

SAFETY DATA SHEET

Preparation Date: 4/7/2014

Revision Date: 10/22/2018

Revision Number: G2

1. IDENTIFICATION

Product identifier

Product code: C1135
Product Name: CALCIUM NITRATE, TETRAHYDRATE, CRYSTAL, REAGENT, ACS

Other means of identification

Synonyms: Calcium dinitrate tetrahydrate
 Nitric acid, calcium salt, tetrahydrate
CAS #: 13477-34-4
RTECS # EW3000000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Fertilizer compositons. Manufacture of matches. In pyrotechnics.
Uses advised against No information available

Supplier: Spectrum Chemical Mfg. Corp
 14422 South San Pedro St.
 Gardena, CA 90248
 (310) 516-8000

Order Online At: <https://www.spectrumchemical.com>
Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous according to the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Serious eye damage/eye irritation	Category 2B
Oxidizing solids	Category 3

Label elements

Warning

Hazard statements

Causes eye irritation
 May intensify fire; oxidizer

**Hazards not otherwise classified (HNOC)**

Not Applicable

Other hazards

Causes mild skin irritation

May be harmful if swallowed

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling

Keep away from heat/sparks/open flames/hot surfaces. — No smoking

Keep/Store away from clothing and other combustible materials

Take any precaution to avoid mixing with combustibles

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

IN CASE OF FIRE: Use water to extinguish. Do not use dry chemicals or foams. CO2 or Halon may provide limited control.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %
Calcium Nitrate, Tetrahydrate	13477-34-4	100

4. FIRST AID MEASURES**First aid measures****General Advice:**

National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222. First aider needs to protect himself. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Skin Contact:

Wash off immediately with soap and plenty of water removing all contaminated clothing and shoes. Get medical attention. If skin irritation persists, call a physician.

Eye Contact:

Flush eyes with water for 15 minutes. Get medical attention.

Inhalation:

Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Consult a physician if necessary.

Most important symptoms and effects, both acute and delayed**Symptoms**

Mild eye irritation

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Mild skin irritation
May cause methemoglobinemia and cyanosis
May cause metabolic acidosis
Dyspnea (Difficulty breathing and shortness of breath)

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically.

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media:

Water. CO2 may be of no value in extinguishing fires involving oxidizers and may only provide limited control.

Unsuitable Extinguishing Media:

Dry chemical. Foam. Halons.

Specific hazards arising from the chemical

Hazardous Combustion Products:

No information available.

Specific hazards:

Oxidizer. Keep away from combustible materials (wood, paper, oil, clothing, etc.). The product is not flammable, but it may cause fire when in contact with other material. Contact with combustible or organic materials may cause fire. Will accelerate burning when involved in a fire. Container explosion may occur under fire conditions or when heated.

Special Protective Actions for Firefighters

Specific Methods:

For large fires, flood fire area with water from a distance. Cool affected containers with flooding quantities of water. Do not get water inside containers. DO NOT use combustible materials such as sawdust.

Special Protective Equipment for Firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Remove all sources of ignition. Keep combustibles (wood, paper, oil, clothing, etc.) away from spilled material.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up Sweep up and shovel into suitable containers for disposal. Do not use combustible materials such as paper towels, sawdust, clothing, etc. to clean up spill. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep away from combustible material. Do not ingest. Do not breathe dust. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:

Deliquescent. Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store in a segregated and approved area. Do not store near combustible materials. Store away from incompatible materials.

Incompatible Materials:

Reducing agents
Combustible materials
Organic materials
Powdered metals
Ammonia
Hydrazine

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	CAS-No.	OSHA	NIOSH	ACGIH	AIHA WEEL
Calcium Nitrate, Tetrahydrate	13477-34-4	None	None	None	None

Canada

Components	CAS-No.	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
Calcium Nitrate, Tetrahydrate	13477-34-4	None	None	None	None

Australia and Mexico

Components	CAS-No.	Australia	Mexico
Calcium Nitrate, Tetrahydrate	13477-34-4	None	None

Appropriate engineering controls

Engineering measures to reduce exposure:

Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Goggles

Skin and body protection: Chemical resistant apron
Long sleeved clothing
Gloves

Respiratory protection: Wear respirator with dust filter.

Hygiene measures: Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:

Solid

Appearance:

Crystals. Crystalline. Granular.

Color:

White.

Odor:

Odorless.

Taste

No information available.

