



SAFETY DATA SHEET
MAGNESIUM NITRATE, HEXAHYDRATE
REVISION 5, DATE 11 JAN 23

1. IDENTIFICATION

Product Name	Magnesium nitrate, hexahydrate
Other Names	No Data Available
Uses	Fertiliser blends.
Chemical Family	No Data Available
Chemical Formula	MgN2O6.6H2O
Chemical Name	Nitric acid, magnesium salt, hexahydrate
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Ltd	11 Mayo Road Wiri Auckland 2104 New Zealand	+64-9-2506222
Redox Inc.	3960 Paramount Boulevard Suite 107 Lakewood CA 90712 USA	+1-424-675-3200
Redox Chemicals Sdn Bhd	Level 2, No. 8, Jalan Sapir 33/7 Seksyen 33, Shah Alam Premier Industrial Park 40400 Shah Alam Sengalor, Malaysia	+60-3-5614-2111

Emergency Contact Details

For emergencies only; DO NOT contact these companies for general product advice.

Organisation	Location	Telephone
Poisons Information Centre	Westmead NSW	1800-251525 131126
Chemcall	Australia	1800-127406 +64-4-9179888
Chemcall	Malaysia	+64-4-9179888
Chemcall	New Zealand	0800-243622 +64-4-9179888
National Poisons Centre	New Zealand	0800-764766
CHEMTREC	USA & Canada	1-800-424-9300 CN723420 +1-703-527-3887

2. HAZARD IDENTIFICATION

Poisons Schedule (Aust)

Not Scheduled



Globally Harmonised System

Hazard Classification Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)

Hazard Categories Serious Eye Damage/Irritation - Category 2A
Specific Target Organ Toxicity (Single Exposure) - Category 1
Specific Target Organ Toxicity (Repeated Exposure) - Category 1

Pictograms

Signal Word Danger

Hazard Statements

H319	Causes serious eye irritation.
H370	Causes damage to organs.
H372	Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements	Prevention	P260	Do not breathe dusts or mists.
		P280	Wear eye protection/face protection.
		P264	Wash hands thoroughly after handling.
		P270	Do not eat, drink or smoke when using this product.
	Response	P307 + P311	IF exposed: Call a POISON CENTER or doctor/physician.
		P337 + P313	If eye irritation persists: Get medical attention.
		P314	Get medical attention if you feel unwell.
		P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	Storage	P321	Specific treatment (see First Aid Measures on Safety Data Sheet).
		P405	Store locked up.
Disposal	P501	Dispose of contents/container in accordance with local / regional / national / international regulations.	

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

3. COMPOSITION/INFORMATION ON INGREDIENTS*Ingredients*

Chemical Entity	Formula	CAS Number	Proportion
Magnesium nitrate, hexahydrate	MgN2O6.6H2O	13446-18-9	>=98 - 100 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	IF SWALLOWED: Rinse mouth, then drink a glass of water. Do not induce vomiting. Call a Poison Centre or doctor/physician for advice. Never give anything by mouth to an unconscious person.
Eye	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. Get medical advice/attention if eye irritation persists or if you feel unwell.
Skin	IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. Get medical advice/attention if skin irritation occurs or if you feel unwell.
Inhaled	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a Poison Centre or doctor/physician for advice. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult.
Advice to Doctor	<p>If exposed or concerned, call a Poison Centre or doctor/physician for advice. In all cases of doubt, or when symptoms persist, seek medical attention. Treat symptomatically and supportively. Treat as for exposure to nitrates. May cause methemoglobinemia. Symptoms may be delayed.</p> <p>*Specific treatment: Give 100% oxygen. In cases of ingestion, use gastric lavage. In case of contamination of skin (unburnt or burnt), continue washing to remove salts. Observe blood pressure and treat hypotension if necessary. When methaemoglobin concentrations exceed 40% or when symptoms are present, give methylene blue 1 to 2 mg/kg bw. in a 1% solution by slow intravenous injection. If cyanosis has not resolved within one hour, a second dose of 2 mg/kg bw. may be given. The total dose should not exceed 7 mg/kg bw. as unwanted effects may occur. Without treatment, methaemoglobin levels of 20-30% revert to normal within 3 days. Bed rest is required for methaemoglobin levels in excess of 40%. Continue to monitor and give oxygen for at least two hours after treatment with methylene blue. Following inhalation of oxides of nitrogen, the patient should be observed in hospital for 24 hours for delayed onset of pulmonary oedema. Further observation for 2-3 weeks may be required to detect the onset of the inflammatory changes of bronchiolitis fibrosa obliterans.</p>
Medical Conditions Aggravated by Exposure	No information available.

