

1. IDENTIFICATION

Product Name	Calcium nitrate, tetrahydrate
Other Names	Calcium dinitrate, tetrahydrate
Uses	No Data Available
Chemical Family	No Data Available
Chemical Formula	Ca(NO ₃) ₂ ·4H ₂ O
Chemical Name	Nitric acid, calcium salt, tetrahydrate
Product Description	No Data Available

Contact Details of the Supplier of this Safety Data Sheet

Organisation	Location	Telephone
Redox Pty Ltd	2 Swettenham Road Minto NSW 2566 Australia	+61-2-97333000
Redox Pty 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 Sapi 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	Acute Toxicity (Oral) - Category 4 Oxidising Solids - Category 3 Serious Eye Damage/Irritation - Category 2A Skin Corrosion/Irritation - Category 2 Specific Target Organ Toxicity (Single Exposure) - Category 3

Pictograms



Signal Word Warning

Hazard Statements	H302	Harmful if swallowed.
	H272	May intensify fire; oxidizer.
	H315	Causes skin irritation.
	H319	Causes serious eye irritation.
	H335	May cause respiratory irritation.

Precautionary Statements	Prevention	P210	Keep away from heat.
		P221	Take any precaution to avoid mixing with combustibles/organic material.
		P280	Wear protective gloves/eye protection/face protection.
		P261	Avoid breathing dusts or mists.
		P270	Do not eat, drink or smoke when using this product.
		P271	Use only outdoors or in a well-ventilated area.
	Response	P370 + P378	In case of fire: Use water for extinction.
		P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
		P337 + P313	If eye irritation persists: Get medical advice/attention.
		P312	Call a POISON CENTER or doctor/physician if you feel unwell.
		P330	Rinse mouth.
		P332 + P313	If skin irritation occurs: Get medical advice/attention.
		P362	Take off contaminated clothing and wash before reuse.
	Storage	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
		P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P403 + P233		Store in a well-ventilated place. Keep container tightly closed.	
Disposal	P405	Store locked up.	
	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

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

Environmental Protection Authority (New Zealand)

Hazardous Substances and New Organisms Amendment Act 2015

HSNO Classifications	Health Hazards	6.1D	Substances that are acutely toxic - Harmful
		8.3A	Substances that are corrosive to ocular tissue
	Environmental Hazards	9.3C	Substances that are harmful to terrestrial vertebrates

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Calcium nitrate, tetrahydrate	Ca(NO ₃) ₂ .4H ₂ O	13477-34-4	98 - 100 %

4. FIRST AID MEASURES

Description of necessary measures according to routes of exposure

Swallowed	If swallowed: Rinse mouth. Call a Poison Centre or doctor/physician if you feel unwell. Never give anything by mouth to an unconscious person.
Eye	Eye contact: 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. Immediately call a Poison Centre or doctor/physician.
Skin	Skin contact: Remove material from skin immediately. Flush skin with running water for at least 15 minutes. Take off contaminated clothing and shoes and wash before reuse. If skin irritation occurs, get medical advice/attention.
Inhaled	If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Apply resuscitation if victim is not breathing. Administer oxygen if breathing is difficult. Call a Poison Centre or doctor/physician if experiencing respiratory symptoms or if you feel unwell.
Advice to Doctor	Treat symptomatically. Ensure that attending medical personnel are aware of identity and nature of the product(s) involved, and take precautions to protect themselves.
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. Do not move cargo if cargo has been exposed to heat. Flood fire area with water from a protected position. Cool containers with flooding quantities of water until well after fire is out – If impossible, withdraw from area and let fire burn.
Flammability Conditions	OXIDISING SUBSTANCE - Will accelerate burning when involved in a fire.
Extinguishing Media	Use flooding quantities of water for extinction. DO NOT use dry chemicals, Carbon dioxide or foam.
Fire and Explosion Hazard	May explode from heating, shock, friction or contamination. May ignite combustibles. Containers may explode when heated. Runoff may create fire or explosion hazard.
Hazardous Products of Combustion	Fire may produce irritating and/or toxic gases.
Special Fire Fighting Instructions	Dam fire control water for later disposal.
Personal Protective Equipment	Wear (self-contained breathing apparatus (SCBA) and chemical splash suit. Structural firefighter's uniform will provide limited protection.
Flash Point	No Data Available
Lower Explosion Limit	No Data Available
Upper Explosion Limit	No Data Available
Auto Ignition Temperature	No Data Available
Hazchem Code	1Z

6. ACCIDENTAL RELEASE MEASURES

General Response Procedure	Ensure adequate ventilation. Do not contaminate. Keep combustibles (wood, paper, clothing, oil, and so on) away from spilled material. Prevent exposure to heat.
Clean Up Procedures	Use clean, non-sparking tools to transfer material to a suitable container for reclamation or disposal (see SECTION 13). Move container from spill area.
Containment	Prevent entry into waterways, drains or confined areas.
Decontamination	Small amounts of residue may be flushed to sewer with plenty of water.
Environmental Precautionary Measures	Spillages and decontamination runoff should be prevented from entering drains and watercourses.
Evacuation Criteria	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher ground.
Personal Precautionary Measures	Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (see SECTION 8).

