

Safety Data Sheet



1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

Product Name: **CALCIUM NITRATE TETRAHYDRATE**

Other name(s): Calcium dinitrate tetrahydrate; Nitric acid, calcium salt, tetrahydrate.

Recommended Use of the Chemical and Restrictions on Use Corrosion inhibitor; fertilizer.

Supplier: Ixom Operations Pty Ltd
ABN: 51 600 546 512
Street Address: Level 8, 1 Nicholson Street
Melbourne 3000
Australia

Telephone Number: +61 3 9906 3000
Emergency Telephone: **1 800 033 111 (ALL HOURS)**

Please ensure you refer to the limitations of this Safety Data Sheet as set out in the "Other Information" section at the end of this Data Sheet.

2. HAZARDS IDENTIFICATION

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.

This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:

Oxidising solids - Category 3
Acute Oral Toxicity - Category 4

The following health/environmental hazard categories fall outside the scope of the Workplace Health and Safety Regulations:

Skin corrosion/irritation - Category 3

Eye damage/irritation - Category 2B

SIGNAL WORD: WARNING



Hazard Statement(s):

H272 May intensify fire; oxidizer.

H302 Harmful if swallowed.

Precautionary Statement(s):

Prevention:

P102 Keep out of reach of children.

P103 Read label before use.

P210 Keep away from heat, sparks, open flames, hot surfaces. No smoking.

P220 Keep and store away from clothing, incompatible materials, combustible materials.

P221 Take any precaution to avoid mixing with combustibles / incompatible materials.

P264 Wash hands thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves / protective clothing / eye protection / face protection.

Product Name: CALCIUM NITRATE TETRAHYDRATE
Substance No: 00000008781

Issued: 13/09/2016
Version: 5

Safety Data Sheet

**Response:**

P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P330 Rinse mouth.

P370+P378 In case of fire: Use extinguishing media as outlined in Section 5 of this Safety Data Sheet to extinguish.

Storage:

No storage statements.

Disposal:

P501 Dispose of contents and container in accordance with local, regional, national, international regulations.

Poisons Schedule (SUSMP): None allocated.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Components	CAS Number	Proportion	Hazard Codes
Calcium nitrate tetrahydrate	13477-34-4	99%	H272 H302 H316 H320

4. FIRST AID MEASURES

For advice, contact a Poisons Information Centre (e.g. phone Australia 131 126; New Zealand 0800 764 766) or a doctor.

Inhalation:

Remove victim from area of exposure - avoid becoming a casualty. Seek medical advice if effects persist.

Skin Contact:

If skin contact occurs, remove contaminated clothing and wash skin with running water. If irritation occurs seek medical advice.

Eye Contact:

If in eyes, wash out immediately with water. In all cases of eye contamination it is a sensible precaution to seek medical advice.

Ingestion:

Rinse mouth with water. If swallowed, do NOT induce vomiting. Give a glass of water. Never give anything by the mouth to an unconscious patient. Seek immediate medical assistance.

Safety Data Sheet



Indication of immediate medical attention and special treatment needed:

Treat symptomatically. May cause methemoglobinemia.

Clinical findings: The smooth muscle relaxant effect of nitrate salts may lead to headache, dizziness and marked hypotension.

Cyanosis is clinically detectable when approximately 15% of the haemoglobin has been converted to methaemoglobin (ie. ferric iron).

Symptoms such as headache, dizziness, weakness and dyspnoea occur when methaemoglobin concentrations are 30% to 40%; at levels of about 60%, stupor, convulsions, coma and respiratory paralysis occur and the blood is a chocolate brown colour. At higher levels death may result. Spectrophotometric analysis can determine the presence and concentration of methaemoglobin in blood.