5. FIRE FIGHTING MEASURES

General Measures	If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out.
Flammability Conditions	Non-combustible material.
Extinguishing Media	If material is involved in a fire, use extinguishing agent suitable for type of surrounding fire.
Fire and Explosion Hazard	Decomposes on heating, emitting toxic fumes.
Hazardous Products of Combustion	Fire or heat may produce irritating and/or toxic gases, including Nitrogen oxides, oxides of Magnesium.
Special Fire Fighting Instructions	Contain runoff from fire control or dilution water - Runoff may cause pollution.
Personal Protective Equipment	Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.
Flash Point	Does not flash
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	No Data Available

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. Do not touch or walk through spilled material. Avoid generating dust. Do not breathe dusts or mists and avoid contact with eyes, skin and clothing.
Clean Up Procedures	Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal (see SECTION 13).
Containment	Stop leak if you can do it without risk. Prevent dust cloud. Prevent entry into waterways, sewers, basements or confined

	areas.
Decontamination	No information available.
Environmental Precautionary Measures	Prevent entry into drains and waterways.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away.
Personal Precautionary Measures	Use personal protective equipment as required (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid generating dust. Do not breathe dusts or mists and avoid contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). Avoid heating to decomposition. Avoid contact with incompatible materials (see SECTION 10).
Storage	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep containers closed when not in use - check regularly for spills. Hygroscopic - Avoid exposure to moist air or water. Keep away from heat and sources of ignition - No smoking. Keep away from foodstuffs, combustibles and incompatible materials (see SECTION 10). Store locked up.
Container	Keep in the original container.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	<p>No occupational exposure limit values established.</p> <p>Derived no-effect levels (DNELs) for Magnesium nitrate, anhydrous (CAS No. 10377-60-3):</p> <ul style="list-style-type: none"> - Dermal route (Long-term, systemic effects): 20.8 mg/kg bw/day for workers. - Inhalation route (Long-term, systemic effects): 36.7 mg/m3 for workers. - Dermal route (Long-term, systemic effects): 12.5 mg/kg bw/day for the general population. - Inhalation route (Long-term, systemic effects): 10.9 mg/m3 for the general population. - Oral route (Long-term, systemic effects): 12.5 mg/kg bw/day for the general population. <p>Predicted no-effect concentration (PNEC) values for Magnesium nitrate, anhydrous (CAS No. 10377-60-3):</p> <ul style="list-style-type: none"> - Water (Freshwater): 0.45 mg/L - Water (Marine water): 0.045 mg/L - Water (Intermittent release): 4.5 mg/L - Sewage treatment plant: 18 mg/L
Exposure Limits	No Data Available
Biological Limits	No information available.
Engineering Measures	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
Personal Protection Equipment	<ul style="list-style-type: none"> - Respiratory protection: Wear respiratory protection in case of inadequate ventilation and when dusts are generated. Recommended: Dust mask/particulate respirator (refer to AS/NZS 1715 & 1716). - Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Safety glasses with side-shields. Use equipment for eye protection tested and approved under appropriate government standards. - Hand protection: Handle with gloves. Recommended: Impervious gloves, e.g. Nitrile rubber (Glove thickness: 0.11 mm; Break through time: > 480 min). - Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Wear overalls, Protective shoes or boots.
Special Hazards Precautions	Do not discharge into waterway or sewer systems unless permission has been obtained by the local authority and suitable dilution has been established.
Work Hygienic Practices	Do not eat, drink or smoke when using this product. Wash hands before breaks and at the end of workday. Take off contaminated clothing and wash it before reuse.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Solid
Odour	Odourless
Colour	White
pH	5.0 - 7.0 50 g/l (25 °C)
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	330 °C
Melting Point	89 °C
Freezing Point	No Data Available
Solubility	420 g/l in water 20°C
Specific Gravity	No Data Available
Flash Point	Does not flash
Auto Ignition Temp	No Data Available
Evaporation Rate	No Data Available
Bulk Density	No Data Available
Corrosion Rate	No Data Available
Decomposition Temperature	No Data Available
Density	1.46 g/cm3
Specific Heat	No Data Available
Molecular Weight	No Data Available
Net Propellant Weight	No Data Available
Octanol Water Coefficient	No Data Available
Particle Size	No Data Available
Partition Coefficient	No Data Available
Saturated Vapour Concentration	No Data Available
Vapour Temperature	No Data Available
Viscosity	No Data Available
Volatile Percent	No Data Available
VOC Volume	No Data Available
Additional Characteristics	Hygroscopic: absorbs moisture or water from the air.
Potential for Dust Explosion	No information available.
Fast or Intensely Burning Characteristics	No information available.
Flame Propagation or Burning Rate of Solid Materials	No information available.
Non-Flammables That Could Contribute Unusual Hazards to a Fire	No information available.
Properties That May Initiate or Contribute to Fire Intensity	Non-combustible material.
Reactions That Release Gases or Vapours	Decomposes on heating, emitting toxic fumes, including Nitrogen oxides, oxides of Magnesium.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

General Information	No information available.
Chemical Stability	Stable under recommended storage and handling conditions.
Conditions to Avoid	Avoid heating to decomposition, exposure to moist air or water.
Materials to Avoid	Incompatible/reactive with strong acids, strong reducing agents, finely powdered metals, dimethyl formamide.
Hazardous Decomposition Products	Decomposes on heating, emitting toxic fumes, including Nitrogen oxides, oxides of Magnesium.
Hazardous Polymerisation	Hazardous polymerisation does not occur.

