory protection:	Product should be used in well-ventilated area or outdoors. Wear respiratory equipment (fitted with cartridge for hydrogen phosphide) to prevent inhalation of dust or phosphine gas.
Hand protection:	Chemical resistant gloves, e.g. nitrile, latex.
Eye protection:	Chemical safety googles.
Skin protection:	Overalls or long-sleeved shirt and trousers/boots.
General hygiene:	Do not eat, drink or smoke while using. Wash hands and exposed skin thoroughly with soap and water before meals and after work. Clean protective clothing/equipment daily after work.
Personal Protection:	Further information on specific types of personal protective gear and related standards is available in Section 16.

Section 9: Physical and chemical properties

(a) Appearance:	Dark grey solid (pellets)
(b) Odour:	Garlic, decaying fish or odorless
(c) Odour threshold:	No data available. Since odor might not be detected under certaincircumstances,theabsenceofagarlicodordoesnotmeanthatphosphine gas is absent.
(d) pH:	Not determined
(e) Melting point:	Not available. Decomposes before melting.
(f) Initial boiling point and Boiling range	Not applicable
(g) Flash point:	Non flammable
(h) Flammability (solid, gas):	Emits extremely flammable phosphine gas on contact with moisture
(i) Upper/lower flammability or explosive limits:	Not applicable
(j) Vapour pressure:	1.0×10^{-5} (phosphine)
(k) Vapour density:	Not determined
(l) Relative density:	Not available
(m) Solubility (ies):	Insoluble in water
(n) Partition coefficient n-octanol/water:	Not determined
(o) Auto-ignition temperature:	Not determined
(p) Decomposition temperature:	500 ^{0}C (magnesium phosphide)
(q) Kinematic viscosity:	Not applicable

Section 10: Stability and reactivity

Stability of the substance:	Stable under normal conditions of storage and use.
Conditions to avoid:	Contactwith water or humidly,atoxicandextremelyflammablegasisdeveloped. Protect from open flame and heat.
Incompatible materials:	Protectagainst moisture.Neveraddwatertothisproduct.Reacts violently with water liberating phosphine gas which is toxic and flammable Keepawayfrom oxidizers and acids.Contact withacids liberates toxic gas.
Hazardous decomposition products:	Phosphinegas,oxidesofphosphoruspentoxide,oxidesofcarbonandnitrogen.
Hazardous polymerisation	Will not occur.

Section 11: Toxicological information

		Toxicity classifications determined by assessment of the components in the formulated mixture.
(i)	Acute toxicity:	Classified as toxic by inhalationexposure and may result in fatality.
(ii)	Aspiration hazard:	Not classified as aspirant hazard.
(iii)	Respiratory irritation:	Not classified.
(iv)	Skin corrosion/irritation:	May be mildly irritating to skin.
(v)	Serious eye damage/irritation:	May cause serious eye irritation.
(vi)	Respiratory or skin sensitisation:	Not classified as respiratory or contact sensitizer.
(vii)	Germ cell mutagenicity:	Not classified for mutagenic effects.
(viii)	Carcinogenicity:	Not classified for carcinogenic effects.
(ix)	Reproductive toxicity:	Not classified for adverse fertility or developmental effects.
(x)	Specific organ toxicity:	Classified as causing adverse effects to target organs or systems through prolonged or repeated exposure. Magnesium phosphide is a nerve toxin with respiratory action. Reacts with stomach acid to product phosphine gas that is both toxic and flammable.

