

SAFETY DATA SHEET

According to US Regulation 29 CFR 1910.1200 (HazCom 2012)

1. Identification

Product identifier: Calcium nitrate, tetrahydrate

Other means of identification

Product No.: 1395, 4236

Recommended restrictions

Recommended use: For Laboratory, Research or Manufacturing Use.

Restrictions on use: Not determined.

Details of the supplier of the safety data sheet

Company Name: Avantor Performance Materials, LLC
Address: 100 Matsonford Rd, Suite 200
Radnor, PA 19087

Telephone: Customer Service: 855-282-6867

Contact Person: Product Information Compliance
E-mail: info@avantormaterials.com

Emergency telephone number:

CHEMTREC: 1-800-424-9300 within US and Canada (24 hrs/day, 7 days/week)

2. Hazard(s) identification

Hazard Classification

Physical Hazards

Oxidizing solids Category 3

Health Hazards

Serious Eye Damage/Eye Irritation Category 1

Unknown toxicity - Health

Acute toxicity, inhalation, dust 100 %
or mist

Label Elements

Hazard Symbol:



Signal Word: Danger

Hazard Statement:	May intensify fire; oxidizer. Causes serious eye damage.
Precautionary Statements	
Prevention:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Wash hands thoroughly after handling. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection.
Response:	IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
Disposal:	Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.
Hazard(s) not otherwise classified (HNOC):	None.

3. Composition/information on ingredients

Substances

Chemical Identity	CAS number	Content in percent (%)*
Calcium nitrate, tetrahydrate	13477-34-4	98 - 100%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

General information:	Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
Ingestion:	Rinse mouth. Call a POISON CENTER/doctor if you feel unwell.
Inhalation:	Move to fresh air. Call a physician or poison control center immediately. If breathing stops, provide artificial respiration. If breathing is difficult, give oxygen.
Skin Contact:	Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing.
Eye contact:	Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air. Get medical attention immediately.

Most important symptoms/effects, acute and delayed

Symptoms:	Causes serious eye damage.
Hazards:	None known.

Indication of immediate medical attention and special treatment needed

Treatment: Treat symptomatically. Symptoms may be delayed.

5. Fire-fighting measures

General Fire Hazards: Contact with combustible material may cause fire. Severe corrosive hazard. Wear chemical protection suits.

Suitable (and unsuitable) extinguishing media

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable extinguishing media: None known.

Specific hazards arising from the chemical: Oxidizing Contact with combustible material may cause fire. Fire may produce irritating, corrosive and/or toxic gases.

Special protective equipment and precautions for firefighters

Special fire fighting procedures: Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.

Special protective equipment for fire-fighters: Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Keep unauthorized personnel away. ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Use personal protective equipment. See Section 8 of the SDS for Personal Protective Equipment. Ventilate closed spaces before entering them. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

Methods and material for containment and cleaning up: Keep combustibles (wood, paper, oil, etc.) away from spilled material. Stop leak if possible without any risk. Do not absorb in sawdust or other combustible materials. Sweep up and place in a clearly labeled container for chemical waste. Collect in a non-combustible container for prompt disposal. Clean surface thoroughly to remove residual contamination. Dike far ahead of larger spill for later recovery and disposal.

Notification Procedures: Dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Stop the flow of material, if this is without risk. Inform authorities if large amounts are involved.

Environmental Precautions: Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling:	Keep away from combustible material. Do not get in eyes, on skin, on clothing. Wash hands thoroughly after handling. Do not eat, drink or smoke when using the product. Do not taste or swallow. Protect against physical damage and/or friction. Eliminate all sources of ignition.
Conditions for safe storage, including any incompatibilities:	Do not store in metal containers. Store away from heat and light. Keep away from combustible material. Keep containers closed when not in use. Store in a cool, dry place. Keep container in a well-ventilated place.

8. Exposure controls/personal protection

Control Parameters

Occupational Exposure Limits

None of the components have assigned exposure limits.

Appropriate Engineering Controls

No data available.

