

Calcium nitrate,tetrahydrate

Safety Data Sheet

according to Regulation (EU) 2015/830

Date of issue: 01/06/2022 Version: 0.0

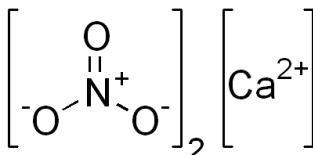
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SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Substance
Substance name : Calcium nitrate,tetrahydrate
EC-No. : 233-332-1
CAS-No. : 13477-34-4
Type of product : Pure substance
Formula : $\text{CaN}_2\text{O}_6 \cdot 4\text{H}_2\text{O}$
Chemical structure :



Synonyms : calcium dinitrate tetrahydrate / Calcium nitrate / calcium nitrate, 4-hydrate / calcium(II) nitrate,tetrahydrate / nitric acid calcium salt,tetrahydrate / nitric acid, calcium salt, tetrahydrate

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

1.2.1. Relevant identified uses

Use of the substance/mixture : Anti-corrosion agent
Chemical raw material
Laboratory Chemical
Fertilizer
Explosive: additive

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

ISOLAB Laborgeräte GmbH
Am Dillhof 2 - 63863 Eschau / GERMANY
Tel: + 49 93 74 / 978 55-0
Fax: +49 93 74 / 978 55-29
prodsafe@isolab.de

1.4. Emergency telephone number

Country	Organisation/Company	Address	Emergency number	Comment
Germany	Giftnotruf der Charité CBF, Haus VIII (Wirtschaftgebäude), UG	Hindenburgdamm 30 12203 Berlin	+49 30 19240	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Ox. Sol. 3 H272

Eye Dam. 1 H318

Acute Tox. 4 H302

Full text of hazard classes and H-statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :



GHS03



GHS07



GHS05

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Signal word (CLP)	: Danger
Hazard statements (CLP)	: H272 - May intensify fire; oxidiser H302 - Harmful if swallowed H318 - Causes serious eye damage
Precautionary statements (CLP)	: P280 - Wear eye protection P301 + P312 + P330 - IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P313: Get medical advice/ attention

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%
Calcium nitrate,tetrahydrate	(CAS-No.) 13477-34-4 (EC-No.) 233-332-1	100

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.
First-aid measures after inhalation	: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.
First-aid measures after skin contact	: Rinse with water. Soap may be used. Take victim to a doctor if irritation persists.
First-aid measures after eye contact	: Rinse immediately with plenty of water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.
First-aid measures after ingestion	: Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Doctor: administration of chemical antidote.

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

Symptoms/effects after inhalation	: AFTER INHALATION OF DUST: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes.
Symptoms/effects after skin contact	: Red skin. Itching.
Symptoms/effects after eye contact	: Redness of the eye tissue. Irritation of the eye tissue.
Symptoms/effects after ingestion	: Nausea. Abdominal pain. AFTER ABSORPTION OF HIGH QUANTITIES: Methemoglobinemia. Blue/grey discolouration of the skin. Feeling of weakness. Dizziness. Respiratory difficulties.

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

No additional information available

SECTION 5: Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Water.
Unsuitable extinguishing media	: No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

Fire hazard	: DIRECT FIRE HAZARD. Non combustible. INDIRECT FIRE HAZARD. Promotes combustion. Reactions involving a fire hazard: see "Reactivity Hazard".
Explosion hazard	: INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".