(xi) Narcotic effects:	Not classified for narcotic effects.
Toxicological information for active ingredient:	Magnesium phosphide Oral LD_{50} (rat) 10.4 mg/kg Dermal LD_{50} (rat) 460 mg/kg Inhalation LC_{50} (rat)>11 mg/L

Section 12: Ecological information

	Ecotoxicological classifications determined by assessment of the components in the formulated mixture.
(a) Aquatic toxicity:	Toxic to aquatic life.
(b) Soil environment:	Not classified.
(c) Terrestrial vertebrate toxicity:	Very toxic to terrestrial vertebrates.
(d) Terrestrial invertebrate toxicity:	Not classified.
(e) Persistence and degradability:	Magnesium phosphide is non-persistent. Very rapid hydrolysis in water.
(f) Potential to be bioaccumulative:	Not information available.
(g) Mobility in soil:	No information available.
Ecotoxicological information for active:	Magnesium phosphide: Rainbow trout (*Oncorhynhus mykiss*) LC_{50} (96 hr) 0.0093 mg/L Earthworm (*Eisenia foetida*) LC50 (14 d) >663.5 mg/kg *Coturnix japonica* LD_{50}49 mg/kg

Section 13: Disposal considerations

Product disposal:	Dispose of this product only by using according to the label or through an authorised chemical disposal facility.
Container disposal:	Dispose of empty container through an authorised chemical disposal facility. Do not use for storing other substances. Avoid contamination of any water supply or stream with empty container.

Section 14: Transport information

UN number:	2011
UN Proper shipping name:	MAGNESIUM PHOSPHIDE
UN class:	4.3
Sub-Class:	6.1
Packing group:	I
HAZCHEM:	4W
Marine Pollutant:	Yes

Special precautions:	-
	This product is classified as a Dangerous Good. Consult the Land Transport Rule: Dangerous Goods 2005 and NZS 5433:2020 Transport of Dangerous Goods on Land for more information

Section 15: Regulatory information

HSNO Act 1996:	Approved substance under the HSNO Act 1996.
HSNO approval number:	HSR001634 Pellets containing 660 g/kg magnesium phosphide
Tolerable exposure limit / environmental exposure limit:	Phosphine TELair 0.0003 mg/m^3 (chronic exposure)
Controls:	Refer to HS Notices (www.epa.govt.nz) and HSW HS Regulations (www.worksafe.govt.nz)
Certified Handler required:	Yes
Amount that must be secured if unattended:	Any amount
Location Certificate:	1 kg
Fire extinguishers:	50 kg -1 ; 200 kg - 2
Signage:	50 kg
Emergency response plan:	100 kg
Secondary containment:	100 kg
Tracking:	Yes
Restricted to workplaces only:	Yes
Records of use:	Yes
Trained qualified handler:	Yes
Packaging – Child resistant closure (CRC)	Yes, if 5kg or less and available as consumer product. Not applicable if supplied to workplace and measures in place to ensure children do not have access to product.
ACVM Act 1997:	Registered under the Agricultural Compounds Veterinary Medicines Act 1997.
ACVM registration number:	P3380
Conditions of registration:	See www.foodsafety.govt.nz

Section 16: Other information

Date of issue:	28/04/2025
Reason for reissue:	Update SDS format and information.
Replaces:	SDS dated 04/09/2024
Information references:	Supplier Safety Data Sheet NZ EPA Approved hazardous substances with controls Workplace Exposure Standards and Biological Exposure Indices
Abbreviations:	ACVM: Agricultural Chemicals and Veterinary Medicines Group EU: European Union HSNO: Hazardous substances and New Organisms Act 1996 (HSNO Act) EPA: Environmental Protection Authority of New Zealand CAS Number: Chemical Abstracts Service Number LD50: Lethal Dose 50% (Population) LC50: Lethal Concentration 50% (Population) REI: Restricted Entry Interval WES-TWA: Workplace exposure standards – Time-weighted average WES-STEL: Workplace exposure standards – Short-term exposure limit
Personal Protection Standards:	The following Standards provide general advice regarding safety clothing and equipment: Respiratory equipment: **AS/NZS 1715**, Protective Gloves: **AS 2161**, Occupational Protective Clothing: **AS/NZS 4501**, Industrial Eye Protection: **AS1336** and **AS/NZS 1337**, Occupational Protective Footwear: **AS/NZS2210**

The data provided in this safety data sheet is based on current knowledge and experience. The purpose of this document is to describe the product in terms of its safety requirements. The above details do not imply any guarantee concerning composition, properties or performance of the product.