Formula:

Ca(NO₃)₂·4H₂O

Molecular/Formula weight (g/mole):

236.15

Flammability:

No information available

Flashpoint (°C/°F):

No information available.

Flash Point Tested according to:

Not available

Autoignition Temperature (°C/°F):

No information available

Lower Explosion Limit (%):

No information available

Upper Explosion Limit (%):

No information available

Melting point/range(°C/°F):

42-45 °C/107.6-113 °F

Decomposition temperature(°C/°F):

No information available

Boiling point/range(°C/°F):

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No information available

Bulk density:
No information available

Density (g/cm³):
No information available

Specific gravity:
1.82

pH:
No information available

Vapor pressure @ 20°C (kPa):
No information available

Evaporation rate:
No information available

Vapor density:
No information available

VOC content (g/L):
No information available

Odor threshold (ppm):
No information available

**Partition coefficient
(n-octanol/water):**
No information available

Viscosity:
No information available

Miscibility:
No information available

Solubility:
Soluble in Water

10. STABILITY AND REACTIVITY

Reactivity

Reacts with reducing agents

Reactive with metals

Contact with combustible materials (wood, paper, oil, clothing, etc.) may cause fire

It may be a fire risk in contact with organic materials

Chemical stability

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Avoid dust formation. Contact with combustible materials (wood, paper, oil, clothing, etc.). Exposure to moist air. Incompatible materials.

Incompatible Materials:
Reducing agents
Combustible materials
Organic materials
Powdered metals
Ammonia
Hydrazine

Hazardous decomposition products: Nitrogen oxides (NO_x). Calcium oxides.

Other Information

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Ingestion. Inhalation.

Acute Toxicity

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Component Information

Calcium Nitrate, Tetrahydrate	
CAS-No.	13477-34-4

LD50/oral/rat = 3900 mg/kg Oral LD50 Rat
LD50/oral/mouse = No information available
LD50/dermal/rabbit = No information available
LD50/dermal/rat = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No information available
Other LD50 or LC50 information = No information available

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = 3900 mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = No information available

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat
VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Causes skin irritation. Mild skin irritation.

Eye Contact: Causes eye irritation. Mild eye irritation.

Inhalation May cause irritation of respiratory tract. Breathing Calcium Nitrate may irritate the nose and throat causing sneezing and coughing. High levels can interfere with the ability of the blood to carry oxygen causing headache, dizziness and a blue color to the skin and lips (cyanosis), and other symptoms of methemoglobinemia (see other symptoms under ingestion). Higher levels can cause trouble breathing, circulatory collapse and even death.

Ingestion Ingestion of large quantities may cause violent gastroenteritis with nausea, vomiting, severe abdominal pain. It may also cause colic and diarrhea. Nitrates themselves are not toxic in the amounts we normally encounter. The acute toxicity of nitrates is a result of their conversion into nitrites within the body. The nitrite acts in the blood to oxidize hemoglobin to methemoglobin which does not perform as an oxygen carrier to tissues causing Methemoglobinemia. Symptoms may include vertigo, muscular weakness, syncope, irregular pulse, convulsions, anoxia, coma, fall in blood pressure, roaring sound in the ears, a persistent

throbbing headache, generalized tingling sensation, heart palpitations, visual disturbances caused by increased intraocular tension and intracranial pressure, flushed and perspiring skin, which is later cold and cyanotic. Circulatory collapse and death may occur. Metabolic acidosis may also develop in cases of severe methemoglobinemia.

Aspiration hazard No information available.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity Prolonged exposure to small amounts may produce anemia, methemoglobinemia with attendant cyanosis and anoxia, hyperpnea and later dyspnea, and nephritis.

Sensitization: No information available.

Mutagenic Effects: No information available

Carcinogenic effects: Probably carcinogenic to humans. IARC group 2A - Listed under Nitrate or Nitrite (ingested) under conditions that result in endogenous nitrosation.

Components	CAS-No.	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Calcium Nitrate, Tetrahydrate	13477-34-4	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

ACGIH (American Conference of Governmental Industrial Hygienists)

IARC (International Agency for Research on Cancer)

NTP (National Toxicology Program)

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

Reproductive toxicity No data is available

Reproductive Effects: No information available

Developmental Effects: No information available

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available.

STOT - repeated exposure No information available.

Target Organs: Blood. Methemoglobin formation.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available.

Mobility: No information available.