11. TOXICOLOGICAL INFORMATION

General Information	<ul style="list-style-type: none"> - Acute toxicity: Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhoea. May cause a lowering of blood pressure (hypotension). Absorption of nitrates by inhalation, ingestion or through burnt or broken skin may cause dilation of blood vessels by direct smooth muscle relaxation and may also cause methaemoglobinaemia, cyanosis, convulsions and death. - Skin corrosion/irritation: May cause irritation. - Eye damage/irritation: Causes serious eye irritation. Instillation of approximately 58 mg of Magnesium nitrate, hexahydrate (a volume of approximately 0.1 mL) into one eye of each of three rabbits resulted in effects on the cornea, iris and conjunctivae. The corneal injury consisted of slight dulling of the normal lustre of the cornea and no epithelial damage was observed. The corneal injury resolved within 24 hours. Iridial irritation grade 1 was observed and resolved within 24 hours. The irritation of the conjunctivae consisted of redness, chemosis and discharge and completely resolved within 14 days. There was no evidence of ocular corrosion. - Respiratory/skin sensitisation: No information available. - Germ cell mutagenicity: No information available. - Carcinogenicity: No component of this product presents at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. Nitrate or nitrite (ingested) under conditions that result in endogenous nitrosation is Classified in Group 2A of the IARC Monographs "Probably carcinogenic to humans". - Reproductive toxicity: No information available. - STOT (single exposure): Causes damage to organs (Haemal system) (Oral route). There are no reports on this substance itself in humans, but based on general water-soluble nitrates, a single oral exposure to this substance poses the risk of methemoglobinemia in humans. Therefore, this substance was classified in Category 1 (Haemal system). - STOT (repeated exposure): Causes damage to organs (Haemal system) through prolonged or repeated exposure (Oral route). Oral exposure to this substance has the risk of causing methaemoglobinaemia in humans, especially in neonates. The human health concern for water-soluble nitrate intake is (infantile) methaemoglobinaemia attributed to nitrites formed by enteric microbial reduction of nitrates contained in food and water (neonates have an incompletely developed system for methaemoglobin reduction and their risk is thus high). Therefore, this substance was classified in Category 1 (Haemal system). - Aspiration toxicity: No information available.
Acute	
Ingestion	Acute toxicity (Oral): - LD50, Rat: 5,440 mg/kg [Supplier's SDS].
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic toxicity: - LC50, Fish (Poecilia reticulata): 191 mg N/L (96 h) [Supplier's SDS]. - EC50, Crustacea (Daphnia magna): 490 mg/L (48 h) [Supplier's SDS].
Persistence/Degradability	Ready biodegradation study does not need to be conducted since the substance is inorganic.
Mobility	Magnesium nitrate will completely dissociate into ions in water and thus has a low potential for adsorption.

Environmental Fate	Prevent entry into drains and waterways.
Bioaccumulation Potential	Simple inorganic salts with high aqueous solubility will exist in a dissociated form in aqueous solution. Such a substance has a low potential for bioaccumulation.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of contents/container in accordance with local/regional/national regulations. *Contaminated packaging: Dispose of as unused product. Contaminated empty containers must be disposed of as chemical waste.
Special Precautions for Land Fill	Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADG Code

Proper Shipping Name	Magnesium nitrate, hexahydrate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	332
Comments	Magnesium nitrate hexahydrate is not subject to this Code.

Land Transport (Malaysia)

ADR Code

Proper Shipping Name	Magnesium nitrate, hexahydrate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	332
Comments	Magnesium nitrate hexahydrate is not subject to this Code.

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	Magnesium nitrate, hexahydrate
Class	No Data Available

Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	332
Comments	Magnesium nitrate hexahydrate is not subject to this Standard.

Land Transport (United States of America)

US DOT

Proper Shipping Name	Magnesium nitrate, hexahydrate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	332
Comments	Magnesium nitrate hexahydrate is not subject to this Code.

Sea Transport

IMDG Code

Proper Shipping Name	Magnesium nitrate, hexahydrate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	332
EMS	No Data Available
Marine Pollutant	No
Comments	Magnesium nitrate hexahydrate is not subject to the provisions of this Code.