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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/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves. Safety glasses. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. Reactivity hazard: compressed air/oxygen apparatus. Reactivity hazard: gas-tight suit. See "Material-Handling" to select protective clothing.
- Emergency procedures : 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.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of 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 : Cover spill with non combustible material, e.g.: sand/earth or powdered limestone. Scoop solid spill into closing containers or bags. See "Material-handling" for suitable container materials. 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.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : 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. Avoid raising dust. Keep away from naked flames/heat. Observe normal hygiene standards. Keep container tightly closed. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

7.2. Conditions for safe storage, including any incompatibilities

- Storage temperature : < 30 °C
- 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.
- 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.
- 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.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

8.2. Exposure controls

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Materials for protective clothing:

GIVE GOOD RESISTANCE: butyl rubber. PVC

Hand protection:

Gloves

Eye protection:

Safety glasses. In case of dust production: protective goggles

Skin and body protection:

Protective clothing

Respiratory protection:

Dust production: dust mask with filter type P2

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	: 5.0 - 7.0 (50 g/l, H ₂ O, 25 °C)
pH solution	: 5 %
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: 45 °C
Freezing point	: No data available
Boiling point	: Not applicable
Flash point	: Not applicable
Auto-ignition temperature	: No data available
Decomposition temperature	: 42 °C
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: 1.8
Density	: 1.82 g/cm ³ (20 °C)
Solubility	: Soluble in water. Soluble in ethanol. Soluble in acetone. Water: 2710 g/l (40 °C)
Log Pow	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosive properties	: No data available
Oxidising properties	: May intensify fire; oxidiser.
Explosive limits	: No data available

9.2. Other information

VOC content	: Not applicable
Other properties	: Hygroscopic.

SECTION 10: Stability and reactivity

10.1. Reactivity

Decomposes on exposure to temperature rise: release of toxic and corrosive gases/vapours (nitrous vapours) and oxidation resulting in increased fire or explosion risk. Reacts with combustible materials: risk of spontaneous ignition. Violent to explosive reaction with many compounds e.g.: with organic material, with (strong) reducers and with (some) bases. Reacts violently with (some) acids: release of toxic and corrosive gases/vapours (nitrous vapours).

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10.2. Chemical stability

Hygroscopic.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Calcium nitrate,tetrahydrate (13477-34-4)	
LD50 oral rat	300-2000 mg/kg

Skin corrosion/irritation : Not classified

pH: 4.5 - 7.0 (5 %)

Serious eye damage/irritation : Causes serious eye irritation.

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 : Not classified

STOT-repeated exposure : Not classified

Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity

Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009). TA-Luft Klasse 5.2.1.

Ecology - water : Mild water pollutant (surface water). Ground water pollutant. For Flanders: maximum concentration in drinking water: 270 mg/l (calcium)(M.B. 28/1/2003). Maximum concentration in drinking water: 50 mg/l (nitrate) (Directive 98/83/EC). Not harmful to fishes (LC50(96h) >1000 mg/l). May cause eutrophication. Insufficient data available on ecotoxicity.

Calcium nitrate,tetrahydrate (13477-34-4)	
LC50 fish 2	10000 mg/l (LC50; 96 h)
EC50 Daphnia 1	2355 mg/l (LC50; 120 h)

12.2. Persistence and degradability

Calcium nitrate,tetrahydrate (13477-34-4)	
Persistence and degradability	Biodegradable in the soil.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

12.3. Bioaccumulative potential

Calcium nitrate,tetrahydrate (13477-34-4)	
Bioaccumulative potential	Not bioaccumulative.

12.4. Mobility in soil

No additional information available

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12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods






Product/Packaging disposal recommendations : 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. Precipitate/make insoluble. Remove to an authorized dump (Class I). Do not discharge into surface water.

Additional information : Hazardous waste according to Directive 2008/98/EC.

European List of Waste (LoW) code : 06 10 02* - wastes containing dangerous substances

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
1454	1454	1454	1454	1454
14.2. UN proper shipping name				
CALCIUM NITRATE	CALCIUM NITRATE	Calcium nitrate	CALCIUM NITRATE	CALCIUM NITRATE
Transport document description				
UN 1454 CALCIUM NITRATE, 5.1, III, (E)	UN 1454 CALCIUM NITRATE, 5.1, III	UN 1454 Calcium nitrate, 5.1, III	UN 1454 CALCIUM NITRATE, 5.1, III	UN 1454 CALCIUM NITRATE, 5.1, III
14.3. Transport hazard class(es)				
5.1	5.1	5.1	5.1	5.1
				
