

SECTION 1: Identification

1.1. Product identifier

Trade name : CALCIUM NITRATE 4hydr
 EC-No. : 233-332-1
 CAS-No. : 13477-34-4
 UN-No. (ADR) : 1454
 Product code : 103050xxx
 Formula : Ca(NO₃)₂·4H₂O

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended uses and restrictions : For laboratory use only

1.3. Supplier's details

Labchem (Pty)Ltd
 6 Wakefield Road
 Founders Hill
 1609 Johannesburg - South Africa
 T +27 11 452 1116 - F +27 86 588 0293
techlab@labchem.co.za - www.labchem.co.za

1.4. Emergency telephone number

Emergency number : +27 11 452 1116

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to the United Nations GHS

Oxidising Solids, Category 3 H272
 Acute toxicity (oral), Category 4 H302
 Specific target organ toxicity — Single exposure, Category 2 H371
 Specific target organ toxicity — Repeated exposure, Category 2 H373
 Hazardous to the aquatic environment - Acute Hazard Not classified
 Full text of H statements : see section 16

2.2. Label elements

Labelling according to the United Nations GHS

Hazard pictograms (GHS-ZA) :



Signal word (GHS-ZA) : Warning

Hazard statements (GHS-ZA) :

H272 - May intensify fire; oxidiser.
 H302 - Harmful if swallowed.
 H371 - May cause damage to organs.
 H373 - May cause damage to organs through prolonged or repeated exposure.

Precautionary statements (GHS-ZA) :

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 P220 - Keep away from clothing and other combustible materials.
 P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
 P264 - Wash hands, forearms and face thoroughly after handling.
 P270 - Do not eat, drink or smoke when using this product.
 P280 - Wear protective gloves/protective clothing/eye protection/face protection.
 P301+P312 - IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
 P308+P311 - IF exposed or concerned: Call a POISON CENTER or doctor.
 P314 - Get medical advice/attention if you feel unwell.
 P330 - Rinse mouth.
 P370+P378 - In case of fire: Use media other than water to extinguish.
 P405 - Store locked up.
 P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

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According to SANS 10234:2019 and SANS 11014:2010

2.3. Other hazards

Adverse physicochemical, human health and environmental effects : May intensify fire; oxidiser, May cause damage to organs through prolonged or repeated exposure, May cause damage to organs, Harmful if swallowed.

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance identification codes: See section 1.1

Name	Product identifier	%	Classification according to the United Nations GHS
calcium nitrate, tetrahydrate (Main constituent)	(CAS-No.) 13477-34-4	≥ 99	Ox. Sol. 3, H272 Acute Tox. 4 (Oral), H302 STOT SE 2, H371 STOT RE 2, H373 Aquatic Acute Not classified

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. IF exposed or concerned: Get medical advice/attention. Call a poison center or a doctor if you feel unwell.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Rinse with water. Do not apply (chemical) neutralizing agents without medical advice. Take victim to a doctor if irritation persists. Wash skin with plenty of water.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply (chemical) neutralizing agents without medical advice. Take victim to an ophthalmologist. Rinse eyes with water as a precaution.

First-aid measures after ingestion : Rinse mouth with water. Do not apply (chemical) neutralizing agents without medical advice. Call Poison Information Centre (www.big.be/antigif.html). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Take the container/vomit to the doctor/hospital. Rinse mouth. Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation : AFTER INHALATION OF DUST: Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Coughing. Dry/sore throat.

Symptoms/effects after skin contact : Red skin. Itching.

Symptoms/effects after eye contact : Corrosion of the eye tissue.

Symptoms/effects after ingestion : AFTER INGESTION OF HIGH QUANTITIES: Nausea. Respiratory difficulties. Dizziness. Feeling of weakness. Abdominal pain. Blue/grey discoloration of the skin. Methemoglobinemia.

Potential adverse human health effects and symptoms : Harmful if swallowed. Obstructs oxygen absorption if ingested. Causes serious eye damage.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water. Quick-acting ABC powder extinguisher. Quick-acting CO2 extinguisher. Quantities of water. Water spray. Dry powder. Foam.

Unsuitable extinguishing media : Foam. Foam.

5.2. Special hazards arising from the substance or mixture

Fire hazard : DIRECT FIRE HAZARD: Non combustible. INDIRECT FIRE HAZARD: Reactions involving a fire hazard: see "Reactivity Hazard". May intensify fire; oxidiser.

Explosion hazard : DIRECT EXPLOSION HAZARD: No direct explosion hazard. INDIRECT EXPLOSION HAZARD: Reactions with explosion hazards: see "Reactivity Hazard".

Hazardous decomposition products in case of fire : Toxic fumes may be released.