7. HANDLING AND STORAGE

Handling	Maintain eye wash fountain and quick-drench facilities in work area. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Keep away from heat. Take any precaution to avoid mixing with combustibles. Wear protective gloves/eye protection/face protection; In case of inadequate ventilation, wear respiratory protection (see SECTION 8).
Storage	Store in a cool, dry, well-ventilated area. Keep container tightly closed. Protect against physical damage and moisture. Isolate from any source of heat or ignition. Do NOT store on wood floors. Separate from incompatible materials (combustibles, organic or other readily oxidisable materials).
Container	Keep in the original container. Containers of this material may be hazardous when empty since they retain product residues; Observe all warnings and precautions listed for the product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

General	No specific exposure standards are available for this product. For dusts from solid substances without specific occupational exposure standards: <ul style="list-style-type: none">- Safe Work Australia Exposure Standard (Nuisance dusts): 8 hr TWA = 10 mg/m³ (measured as inhalable dust).- New Zealand WES (Particulates not otherwise classified): TWA = 10 mg/m³ (total); TWA = 3 mg/m³ (respirable).- OSHA PEL (Particulates not otherwise regulated): TWA = 15 mg/m³ (total); TWA = 5 mg/m³ (respirable).
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	Respiratory protection: In case of inadequate ventilation, or where exposure to dust or mist is apparent, wear respiratory protection. Recommended: Particulate respirator. For emergencies or instances where the exposure levels are not known, use a full-face positive-pressure, air-supplied respirator. WARNING: Air-purifying respirators do not protect workers in oxygen-deficient atmospheres. Eye/face protection: Wear eye protection/face protection. Recommended: Chemical safety goggles. Hand protection: Wear protective gloves. Recommended: Nitrile rubber. Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Clean, body-covering clothing.
Special Hazards Precautions	No information available.
Work Hygienic Practices	Do not eat, drink or smoke when using this product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Solid
Appearance	Crystals
Odour	Odourless
Colour	White
pH	No Data Available
Vapour Pressure	No Data Available
Relative Vapour Density	No Data Available
Boiling Point	No Data Available
Melting Point	45 °C
Freezing Point	No Data Available
Solubility	121 g/100 g water
Specific Gravity	2.36
Flash Point	No Data Available
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	No Data Available
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	No Data Available
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	May explode from heating, shock, friction or contamination. May ignite combustibles. Containers may explode when heated. Runoff may create fire or explosion hazard.
Properties That May Initiate or Contribute to Fire Intensity	OXIDISING SUBSTANCE - Will accelerate burning when involved in a fire.
Reactions That Release Gases or Vapours	Fire may produce irritating and/or toxic gases, including: Nitrogen oxides.
Release of Invisible Flammable Vapours and Gases	No information available.

10. STABILITY AND REACTIVITY

Chemical Stability	Unstable - May explode from heating, shock, friction or contamination. May ignite combustibles.
Conditions to Avoid	Keep away from heat.

Materials to Avoid	Incompatible with: Combustible materials, organic materials, powdered metals, ammonia, reducing agents.
Hazardous Decomposition Products	Fire may produce irritating and/or toxic gases, including: Nitrogen oxides.
Hazardous Polymerisation	Will not occur.

11. TOXICOLOGICAL INFORMATION

General Information	Information on possible routes of exposure: - Eye contact: Causes serious eye irritation; Symptoms may include: Redness, irritation, pain. - Ingestion: Harmful if swallowed. May cause irritation to the gastrointestinal tract; Symptoms may include: Nausea, vomiting, diarrhoea. - Inhalation: May cause irritation to the respiratory tract; Symptoms may include: Coughing, shortness of breath. - Skin contact: May cause irritation to the skin; Symptoms may include: Redness, itching, pain. Carcinogenicity: Not listed by IARC or NTP as a known or anticipated carcinogen.
Acute	
Ingestion	Acute toxicity (Oral): - LD50, Rat: 3,900 mg/kg
Eye/Irritant	Eye damage/irritation: - Rabbit: Severe (500 mg/24 h).
Carcinogen Category	None

12. ECOLOGICAL INFORMATION

Ecotoxicity	Aquatic toxicity: - LC50, Fish: >100 mg/L (96 h).
Persistence/Degradability	No information available.
Mobility	No information available.
Environmental Fate	Prevent entry into drains and waterways.
Bioaccumulation Potential	No information available.
Environmental Impact	No Data Available

13. DISPOSAL CONSIDERATIONS

General Information	Dispose of contents/container in accordance with local/regional/national regulations. Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options.
Special Precautions for Land Fill	Contaminated packaging: Containers of this material may be hazardous when empty since they retain product residues; Observe all warnings and precautions listed for the product.

