PHARMOCHEM COMPANY
A division of BOMA TRADING LTD
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SAFETY DATA SHEET

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name **MAGTOXIN - 100G & 1KG PACKS**

Synonyms MAGNESIUM PHOSPHIDE

1.2 Uses and uses advised against

Uses FUMIGANT

1.3 Details of the supplier of the product

Supplier name **PHARMOCHEM CO**

Address 6 Cebel Place, Albany, Auckland, 0632, NEW ZEALAND

Telephone +64 9 415 6888

Email pharmochem@boma.co.nz

1.4 Emergency telephone numbers

Emergency +64 9 915 3332 (24 hours)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

HAZARDOUS ACCORDING TO NZ ENVIRONMENTAL PROTECTION AUTHORITY CRITERIA

Physical Hazards

4.3A - Solids that emit flammable gas when in contact with water: High hazard

Health Hazards

6.1A - Substances that are acutely toxic: Inhalation
6.1B - Substances that are acutely toxic: Oral
6.3B - Substances that are mildly irritating to the skin
6.4A - Substances that are irritating to the eye
6.9A - Substances that are toxic to human target organs or systems: Single (Inhalation)

Environmental Hazards

9.1A - Substances that are very ecotoxic in the aquatic environment
9.3A - Substances that are very ecotoxic to terrestrial vertebrates

2.2 GHS Label elements

Signal word **DANGER**

Pictograms

Hazard statements

H260	In contact with water releases flammable gases which may ignite spontaneously.
H300	Fatal if swallowed.
H316	Causes mild skin irritation.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H370	Causes damage to organs.
H400	Very toxic to aquatic life.
H431	Very toxic to terrestrial vertebrates.

Prevention statements

P103	Read label before use.
P223	Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P231 + P232	Handle under inert gas. Protect from moisture.
P260	Do not breathe dust/fume/gas/mist/vapours/spray.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
P284	Wear respiratory protection.

Response statements

P304 + P340	IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307 + P311	IF exposed: Call a POISON CENTRE or doctor/physician.
P320	Specific treatment is urgent - see first aid instructions.
P330	Rinse mouth.
P331	Do NOT induce vomiting.
P332 + P337 + P313	If skin or eye irritation occurs: Get medical advice/ attention.
P335 + P334	Brush off loose particles from skin. Immerse in cool water/wrap in wet bandages.
P370 + P378	In case of fire: Use appropriate media for extinction.
P391	Collect spillage.

Storage statements

P402 + P404	Store in a dry place. Store in a closed container.
P403 + P233	Store in a well-ventilated place. Keep container tightly closed.

Disposal statements

None allocated.

2.3 Other hazards

Contact with water liberates very toxic, highly flammable phosphine gas.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
AMMONIUM CARBAMATE	1111-78-0	214-185-2	>20%
MAGNESIUM PHOSPHIDE	12057-74-8	235-023-7	66%
PHOSPHINE (EVOLVED)	7803-51-2	232-260-8	Not Available

Ingredient Notes Solid grey pellets will on exposure to water or atmospheric moisture/humidity release highly flammable & toxic phosphine (hydrogen phosphide) gas.

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area, Fatal if inhaled. To protect rescuer, use an appropriate respiratory protection, call an ambulance for immediate medical assistance. Apply artificial respiration if not breathing. Give oxygen if available.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion Fatal if swallowed, call an ambulance for immediate medical assistance. For advice, contact the National Poisons Centre on 0800 764 766 (0800 POISON) or 03 479 7248 or a doctor (at once). If swallowed, do not induce vomiting.

First aid facilities None allocated.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms of Poisoning: Pressing sensation in the chest, nausea and diarrhoea.
See Section 11 for more detailed information on health effects and symptoms.

4.3 Immediate medical attention and special treatment needed

Immediate medical attention required. Fatal if ingested or absorbed. Phosphine gas generated in the stomach on ingestion is rapidly absorbed in to the blood stream.
Note to the Physicians: For severe poisoning administration of a cardiac tonic and a drug to stimulate blood circulation is recommended. Under some circumstances blood transfusion or infusion of isotonic solutions of sodium chloride or glucose into blood system are indicated. Pulmonary oedema and convulsions may occur. Absolute rest is essential.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Dry agent or carbon dioxide. Do NOT use water. Prevent contamination of drains and waterways.

5.2 Special hazards arising from the substance or mixture

Flammable when wet. Contact with water liberates very toxic, highly flammable phosphine gas. May evolve toxic gases (carbon/ phosphorus oxides, hydrocarbons) when heated to decomposition.