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According to SANS 10234:2019 and SANS 11014:2010

5.3. Advice for firefighters

Precautionary measures fire	: Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
Firefighting instructions	: Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Dilute toxic gases with water spray.
Protection during firefighting	: Heat/fire exposure: compressed air apparatus (EN 136 + EN 137). Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No additional information available

6.1.1. For non-emergency personnel

Protective equipment	: Gloves (EN 374). Safety glasses (EN166). Protective clothing (EN 14605 or EN 13034). Dust cloud production: compressed air apparatus (EN 136 + EN 137).
Emergency procedures	: Ventilate spillage area. Mark the danger area. No naked flames. Keep containers closed. Wash contaminated clothes. In case of hazardous reactions: keep upwind. In case of reactivity hazard: consider evacuation. No open flames, no sparks, and no smoking. Do not breathe dust/fume/gas/mist/vapours/spray.

6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
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6.2. Environmental precautions

Avoid release to the environment. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment	: Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam up the solid spill. If reacting: dilute toxic gas/vapour with water spray. Take account of toxic/corrosive precipitation water.
Methods for cleaning up	: Mechanically recover the product. Cover spill with non combustible material, e.g.: sand/earth or powdered limestone. Scoop solid spill into closing containers or bags. Carefully collect the spill/leftovers. Spill must not return in its original container. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling. Notify authorities if product enters sewers or public waters.
Other information	: Dispose of materials or solid residues at an authorized site.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling	: Ensure good ventilation of the work station. Avoid raising dust. Keep away from naked flames/heat. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Keep the substance free from contamination. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Keep container tightly closed. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapours/spray.
Hygiene measures	: Observe normal hygiene standards. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions	: Store locked up. Store in a well-ventilated place. Keep cool.
Storage area	: Store in a cool area. Keep out of direct sunlight. Store in a dry area. Keep only in the original container. Meet the legal requirements.
Incompatible materials	: combustible materials.
Heat and ignition sources	: KEEP SUBSTANCE AWAY FROM: heat sources.
Information on mixed storage	: KEEP SUBSTANCE AWAY FROM: combustible materials. reducing agents. (strong) acids. (strong) bases. organic materials. water/moisture.
Special rules on packaging	: SPECIAL REQUIREMENTS: closing. watertight. dry. clean. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials	: SUITABLE MATERIAL: synthetic material. MATERIAL TO AVOID: paper. cardboard. wood.
Storage temperature	: < 30 °C

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

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According to SANS 10234:2019 and SANS 11014:2010

8.2. Appropriate engineering controls

Appropriate engineering controls	: Ensure good ventilation of the work station.
Environmental exposure controls	: Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment (PPE)

Materials for protective clothing	: GIVE GOOD RESISTANCE: butyl rubber. PVC
Hand protection	: Gloves
Eye protection	: Safety glasses (EN166). In case of dust production: protective goggles (EN 166). Safety glasses
Skin and body protection	: Protective clothing (EN 14605 or EN 13034)
Respiratory protection	: Dust production: dust mask with filter type P2

Personal protective equipment symbol(s):



8.4. Exposure limit values for the other components

No additional information available

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Crystalline solid.
Molecular mass	: 236.15 g/mol
Colour	: Colourless to white.
Odour	: Odourless.
Odour threshold	: No data available
pH	: 4.5 – 7.0 (5 %)
pH solution	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: No data available
Melting point	: 45 °C
Freezing point	: Not applicable
Boiling point	: Not applicable
Flash point	: Not applicable (solid)
Auto-ignition temperature	: Not applicable
Decomposition temperature	: 42 °C
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: Not applicable (solid)
Vapour pressure at 50 °C	: No data available
Relative vapour density at 20 °C	: Not applicable
Relative density	: 1.8
Relative density of saturated gas/air mixture	: No data available
Density	: 1820 kg/m ³
Relative gas density	: No data available
Solubility	: Soluble in water. Soluble in ethanol. Soluble in acetone. Water: 660 g/100ml (30 °C)
Partition coefficient n-octanol/water (Log Pow)	: No data available
Partition coefficient n-octanol/water (Log Kow)	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: Not oxidising.
Explosive limits	: Not applicable
Lower explosive limit (LEL)	: No data available
Upper explosive limit (UEL)	: No data available

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According to SANS 10234:2019 and SANS 11014:2010

9.2. Other information

Other properties : Hygroscopic.

SECTION 10: Stability and reactivity

10.1. Reactivity

May cause or intensify fire; oxidiser.

10.2. Chemical stability

Hygroscopic.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials

Combustible materials.

10.6. Hazardous decomposition products

Reacts violently with (some) acids: release of toxic and corrosive gases/vapours (nitrous vapours). Decomposes on exposure to temperature rise: release of toxic and corrosive gases/vapours (nitrous vapours) and oxidation resulting in increased fire or explosion risk.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Harmful if swallowed.

Acute toxicity (dermal) : Not classified

Acute toxicity (inhalation) : Not classified

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LD50 oral rat	300 – 2000 mg/kg bodyweight (OECD 423: Acute Oral Toxicity – Acute Toxic Class Method, Rat, Female, Experimental value, Oral, 14 day(s))
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Skin corrosion/irritation : Not classified
pH: 4.5 – 7.0 (5 %)

Serious eye damage/irritation : Not classified
pH: 4.5 – 7.0 (5 %)

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

STOT-single exposure : May cause damage to organs.