Treatment:

1. Give 100% oxygen.
 2. In cases of (a) ingestion: use gastric lavage, (b) contamination of skin (unburnt or burnt): continue washing to remove salts.
 3. Observe blood pressure and treat hypotension if necessary.
 4. When methaemoglobin concentrations exceed 40% or when symptoms are present, give methylene blue 1 to 2 mg/kg body weight in a 1% solution by slow intravenous injection. If cyanosis has not resolved within one hour a second dose of 2 mg/kg body weight may be given. The total dose should not exceed 7 mg/kg body weight as unwanted effects such as dyspnoea, chest pain, vomiting, diarrhoea, mental confusion and cyanosis may occur. Without treatment methaemoglobin levels of 20-30% revert to normal within 3 days.
 5. Bed rest is required for methaemoglobin levels in excess of 40%.
 6. Continue to monitor and give oxygen for at least two hours after treatment with methylene blue.
 7. Consider transfer to centre where haemoperfusion can be performed to remove the nitrates from the blood if the condition of the patient is unstable.
 8. 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.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:

Not combustible, however, if material is involved in a fire use: Coarse water spray, fine water spray, normal foam, dry agent (carbon dioxide, dry chemical powder).

Hazchem or Emergency Action Code: 1Z

Specific hazards arising from the chemical:

Non combustible, but will support combustion of other materials.

Special protective equipment and precautions for fire-fighters:

Decomposes on heating emitting toxic fumes, including those of oxides of nitrogen. Fire fighters to wear self-contained breathing apparatus and suitable protective clothing if risk of exposure to products of decomposition. Keep containers cool with water spray. If safe to do so, remove containers from path of fire.

6. ACCIDENTAL RELEASE MEASURES

Emergency procedures/Environmental precautions:

Shut off all possible sources of ignition. Clear area of all unprotected personnel. If contamination of sewers or waterways has occurred advise local emergency services.

Safety Data Sheet



Personal precautions/Protective equipment/Methods and materials for containment and cleaning up:

Slippery when spilt. Avoid accidents, clean up immediately. Wear protective equipment to prevent skin and eye contact and breathing in dust. Work up wind or increase ventilation. Cover with damp absorbent (inert material, sand or soil). Sweep or vacuum up, but avoid generating dust. Collect and seal in properly labelled containers or drums for disposal. Keep combustibles (e.g. wood, paper, oil) away from spilled material. Wash area down with excess water.

7. HANDLING AND STORAGE

Precautions for safe handling:

Avoid skin and eye contact and breathing in dust. Keep out of reach of children.

Conditions for safe storage, including any incompatibilities:

Store in a cool, dry, well ventilated place. Protect from moisture. Store away from foodstuffs. Store away from incompatible materials described in Section 10. Keep containers closed when not in use - check regularly for spills.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters: No value assigned for this specific material by Safe Work Australia. However, Workplace Exposure Standard(s) for particulates:

Dusts not otherwise classified: 8hr TWA = 10 mg/m³

As published by Safe Work Australia Workplace Exposure Standards for Airborne Contaminants.

TWA - The time-weighted average airborne concentration of a particular substance when calculated over an eight-hour working day, for a five-day working week.

These Workplace Exposure Standards are guides to be used in the control of occupational health hazards. All atmospheric contamination should be kept to as low a level as is workable. These workplace exposure standards should not be used as fine dividing lines between safe and dangerous concentrations of chemicals. They are not a measure of relative toxicity.

Appropriate engineering controls:

Ensure ventilation is adequate to maintain air concentrations below Workplace Exposure Standards. Keep containers closed when not in use.

If in the handling and application of this material, safe exposure levels could be exceeded, the use of engineering controls such as local exhaust ventilation must be considered and the results documented. If achieving safe exposure levels does not require engineering controls, then a detailed and documented risk assessment using the relevant Personal Protective Equipment (PPE) (refer to PPE section below) as a basis must be carried out to determine the minimum PPE requirements.

Individual protection measures, such as Personal Protective Equipment (PPE):

The selection of PPE is dependent on a detailed risk assessment. The risk assessment should consider the work situation, the physical form of the chemical, the handling methods, and environmental factors.

OVERALLS, SAFETY SHOES, SAFETY GLASSES, GLOVES, DUST MASK.