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	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

- Overland transport

Classification code (ADR) : O2
Special provisions (ADR) : 208
Limited quantities (ADR) : 5kg
Excepted quantities (ADR) : E1
Packing instructions (ADR) : P002, IBC08, LP02, R001
Mixed packing provisions (ADR) : MP10
Portable tank and bulk container instructions (ADR) : T1, BK1, BK2
Portable tank and bulk container special provisions (ADR) : TP33
Tank code (ADR) : SGAV
Tank special provisions (ADR) : TU3
Vehicle for tank carriage : AT
Transport category (ADR) : 3
Special provisions for carriage - Bulk (ADR) : VC1, VC2, AP6, AP7

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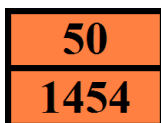
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Special provisions for carriage - Loading, unloading and handling (ADR) : CV24

Hazard identification number (Kemler No.) : 50

Orange plates :



Tunnel restriction code (ADR) : E

EAC code : 1Z

- Transport by sea

Transport regulations (IMDG) : Subject

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

EmS-No. (Spillage) : S-Q

Stowage category (IMDG) : A

Stowage and handling (IMDG) : SW23

Properties and observations (IMDG) : White deliquescent solid, soluble in water. Mixtures with combustible material are readily ignited and may burn fiercely. Harmful if swallowed.

MFAG-No : 140

- Air transport

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

ERG code (IATA) : 5L

- Inland waterway transport

Classification code (ADN) : O2

Special provisions (ADN) : 208

Limited quantities (ADN) : 5 kg

Excepted quantities (ADN) : E1

Carriage permitted (ADN) : B

Equipment required (ADN) : PP

Provisions prior to loading (ADN) : LO04

Provisions for carriage in bulk (ADN) : CO02

Number of blue cones/lights (ADN) : 0

- Rail transport

Transport regulations (RID) : Subject

Classification code (RID) : O2

Special provisions (RID) : 208

Limited quantities (RID) : 5kg

Excepted quantities (RID) : E1

Packing instructions (RID) : P002, IBC08, LP02, R001

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Special packing provisions (RID)	: B3
Mixed packing provisions (RID)	: MP10
Portable tank and bulk container instructions (RID)	: T1, BK1, BK2
Portable tank and bulk container special provisions (RID)	: TP33
Tank codes for RID tanks (RID)	: SGAV
Special provisions for RID tanks (RID)	: TU3
Transport category (RID)	: 3
Special provisions for carriage – Bulk (RID)	: VC1, VC2, AP6, AP7
Special provisions for carriage - Loading, unloading and handling (RID)	: CW24
Colis express (express parcels) (RID)	: CE11
Hazard identification number (RID)	: 50

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

Calcium nitrate,tetrahydrate is not on the REACH Candidate List

Calcium nitrate,tetrahydrate is not on the REACH Annex XIV List

VOC content : Not applicable

15.1.2. National regulations

Germany

VwVwS Annex reference : Water hazard class (WGK) 1, low hazard to waters (Classification according to VwVwS, Annex 1 or 2; ID No. 321)

WGK remark : Classification water polluting in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 27 July 2005 (Anhang 2)

12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)

Netherlands

SZW-lijst van kankerverwekkende stoffen : The substance is not listed

SZW-lijst van mutagene stoffen : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed

NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
EC50	Median effective concentration
IARC	International Agency for Research on Cancer

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IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
PBT	Persistent Bioaccumulative Toxic
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
vPvB	Very Persistent and Very Bioaccumulative

Data sources : REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

Full text of H- and EUH-statements:	
Eye Irrit. 2	Serious eye damage/eye irritation, Category 2
Ox. Sol. 3	Oxidising Solids, Category 3
H272	May intensify fire; oxidiser
H319	Causes serious eye irritation
H302	Harmful if swallowed
H318	Causes serious eye damage

SDS ISOLAB

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product