STOT-repeated exposure : May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms : Harmful if swallowed. Obstructs oxygen absorption if ingested. Causes serious eye damage.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.

Ecology - air : Not included in the list of substances which may contribute to the greenhouse effect (IPCC). Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014). Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Ecology - water : Not harmful to fishes. Groundwater pollutant. Mild water pollutant (surface water). May cause eutrophication. Insufficient data available on ecotoxicity.

Hazardous to the aquatic environment, short-term (acute) : Not classified.

Hazardous to the aquatic environment, long-term (chronic) : Not classified

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LC50 fish 1	> 100 mg/l (OECD 203: Fish, Acute Toxicity Test, 96 h, Oncorhynchus mykiss, Static system, Fresh water, Experimental value)
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EC50 Daphnia 1	490 mg/l (48 h, Daphnia magna, Fresh water, Experimental value)
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12.2. Persistence and degradability

CALCIUM NITRATE 4hydr (13477-34-4)	
Persistence and degradability	Biodegradable in the soil. Biodegradability in water: no data available.
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
BOD (% of ThOD)	Not applicable

12.3. Bioaccumulative potential

CALCIUM NITRATE 4hydr (13477-34-4)	
Bioaccumulative potential	No bioaccumulation data available.

12.4. Mobility in soil

CALCIUM NITRATE 4hydr (13477-34-4)	
Mobility in soil	No additional information available
Ecology - soil	No (test)data on mobility of the substance available.

12.5. Other adverse effects

Ozone	: Not classified
Other adverse effects	: No additional information available




SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations	: Do not discharge into surface water. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Remove to an authorized dump (Class I). Precipitate/make insoluble.
Additional information	: Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

In accordance with SANS / IMDG / IATA

SANS	IMDG	IATA
14.1. UN number 1454	1454	1454
14.2. Proper Shipping Name CALCIUM NITRATE	CALCIUM NITRATE	Calcium nitrate
14.3. Transport hazard class(es) 5.1 	5.1 	5.1  Not applicable
14.4. Packing group III	III	III
14.5. Environmental hazards Dangerous for the environment : No	Dangerous for the environment : No :	Dangerous for the environment : No
No supplementary information available		

14.6. Special precautions for user

- SANS

Transport regulations (UN)	: Subject to the provisions
Special provisions (SANS)	: 208
Limited quantities (SANS)	: 5 kg
Limited quantities (SANS)	: 5 kg
Packagings, large packagings and IBCs	: P002, IBC08, LP02
Packing instructions (SANS)	

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Packagings, large packagings and IBCs Special packing instructions (SANS) : B3
Portable tank and bulk containers instructions (SANS) : T1, BK1, BK2
Portable tank and bulk container special provisions (SANS) : TP33

- IMDG

Transport regulations (IMDG) : Subject to the provisions
Special provisions (IMDG) : 208, 967
Limited quantities (IMDG) : 5 kg
Excepted quantities (IMDG) : E1
Packing instructions (IMDG) : P002, LP02
IBC packing instructions (IMDG) : IBC08
IBC special provisions (IMDG) : B3
Tank instructions (IMDG) : T1, BK2, BK3
Tank special provisions (IMDG) : TP33
EmS-No. (Fire) : F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
EmS-No. (Spillage) : S-Q - SPILLAGE SCHEDULE Quebec - OXIDIZING SUBSTANCES
Stowage category (IMDG) : A
Properties and observations (IMDG) : White deliquescent solid, soluble in water. Mixtures with combustible material are readily ignited and may burn fiercely. Harmful if swallowed.

- IATA

Transport regulations (IATA) : Subject to the provisions
PCA Excepted quantities (IATA) : E1
PCA Limited quantities (IATA) : Y546
PCA limited quantity max net quantity (IATA) : 10kg
PCA packing instructions (IATA) : 559
PCA max net quantity (IATA) : 25kg
CAO packing instructions (IATA) : 563
CAO max net quantity (IATA) : 100kg
Special provisions (IATA) : A83, A803
ERG code (IATA) : 5L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health, and environmental national regulations specific for the product

Regulatory reference : SANS 10234:2008; SANS 11014:2010; SANS 10228:2012; SANS 10229:2010; SANS 10232(1,2,4), SANS 10231:2018; Occupational Health and Safety Act 85 of 1993; National Road Traffic Act 93 of 1996.

SECTION 16: Other information

Issue date : 02/07/2020
Revision date : 02/07/2025

Full text of H-statements:

H272	May intensify fire; oxidiser.
H302	Harmful if swallowed.
H371	May cause damage to organs.
H373	May cause damage to organs through prolonged or repeated exposure.

SDS South Africa

The data provided in this Safety Data Sheet (SDS) is correct to the best of our knowledge. The data relates to the specific product as named and is intended as a guide to the safe handling of the product in all its facets. The data may no longer be valid if the product is used in any process or in combination with other products. This SDS is not a quality specification nor any form of guarantee.