Safety Data Sheet



Wear overalls, safety glasses and impervious gloves. Avoid generating and inhaling dusts. If determined by a risk assessment an inhalation risk exists, wear a dust mask/respirator meeting the requirements of AS/NZS 1715 and AS/NZS 1716. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Crystals
Colour:	White
Odour:	Odourless
Molecular Formula:	Ca(NO ₃) ₂ ·4H ₂ O
Solubility:	Soluble in water.
Specific Gravity:	1.82
Relative Vapour Density (air=1):	Not available
Vapour Pressure (20 °C):	Not available
Flash Point (°C):	Not applicable
Flammability Limits (%):	Not available
Autoignition Temperature (°C):	Not available
Melting Point/Range (°C):	42
pH:	Not available

10. STABILITY AND REACTIVITY

Reactivity:	Hygroscopic: absorbs moisture or water from surrounding air.
Chemical stability:	Stable.
Possibility of hazardous reactions:	Hazardous polymerisation will not occur.
Conditions to avoid:	Avoid exposure to heat. Avoid exposure to moisture.
Incompatible materials:	Incompatible with combustible materials , strong reducing agents .
Hazardous decomposition products:	Oxides of nitrogen.

11. TOXICOLOGICAL INFORMATION

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Ingestion:	No adverse effects expected, however, large amounts may cause nausea and vomiting.
Eye contact:	A mild eye irritant.
Skin contact:	Contact with skin will result in mild irritation.
Inhalation:	Material may be irritant to the mucous membranes of the respiratory tract (airways).

Acute toxicity:

Product Name: CALCIUM NITRATE TETRAHYDRATE
Substance No: 00000008781

Issued: 13/09/2016
Version: 5

Safety Data Sheet



Oral LD50 (rat): 302 mg/kg (for calcium nitrate)

Skin corrosion/irritation: Mild irritant (rabbit).

Serious eye damage/irritation: Mild irritant (rabbit).

Chronic effects: Not listed as carcinogenic according to the International Agency for Research on Cancer (IARC).

12. ECOLOGICAL INFORMATION

Ecotoxicity Avoid contaminating waterways.

13. DISPOSAL CONSIDERATIONS

Disposal methods:

Refer to Waste Management Authority. Dispose of contents and container in accordance with local, regional, national, international regulations.

14. TRANSPORT INFORMATION

Road and Rail Transport

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.



UN No: 1454
Transport Hazard Class: 5.1 Oxidizing Agent
Packing Group: III
Proper Shipping Name or Technical Name: CALCIUM NITRATE
Hazchem or Emergency Action Code: 1Z

Marine Transport

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN No: 1454
Transport Hazard Class: 5.1 Oxidizing Agent
Packing Group: III
Proper Shipping Name or Technical Name: CALCIUM NITRATE

IMDG EMS Fire: F-A
IMDG EMS Spill: S-Q

Air Transport

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.

UN No: 1454
Transport Hazard Class: 5.1 Oxidizing Agent
Packing Group: III

Product Name: CALCIUM NITRATE TETRAHYDRATE
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Safety Data Sheet



Proper Shipping Name or Technical Name: CALCIUM NITRATE

15. REGULATORY INFORMATION

Classification:

This material is hazardous according to Safe Work Australia; HAZARDOUS CHEMICAL.

Classification of the chemical:

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Acute Oral Toxicity - Category 4

The following health/environmental hazard categories fall outside the scope of the Workplace Health and Safety Regulations:

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Eye damage/irritation - Category 2B

Hazard Statement(s):

H272 May intensify fire; oxidizer.
H302 Harmful if swallowed.

Poisons Schedule (SUSMP): None allocated.

This material is listed on the Australian Inventory of Chemical Substances (AICS).

16. OTHER INFORMATION

'Registry of Toxic Effects of Chemical Substances'. Ed. D. Sweet, US Dept. of Health & Human Services: Cincinnati, 2016.

This safety data sheet has been prepared by Ixom Operations Pty Ltd Toxicology & SDS Services.

Reason(s) for Issue:

Revised Primary SDS
Change in Hazardous Chemical Classification

This SDS summarises to our best knowledge at the date of issue, the chemical health and safety hazards of the material and general guidance on how to safely handle the material in the workplace. Since Ixom Operations Pty Ltd cannot anticipate or control the conditions under which the product may be used, each user must, prior to usage, assess and control the risks arising from its use of the material.

If clarification or further information is needed, the user should contact their Ixom representative or Ixom Operations Pty Ltd at the contact details on page 1.

Ixom Operations Pty Ltd's responsibility for the material as sold is subject to the terms and conditions of sale, a copy of which is available upon request.