5.3 Advice for firefighters

Evacuate area and contact emergency services. Toxic gases may be evolved in a fire situation. Remain upwind and notify those downwind of hazard. Wear full protective equipment including Self Contained Breathing Apparatus (SCBA) when combating fire. Do NOT use water. Collect residue tablets where ever possible before cleaning area. Severe explosion hazard.

5.4 Hazchem code

4WE

4	Dry Agent (water MUST NOT be allowed to come into contact with substance).
W	Risk of violent reaction or explosion. Wear liquid-tight chemical protective clothing and breathing apparatus. Contain spill and run-off.
E	Evacuation of people in and around the immediate vicinity of the incident should be considered.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Ventilate area where possible. Contact emergency services where appropriate. See section 13 of the SDS.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

To be completed by appropriately trained persons using the correct PPE.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Store removed from WATER or moisture. Store tightly sealed in locked, cool, dry, well ventilated area (elevated off floor areas), removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are labelled, protected from physical damage and sealed when not in use. Check regularly for evidence of damage to primary or secondary packaging, leaks or spills. Large storage areas should have appropriate ventilation and fire protection systems.

7.3 Specific end uses

Fumigant.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m³	ppm	mg/m³
PHOSPHINE	WES [NZ]	0.3	0.42	1	1.4

Biological limits

Ingredient	Determinant	Sampling Time	BEI
AMMONIUM CARBAMATE	Acetylcholinesterase activity in red blood cells	End of shift	70% of individual's baseline activity
	Butyrylcholinesterase activity in serum or plasma	End of shift	60% of individual's baseline activity

Reference: ACGIH Biological Exposure Indices

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas or mechanically exhausted area ONLY. Keep containers DRY at ALL TIMES. Phosphine vapours are heavier than air.

PPE

Eye / Face Wear dust-proof goggles.

Hands Wear nitrile gloves.

Body Wear coveralls and rubber boots.

Respiratory Negative pressure full-face respirator with a specific phosphine gas cartridge as a minimum standard. Refer to the product label for additional information when using the product, especially in confined spaces.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance	GREY PELLETS
Odour	GARLIC LIKE ODOUR
Flammability	FLAMMABLE WHEN WET
Flash point	NOT AVAILABLE
Boiling point	NOT AVAILABLE
Melting point	> 500°C (Phosphine)
Evaporation rate	NOT AVAILABLE
pH	NOT AVAILABLE
Vapour density	1.17 (Air = 1)
Specific gravity	NOT AVAILABLE
Solubility (water)	DECOMPOSES
Vapour pressure	34.6 hPa @ 20°C
Upper explosion limit	NOT AVAILABLE
Lower explosion limit	1.8 %
Partition coefficient	0.9 (n-Octanol/Water) (Phosphine)
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

9.2 Other information

Density	1.47 g/cm³ (Phosphine)

10. STABILITY AND REACTIVITY

10.1 Reactivity

Contact with water liberates very toxic, highly flammable phosphine gas. Potentially explosive over a very large range of concentrations. Phosphine gas reacts violently with air, oxygen, oxidants (eg. Chlorine), nitrogen oxides, metal nitrates, halogens and many other substances causing fire and explosion hazard.

10.2 Chemical stability

The product is stable under inert gas.

10.3 Possibility of hazardous reactions

Polymerization will not occur.

10.4 Conditions to avoid

Avoid contact with incompatible substances.

10.5 Incompatible materials

Incompatible with water or moisture and alkalis releasing phosphine gas; may react violently with acids and oxidising agents.

10.6 Hazardous decomposition products

May evolve toxic gases (carbon/ phosphorus oxides, hydrocarbons) when heated to decomposition.

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity

Fatal if swallowed, in contact with skin, and if inhaled.
Magnesium Phosphide (CAS number: 12057-74-8):
Oral LD50 is 11.2 mg/kg; Dermal LD50 is 900 mg/kg; Inhalation LC50 is 0.015 ppm.
Phosphine (CAS number: 7803-51-2):
ATE:
Inhalative vapour 0.5 mg/L; Inhalative aerosl 0.05 mg/L.

Information available for the ingredients:

Ingredient	Oral LD50	Dermal LD50	Inhalation LC50
AMMONIUM CARBAMATE	681 mg/kg (rat)	--	--
PHOSPHINE (EVOLVED)	--	--	11ppm/4 hours (rat)

Skin Contact may result in irritation, redness, pain and rash. Sweating and paraesthesiae have been reported.

Eye Contact may result in irritation, lacrimation, pain, redness and possible burns.

Sensitisation Not classified as causing skin or respiratory sensitisation.

Mutagenicity Not classified as a mutagen.

Carcinogenicity Not classified as a carcinogen.

Reproductive Not classified as a reproductive toxin.