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13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:

Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:

Empty containers should be taken for local recycling, recovery or waste disposal

Components	CAS-No.	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Calcium Nitrate, Tetrahydrate	13477-34-4	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No: UN1454
Proper Shipping Name: Calcium nitrate
Hazard Class: 5.1
Subsidiary Class No information available
Packing group: III
Emergency Response Guide Number 140
Marine Pollutant No data available
DOT RQ (lbs): No information available
Special Provisions 34, B120, IB8, IP3, T1, TP33
Symbol(s): No information available
Description: UN1454, Calcium nitrate, 5.1, III

TDG (Canada)

UN-No: UN1454
Proper Shipping Name: Calcium nitrate
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: III
Marine Pollutant No Information available
Description: UN1454, Calcium nitrate, 5.1, III

ADR

UN-No: UN1454
Proper Shipping Name: Calcium nitrate
Hazard Class: 5.1
Packing Group: III
Subsidiary Risk: No information available
Special Provisions 208
Description: UN1454, Calcium nitrate, 5.1, III

IMO / IMDG

UN-No: UN1454
Proper Shipping Name: Calcium nitrate
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: III

Marine Pollutant No information available
EMS: F-A
Special Provisions 208, 967
Description UN1454, Calcium nitrate, 5.1, III

RID

UN-No: UN1454
Proper Shipping Name: Calcium nitrate
Hazard Class: 5.1
Subsidiary Risk: 5.1
Packing Group: III
Special Provisions 208
Description: UN1454, Calcium nitrate, 5.1, III

ICAO

UN-No: UN1454
Proper Shipping Name: Calcium nitrate
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: III
Description: UN1454, Calcium nitrate, 5.1, III
Special Provisions A83

IATA

UN-No: UN1454
Proper Shipping Name: Calcium nitrate
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: III
ERG Code: 5L
Special Provisions No information available
Description: UN1454, Calcium nitrate, 5.1, III

15. REGULATORY INFORMATION

International Inventories

Components	CAS-No.	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
Calcium Nitrate, Tetrahydrate	13477-34-4	Not listed. It is not listed on the TSCA 8(b) Inventory since it is a hydrate. However the anhydrous form (CAS no. 10124-37-5) is listed as ACTIVE on the TSCA 8(b) Inventory	Not present	Present	Present (1)-188	Present	Present	Not present

U.S. Regulations

Calcium Nitrate, Tetrahydrate

New Jersey RTK Hazardous Substance List: sn 3722 (nitrate compounds)

New Jersey (EHS) List: SN 3722 500 lb TPQ(water dissociable, Category code N511)(Nitrate compounds)

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California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.**Chemicals Known to the State of California to Cause Cancer:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	CAS-No.	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Calcium Nitrate, Tetrahydrate	13477-34-4	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CAS-No.	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Calcium Nitrate, Tetrahydrate	13477-34-4	None	None	None	Nitrate compounds, water dissociable	1%

U.S. TSCA

Components	CAS-No.	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Calcium Nitrate, Tetrahydrate	13477-34-4	Not Applicable	Not Applicable

Canada**WHMIS 2015 - GHS Classifications**

WHMIS 2015 Hazard Classification Information:

The WHMIS 2015 classification of this product has not been validated or reviewed yet.

Canada Hazardous Products Regulation This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

Inventory

Components	CAS-No.	Canada (DSL)	Canada (NDSL)
Calcium Nitrate, Tetrahydrate	13477-34-4	Not Listed	Not Listed

Components	CAS-No.	CEPA Schedule I - Toxic Substances
Calcium Nitrate, Tetrahydrate	13477-34-4	Not listed
Components	CAS-No.	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Calcium Nitrate, Tetrahydrate	13477-34-4	Not listed

EU Classification**EU GHS - SV - CLP 1272/2008**

Components	CAS-No.	EU GHS - SV - CLP (1272/2008)
Calcium Nitrate, Tetrahydrate	13477-34-4	No information

EU - CLP (1272/2008)

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R-phrase(s)

R 8 - Contact with combustible material may cause fire.

S -phrase(s)

S17 - Keep away from combustible material.

Components	CAS-No.	Classification	Concentration Limits:	Safety Phrases
Calcium Nitrate, Tetrahydrate	13477-34-4		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:

O - Oxidising.

O

**16. OTHER INFORMATION**

Preparation Date: 4/7/2014
Revision Date: 10/22/2018
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet