

# Safety Data Sheet

Calcium Nitrate Tetrahydrate

MRD-210

## \*\*\* Section 1 - Chemical Product and Company Identification \*\*\*

### Product Identifier:

Calcium Nitrate Tetrahydrate

### Chemical Name

Inorganic Nitrate Solution

### Recommended Use

Various Industrial Applications

### Manufacturer Information

MINERAL RESEARCH & DEVELOPMENT  
5910 Pharr Mill Road  
Harrisburg, NC 28075

Phone: 704-454-4811  
FAX: 704-454-7390  
CHEMTREC: (800) 424-9300  
US and Canadian Shipping Only- 1-703-527-3887

### General Comments

NOTE: Emergency telephone numbers are to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to customer service.

## \*\*\* Section 2 - Hazard Identification \*\*\*

### GHS Classification

Serious Eye Damage/Eye Irritation - Category 2A  
Skin corrosion/irritation - Category 2  
Acute toxicity - Oral - Category 4  
Acute toxicity - Inhalation - Category 4

### GHS Label Elements

#### Symbol(s)



#### Signal Word -

Warning

### Hazard Statements

Harmful if swallowed.  
Harmful if inhaled.  
Causes skin irritation.  
Causes serious eye irritation.

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## Precautionary Statements

### Prevention

Wear protective gloves/protective clothing/eye protection/face protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area.

### Response

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

IF ON SKIN (OR HAIR): Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention.

IF INHALED: If inhaled, remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

IF SWALLOWED: Rinse mouth. Do not induce vomiting. Immediately call a POISON CENTER or doctor/physician.

### Storage

Store locked up.

### Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

## \*\*\* Section 3 - Composition / Information on Ingredients \*\*\*

CAS #	Component	Percent
13477-34-4	Calcium Nitrate Tetrahydrate	60 - 72
7732-18-5	Water	50 - 58

## Component Information/Information on Non-Hazardous Components

This product may be regulated, have exposure limits or other information identified as the following: Water  
Dissociable Nitrate Compounds

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication). This product is considered hazardous under the criteria specified in the Canadian Workplace Hazardous Materials Information System (WHMIS).

## \*\*\* Section 4 - First Aid Measures \*\*\*

## Description of Necessary Measures

### Eyes Contact

IF IN EYES: Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation occurs: Get medical advice/attention.

### Skin Contact

IF ON SKIN (or hair): Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention.

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## Ingestion

IF SWALLOWED: If material is ingested, immediately contact a physician or poison control center. Give one to two glasses of water or milk. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to a victim who is unconscious or is having convulsions.

## Inhalation

IF INHALED: If inhaled, immediately remove the affected person to fresh air. If the affected person is not breathing, apply artificial respiration. If irritation persists get medical attention.

## Notes to Physician

Provide general supportive measures and treat symptomatically.

### \*\*\* Section 5 - Fire Fighting Measures \*\*\*

#### General Fire Hazards

This product is an aqueous solution which will not burn. However, if evaporated to dryness this product is an oxidizer and can sustain combustion.

#### Hazardous Combustion Products

Decomposition may yield calcium compounds and oxides of nitrogen.

#### Extinguishing Media

Dry chemical, foam, carbon dioxide, water fog.

#### Fire Fighting Equipment/Instructions

Fire fighters should wear full-face, self-contained breathing apparatus and impervious protective clothing. Fire fighters should avoid inhaling any combustion products.

#### NFPA Ratings: Health: 2 Fire: 0 Reactivity:

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe



### \*\*\* Section 6 - Accidental Release Measures \*\*\*

#### Containment Procedures

Stop the flow of material, if this is without risk. Wear appropriate protective equipment and clothing during clean up. Contain the discharged material and dike the spilled material where possible. Prevent entry into sewers, drains, underground or confined spaces, water intakes and waterways. Avoid contact with combustible materials.

#### Clean-Up Procedures

Absorb spill with inert material such as: lime, polypads, or other suitable absorbent material. Shovel the absorbed material into appropriate container for disposal.

#### Evacuation Procedures

Isolate area. Keep unnecessary personnel away.

#### Special Procedures

Isolate exposure. Wear appropriate personal protective equipment. Follow all Local, State, Federal and Provincial regulations for disposal.

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## \*\*\* Section 7 - Handling and Storage \*\*\*

### Handling Procedures

Open container carefully, as needed to relieve any build-up of pressure. Do not get this material in your eyes, on your skin, or on your clothing. Do not inhale vapors or mists of this product. Use this product with adequate ventilation. Wash thoroughly after handling.

### Storage Procedures

Store in a cool, dry area. Do not freeze. Store away from direct sunlight and any sources of heat. Empty product containers may contain product residue. Do not reuse empty containers. Do not store this material in open or unlabeled containers.

## \*\*\* Section 8 - Exposure Controls / Personal Protection \*\*\*

### Component Exposure Limits

ACGIH, OSHA, and NIOSH have not development exposure limits for this product's components.

### Engineering Controls

Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

### PERSONAL PROTECTIVE EQUIPMENT

#### Personal Protective Equipment: Eyes/Face

Wear safety glasses; chemical goggles (if splashing is possible).