STOT - single exposure

The initial symptoms of toxicity from inhalation of phosphine are alimentary rather than respiratory. Nausea, vomiting, diarrhoea and abdominal may be so striking that clinicians may be misled into making a diagnosis of acute gastroenteritis. Consciousness is usually only mildly depressed.
Inhaled phosphine is cardiotoxic. Palpitations, sinus tachycardia/bradycardia, hypotension, acute heart failure, pulmonary oedema (sometimes non-cardiogenic) and ventricular arrhythmias have been observed, particularly in children.
Cardiovascular shock results in metabolic acidosis, hyperlactataemia and hyperglycaemia.
Irritation of the mucous membranes of the nose, mouth, throat and respiratory tract occurs following inhalation. Weakness, chest pain and tightness, breathlessness, dry mouth, cough, headache, fever, tremor, dizziness and ataxia have been reported.
Methaemoglobinaemia has also been reported as a very rare complication.

STOT - repeated exposure Not classified as causing organ damage from repeated exposure.

Aspiration Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Very toxic to aquatic life. Very toxic to terrestrial invertebrates.

12.2 Persistence and degradability
Decomposes in contact with water.

12.3 Bioaccumulative potential
log Pow = 0.9 (Phosphine).

12.4 Mobility in soil
No information provided.

12.5 Other adverse effects
No information provided.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Damaged/leaking or expired containers should not be returned via the normal distribution channels. Perforated or leaking containers should be placed in air-tight secondary and tertiary packaging when wearing appropriate PPE. Isolate and label appropriately. Disposal should only be attempted by suitably trained persons with expert knowledge. Contact the supplier for additional information.

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

CLASSIFIED AS A DANGEROUS GOOD ACCORDING TO LAND TRANSPORT RULE: DANGEROUS GOODS 2005; NZS 5433:2012, UN, IMDG OR IATA

	LAND TRANSPORT (NZS 5433)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	2011	2011	2011
14.2 Proper Shipping Name	MAGNESIUM PHOSPHIDE	MAGNESIUM PHOSPHIDE	MAGNESIUM PHOSPHIDE
14.3 Transport hazard classes	4.3, 6.1	4.3, 6.1	4.3, 6.1
14.4 Packing Group	I	I	I

14.5 Environmental hazards
Marine Pollutant

14.6 Special precautions for user

Hazchem code 4WE

EmS F-G, S-N

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Approval code HSR001634

Group standard Pellets containing 660 g/kg magnesium phosphide

Inventory listings **EUROPE:EINECS (European Inventory of Existing Chemical Substances)**
All components are listed on EINECS, or are exempt.
NEW ZEALAND: NZIoC (New Zealand Inventory of Chemicals)
All components are listed on the NZIoC inventory, or are exempt.

Controlled Substance Licence Required for aggregate quantities >3kg.

Certified Handler Certificate Required for amounts over 3kgs. Under 3kgs there is no requirement provided a CSL holder onsite.

Quantities >3kg All Quantities >3kg must have a Controlled Substance Licence Holder on site.

Tracking Required for quantities >3kg.

16. OTHER INFORMATION

Additional information

RESPIRATORS: In general the use of respirators should be limited and engineering controls employed to avoid exposure. If respiratory equipment must be worn ensure correct respirator selection and training is undertaken. Remember that some respirators may be extremely uncomfortable when used for long periods. The use of air powered or air supplied respirators should be considered where prolonged or repeated use is necessary.

PUBLIC WARNING INCASE OF MAJOR INCIDENT: In the event of major incident, emergency services will be called and members of public who may be affected will be warned through the emergency services.

PUBLIC ACTIONS INCASE OF MAJOR INCIDENT: Do not approach the facility/incident area. members of the public are advised to co-operate with any instructions or requests from the emergency services.

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as form of product, method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

HEALTH EFFECTS FROM EXPOSURE:
It should be noted that the effects from exposure to this product will depend on several factors including: form of product; frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
CCID	Chemical Classification and Information Database (HSNO)
CNS	Central Nervous System
EC No.	EC No - European Community Number
EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
EPA	Environmental Protection Authority [New Zealand]
GHS	Globally Harmonized System
HSNO	Hazardous Substances and New Organisms
IARC	International Agency for Research on Cancer
LC50	Lethal Concentration, 50% / Median Lethal Concentration
LD50	Lethal Dose, 50% / Median Lethal Dose
mg/m³	Milligrams per Cubic Metre
OEL	Occupational Exposure Limit
pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
ppm	Parts Per Million
STEL	Short-Term Exposure Limit
STOT-RE	Specific target organ toxicity (repeated exposure)
STOT-SE	Specific target organ toxicity (single exposure)
TLV	Threshold Limit Value
TWA	Time Weighted Average

Report status

This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').

It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.

While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.

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