14. TRANSPORT INFORMATION

Land Transport (Australia)

ADG Code

Proper Shipping Name	CALCIUM NITRATE
Class	5.1 Oxidising Substances

Subsidiary Risk(s)	No Data Available
EPG	31 Oxidizing Substances
UN Number	1454
Hazchem	1Z
Pack Group	III
Special Provision	No Data Available

Land Transport (Indonesia)

Proper Shipping Name	CALCIUM NITRATE
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
EPG	31 Oxidizing Substances
UN Number	1454
Hazchem	1Z
Pack Group	III
Special Provision	No Data Available

Land Transport (Malaysia)

ADR Code

Proper Shipping Name	CALCIUM NITRATE
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
EPG	31 Oxidizing Substances
UN Number	1454
Hazchem	1Z
Pack Group	III
Special Provision	No Data Available

Land Transport (New Zealand)

NZS5433

Proper Shipping Name	CALCIUM NITRATE
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
EPG	31 Oxidizing Substances
UN Number	1454
Hazchem	1Z
Pack Group	III
Special Provision	No Data Available

Land Transport (United States of America)

US DOT

Proper Shipping Name	CALCIUM NITRATE
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
ERG	140 Oxidizers
UN Number	1454
Hazchem	1Z
Pack Group	III
Special Provision	No Data Available

Sea Transport

IMDG Code

Proper Shipping Name	CALCIUM NITRATE
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
UN Number	1454
Hazchem	1Z
Pack Group	III
Special Provision	No Data Available
EMS	FA,SQ
Marine Pollutant	No

Air Transport

IATA DGR

Proper Shipping Name	CALCIUM NITRATE
Class	5.1 Oxidising Substances
Subsidiary Risk(s)	No Data Available
UN Number	1454
Hazchem	1Z
Pack Group	III
Special Provision	No Data Available

National Transport Commission (Australia)

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

Dangerous Goods Classification	Dangerous Goods according to the criteria of the Australian Code for the Transport of Dangerous Goods by Road & Rail (ADG Code)
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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	HSR003543
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National/Regional Inventories

Australia (AICS)	Listed
Canada (DSL)	Not Determined
Canada (NDSL)	Not Determined
China (IECSC)	Not Determined
Europe (EINECS)	Not Determined

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	CANITR0100, CANITR0200, CANITR0300, CANITR0400, CANITR0401, CANITR0500, CANITR0502, CANITR0503, CANITR0700, CANITR0800, CANITR0900, CANITR1000, CANITR1001, CANITR1002, CANITR1003, CANITR1004, CANITR1005, CANITR1006, CANITR1007, CANITR1008, CANITR1009, CANITR1010, CANITR1011, CANITR1012, CANITR1013, CANITR1014, CANITR1015, CANITR1016, CANITR1017, CANITR1018, CANITR1019, CANITR1100, CANITR1101, CANITR1106, CANITR1107, CANITR1108, CANITR1109, CANITR1110, CANITR1200, CANITR1201, CANITR1215, CANITR1217, CANITR1300, CANITR1400, CANITR1500, CANITR1600, CANITR1800, CANITR1802, CANITR1803, CANITR1804, CANITR1805, CANITR1806, CANITR1807, CANITR1808, CANITR1809, CANITR1888, CANITR1900, CANITR2200, CANITR2201, CANITR2202, CANITR2203, CANITR2500, CANITR2501, CANITR2600, CANITR2900, CANITR3000, CANITR3001, CANITR3002, CANITR3003, CANITR3004, CANITR3005, CANITR3006, CANITR3100, CANITR3200, CANITR3300, CANITR3400, CANITR3500, CANITR3501, CANITR3502, CANITR3700, CANITR3800, CANITR3900, CANITR4000, CANITR4100, CANITR4200, CANITR4300, CANITR4301, CANITR4302, CANITR4600, CANITR4700, CANITR4800, CANITR4900, CANITR5100, CANITR5200, CANITR5300, CANITR5400, CANITR5500, CANITR5800, CANITR5801, CANITR5900, CANITR5901, CANITR6300, CANITR6500, CANITR6900, CANITR7000, CANITR7500, CANITR8000, CANITR8001, CANITR8002, CANITR8500, CANITR8700, CANITR8800, CANITR8900, CANITR9000, CANITR9400, CANITR9600, CANITR9700, CANITR9800, CANITR9900, CANITR9901, CANITR9902
Revision	3
Revision Date	24 Aug 2016
Key/Legend	<p>< 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 Fahrenheit 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 insoluble 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.</p>

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 Health 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