Individual protection measures, such as personal protective equipment

General information:	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.
Eyeface protection:	Wear safety glasses with side shields (or goggles) and a face shield.
Skin Protection	
Hand Protection:	Chemical resistant gloves
Other:	Wear suitable protective clothing.
Respiratory Protection:	In case of inadequate ventilation use suitable respirator. Chemical respirator with acid gas cartridge.
Hygiene measures:	Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

9. Physical and chemical properties

Appearance

Physical state:	Solid
Form:	Crystals or powder.
Color:	White
Odor:	Odorless
Odor threshold:	No data available.
pH:	6.0 (5% aqueous solution)
Melting point/freezing point:	45 °C
Initial boiling point and boiling range:	No data available.
Flash Point:	No data available.
Evaporation rate:	No data available.

Flammability (solid, gas):	No data available.
Upper/lower limit on flammability or explosive limits	
Flammability limit - upper (%):	No data available.
Flammability limit - lower (%):	No data available.
Explosive limit - upper (%):	No data available.
Explosive limit - lower (%):	No data available.
Vapor pressure:	No data available.
Vapor density:	No data available.
Density:	2.36 g/ml (20 °C)
Relative density:	2.36 (20 °C)
Solubility(ies)	
Solubility in water:	1,210 g/l (20 °C)
Solubility (other):	ethanol: Freely soluble acetone: Freely soluble
Partition coefficient (n-octanol/water):	No data available.
Auto-ignition temperature:	No data available.
Decomposition temperature:	No data available.
Viscosity:	No data available.
Other information	
Molecular weight:	236.15 g/mol (Ca.4H2O.2HNO3)

10. Stability and reactivity

Reactivity:	Reacts violently with strong alkaline substances.
Chemical Stability:	Material is stable under normal conditions.
Possibility of hazardous reactions:	Hazardous polymerization does not occur. The substance is hygroscopic and will absorb water by contact with the moisture in the air.
Conditions to avoid:	Contact with incompatible materials. Heat, sparks, flames. Keep away from sources of ignition - No smoking. Shocks and physical damage.
Incompatible Materials:	Strong reducing agents. Powdered metal. Contact with combustibles. Organic compounds. Ammonia.
Hazardous Decomposition Products:	Nitrogen Oxides

11. Toxicological information

Information on likely routes of exposure

Inhalation:	May cause irritation to the mucous membranes and upper respiratory tract.
Skin Contact:	Prolonged skin contact may cause temporary irritation.
Eye contact:	Causes serious eye damage.
Ingestion:	May cause irritation of the gastrointestinal tract.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral

Product: LD 50 (Rat): 430 - 2,900 mg/kg

Dermal

Product: LD 50 (Rat) > 2,900 mg/kg

Inhalation

Product: No data available.

Repeated dose toxicity

Product: No data available.

Skin Corrosion/Irritation

Product: Prolonged skin contact may cause temporary irritation.

Serious Eye Damage/Eye Irritation

Product: Causes serious eye damage.

Respiratory or Skin Sensitization

Product: Not a skin nor a respiratory sensitizer.

Carcinogenicity

Product: This substance has no evidence of carcinogenic properties.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:

No carcinogenic components identified
US. National Toxicology Program (NTP) Report on Carcinogens:
 No carcinogenic components identified

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):

No carcinogenic components identified

Germ Cell Mutagenicity

In vitro

Product: No mutagenic components identified

In vivo

Product: No mutagenic components identified

Reproductive toxicity

Product: No components toxic to reproduction

Specific Target Organ Toxicity - Single Exposure

Product: None known.

Specific Target Organ Toxicity - Repeated Exposure

Product: None known.

Aspiration Hazard

Product: Not classified

Other effects: None known.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: No data available.

Specified substance(s):

Calcium nitrate, LC 50 (Bluegill (*Lepomis macrochirus*), 96 h): 3,456 mg/l
tetrahydrate LC 50 (*Poecilia reticulata*, 96 h): 1,984 mg/l
LC 50 (*Oncorhynchus mykiss*, 96 h): > 142 mg/l
NOAEL (*Oncorhynchus mykiss*, 96 h): 142 mg/l

Aquatic Invertebrates

Product: No data available.