Air Transport

IATA DGR

Proper Shipping Name	Magnesium nitrate, hexahydrate
Class	No Data Available
Subsidiary Risk(s)	No Data Available
UN Number	No Data Available
Hazchem	No Data Available
Pack Group	No Data Available
Special Provision	A155 (332)
Comments	Magnesium nitrate hexahydrate is not subject to the provisions of this Code.

National Transport Commission (Australia)

Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

Dangerous Goods Classification

NOT Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)

15. REGULATORY INFORMATION**General Information**

No Data Available

Poisons Schedule (Aust)

Not Scheduled

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

Approval Code

Fertilisers Subsidiary Hazard Group Standard 2020 HSR002571

National/Regional Inventories**Australia (AIC)**

Listed

Canada (DSL)

Not Determined

Canada (NDSL)

Not Determined

China (IECSC)

Not Determined

Europe (EINECS)

233-826-7

Europe (REACH)

Not Determined

Japan (ENCS/METI)

Not Determined

Korea (KECI)

Not Determined

Malaysia (EHS Register)

Not Determined

New Zealand (NZIoC)

Listed

Philippines (PICCS)

Not Determined

Switzerland (Giftliste 1)

Not Determined

Switzerland (Inventory of Notified Substances)

Not Determined

Taiwan (NCSR)

Not Determined

USA (TSCA)

Not Determined

16. OTHER INFORMATION**Related Product Codes**

MANITR1016, MANITR1017, MANITR1019, MANITR1020, MANITR1100, MANITR1101, MANITR1102, MANITR1103, MANITR1110, MANITR1115, MANITR1125, MANITR1130, MANITR1201, MANITR1202, MANITR1300, MANITR1310, MANITR1320, MANITR1330, MANITR1400, MANITR1401, MANITR1500, MANITR1501, MANITR1502, MANITR1600, MANITR1601, MANITR1801, MANITR1802, MANITR1803, MANITR1804, MANITR1805, MANITR1806, MANITR1807, MANITR1808, MANITR1809, MANITR1810, MANITR2000, MANITR2001, MANITR2200, MANITR3000, MANITR3001, MANITR4000,

SAFETY DATA SHEET MAGNESIUM NITRATE, HEXAHYDRATE REVISION 5, DATE 11 JAN 23

MANITR4001, MANITR4002, MANITR5000, MANITR5001, MANITR5500, MANITR6000, MANITR6500, MANITR7000, MANITR7500, MANITR7501, MANITR8000, MANITR8100, MANITR8500, MANITR9000

Revision

5

Revision Date

11 Jan 2023

Reason for Issue

Updated SDS

Key/Legend

< Less Than

> Greater Than

AICS Australian Inventory of Chemical Substances

atm Atmosphere

CAS Chemical Abstracts Service (Registry Number)

cm² Square Centimetres

CO₂ Carbon Dioxide

COD Chemical Oxygen Demand

deg C (°C) Degrees Celcius

EPA (New Zealand) Environmental Protection Authority of New Zealand

deg F (°F) Degrees Farenheit

g Grams

g/cm³ Grams per Cubic Centimetre

g/l Grams per Litre

HSNO Hazardous Substance and New Organism

IDLH Immediately Dangerous to Life and Health

immiscible Liquids are insoluable in each other.

inHg Inch of Mercury

inH₂O Inch of Water

K Kelvin

kg Kilogram

kg/m³ Kilograms per Cubic Metre

lb Pound

LC₅₀ LC stands for lethal concentration. LC₅₀ is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours.

LD₅₀ LD stands for Lethal Dose. LD₅₀ is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals.

ltr or L Litre

m³ Cubic Metre

mbar Millibar

mg Milligram

mg/24H Milligrams per 24 Hours

mg/kg Milligrams per Kilogram

mg/m³ Milligrams per Cubic Metre

Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present.

mm Millimetre

mmH₂O Millimetres of Water

mPa.s Millipascals per Second

N/A Not Applicable

NIOSH National Institute for Occupational Safety and Health

NOHSC National Occupational Heath and Safety Commission

OECD Organisation for Economic Co-operation and Development

Oz Ounce

PEL Permissible Exposure Limit

Pa Pascal

ppb Parts per Billion

ppm Parts per Million

ppm/2h Parts per Million per 2 Hours

ppm/6h Parts per Million per 6 Hours

psi Pounds per Square Inch

R Rankine

RCP Reciprocal Calculation Procedure

STEL Short Term Exposure Limit

TLV Threshold Limit Value

tne Tonne

TWA Time Weighted Average

ug/24H Micrograms per 24 Hours

UN United Nations

wt Weight