Specified substance(s):

Calcium nitrate, EC 50 (*Daphnia magna*, 48 h): 705 mg/l
tetrahydrate

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Persistence and Degradability

Biodegradation

Product: There are no data on the degradability of this product.

BOD/COD Ratio

Product: No data available.

Bioaccumulative potential

Bioconcentration Factor (BCF)

Product: No data available on bioaccumulation.

Partition Coefficient n-octanol / water (log Kow)

Product: No data available.

Mobility in soil: No data available.

Other adverse effects: The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

13. Disposal considerations

Disposal instructions: Discharge, treatment, or disposal may be subject to national, state, or local laws.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN Number:	UN 1454
UN Proper Shipping Name:	Calcium nitrate
Transport Hazard Class(es)	
Class:	5.1
Label(s):	5.1
Packing Group:	III
Marine Pollutant:	No
Special precautions for user:	Not determined.

IMDG

UN Number:	UN 1454
UN Proper Shipping Name:	CALCIUM NITRATE
Transport Hazard Class(es)	
Class:	5.1
Label(s):	5.1
EmS No.:	F-A, S-Q
Packing Group:	III
Marine Pollutant:	No
Special precautions for user:	Not determined.

IATA

UN Number:	UN 1454
Proper Shipping Name:	Calcium nitrate
Transport Hazard Class(es):	
Class:	5.1
Label(s):	5.1
Packing Group:	III
Marine Pollutant:	No
Special precautions for user:	Not determined.

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

CERCLA Hazardous Substance List (40 CFR 302.4):

None present or none present in regulated quantities.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Oxidizer (liquid, solid or gas)
Serious eye damage or eye irritation

SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

None present or none present in regulated quantities.

SARA 311/312 Hazardous Chemical

<u>Chemical Identity</u>	<u>Threshold Planning Quantity</u>
Calcium nitrate, tetrahydrate	10000 lbs.

SARA 313 (TRI Reporting)

<u>Chemical Identity</u>	<u>Reporting threshold for other users</u>	<u>Reporting threshold for manufacturing and processing</u>
Calcium nitrate, tetrahydrate	10000 lbs.	25000 lbs.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):

None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3):

None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65

No ingredient requiring a warning under CA Prop 65.

US. New Jersey Worker and Community Right-to-Know Act

Chemical Identity
Calcium nitrate, tetrahydrate

US. Massachusetts RTK - Substance List

No ingredient regulated by MA Right-to-Know Law present.

US. Pennsylvania RTK - Hazardous Substances

No ingredient regulated by PA Right-to-Know Law present.

US. Rhode Island RTK

No ingredient regulated by RI Right-to-Know Law present.

International regulations

Montreal protocol

Not applicable

Stockholm convention

Not applicable

Rotterdam convention

Not applicable

Kyoto protocol

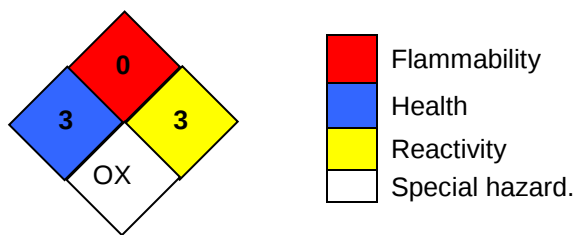
Not applicable

Inventory Status:

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Japan (ENCS) List:	On or in compliance with the inventory
Japan ISHL Listing:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Mexico INSQ:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Philippines PICCS:	On or in compliance with the inventory
Taiwan Chemical Substance Inventory:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
EINECS, ELINCS or NLP:	On or in compliance with the inventory

16. Other information, including date of preparation or last revision

NFPA Hazard ID



Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe; RNP - Rating not possible
OX: Oxidizing agent

Issue Date: 02-12-2020

Revision Information: Not relevant.

Version #: 1.1

Source of information: Sources of information used in preparing this SDS included one or more of the following: results from in house or supplier toxicology studies, information from the Toxicology Data Network (TOXNET), European Chemical Agency (ECHA) substance dossiers, IARC Monographs, US National Toxicology Program data, the Agency for Toxic Substances and Disease Registry, other manufacturer's SDSs and other sources, as appropriate.

Further Information: No data available.

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