#### Personal Protective Equipment: Skin

Use impervious gloves. Use of an impervious apron is recommended.

#### Personal Protective Equipment: Respiratory

Respiratory protection; not normally required for ambient air concentrations not exceeding the Occupational Exposure Limit. If ventilation is not sufficient to effectively prevent buildup of vapors or mists, appropriate approved NIOSH respiratory protection must be provided. Respirators should be selected by and used under the direction of a trained health and safety professional following the requirements found in OSHA's respirator standard (29 CFR 1901.134) and ANSI's standard for respiratory protection (Z88.2-1992), applicable U.S. regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of Canadian Provinces. A written respiratory protection program, including provisions for medical certification, training, fit-testing, exposure assessments, maintenance, inspection, cleaning, and convenient, sanitary storage, must be implemented.

#### Personal Protective Equipment: General

Eyewash fountains and emergency showers are required. An emergency spill response will necessitate the use of more stringent personal protective equipment.

## \*\*\* Section 9 - Physical & Chemical Properties \*\*\*

**Appearance:** Colorless liquid  
**Physical State:** Liquid  
**Vapor Pressure:** Not available  
**Vapor Density:** Not available

**Odor:** None  
**Odor Threshold:** Not Applicable  
**pH:** 3.0 - 8.0  
**Specific Gravity:** 1.4 - 1.5 @ 59°F (15°C)

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<b>Boiling Point / Boiling Range:</b>	212 °F (100 °C)	<b>Evaporation Rate:</b>	Not available
<b>Melting Point / Freezing Point:</b>	Not available / Not available	<b>Relative Density:</b>	Not available
<b>Solubility (H<sub>2</sub>O):</b>	Complete	<b>Auto-ignition Temperature:</b>	Not available
<b>Flash Point:</b>	Not Flammable	<b>Decomposition Temperature:</b>	Not available
<b>Upper Flammable Limit (UFL):</b>	Not Applicable	<b>Lower Flammable Limit (LFL):</b>	Not Applicable
<b>Viscosity:</b>	Not available	<b>Partition Coefficient (n-octanol / water):</b>	Not available
<b>Flammability:</b>	Not available		

### \*\*\* Section 10 - Chemical Stability & Reactivity Information \*\*\*

#### Chemical Stability

This is a stable material.

#### Chemical Stability: Conditions to Avoid

Avoid contact with extreme heat and incompatible materials.

#### Incompatibility

This product is incompatible with flammable and combustible materials, strong reducing agents and finely powdered metals.

#### Hazardous Decomposition

Decomposition may yield calcium compounds and oxides of nitrogen.

#### Hazardous Polymerization

Will not occur.

### \*\*\* Section 11 - Toxicological Information \*\*\*

#### Acute Toxicity

This product may be harmful or fatal if swallowed. This product is irritating to the eyes, respiratory system and skin. The nitrate component of this product may cause methemoglobinemia upon ingestion characterized by cyanosis, headache, dizziness, fatigue, nausea, vomiting, drowsiness, stupor, coma and rarely death.

#### Component Analysis - LD50/LC50

**Calcium Nitrate Tetrahydrate (13477-34-4)**

Oral LD50 Rat: 3900 mg/kg

#### Information on Likely Routes of Exposure

##### Inhalation

This product is irritating to the respiratory system. Inhalation of vapors or mists of the product can cause sneezing, coughing and difficulty breathing.

##### Ingestion

This product may be harmful or fatal if swallowed. If ingested, this product will immediately cause burns to the mouth, throat, esophagus and possibly the digestive tract. Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea. This product may cause methemoglobinemia upon ingestion characterized by cyanosis, headache, dizziness, fatigue, nausea, vomiting, drowsiness, stupor, coma and rarely death.

##### Skin Contact

This product is irritating to the skin. Depending on the duration of contact, symptoms will include reddening, discomfort, irritation, and possible tissue damage.

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## Eye Contact

Contact with the eyes can cause moderate irritation. Symptoms may include discomfort or pain and redness. Severe over exposure can result in swelling of the conjunctiva along with tissue damage which may lead to blindness.

## Immediate Effects

Eye irritation and respiratory irritation.

## Delayed Effects

Repeated skin contact with this material may produce dermatitis.

## Medical Conditions Aggravated by Exposure

Pre-existing eye, skin and/or respiratory tract conditions.

## Irritation/Corrosivity Data

Respiratory tract irritation, skin irritation, eye irritation.

## Respiratory Sensitization

No data available.

## Dermal Sensitization

No data available for the mixture

## Germ Cell Mutagenicity

No data available for the mixture.

## Carcinogenicity

### Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

## Reproductive Toxicity

No data available for the mixture.

## Specific Target Organ Toxicity - Single Exposure

No information available.

## Specific Target Organ Toxicity - Repeated Exposure

No information available.

## Aspiration Hazard

No information available.

### \*\*\* Section 12 - Ecological Information \*\*\*

## Ecotoxicity

### A: General Product Information

In high concentrations, this product may be harmful to both terrestrial and aquatic plant life.

### B: Component Analysis - Ecotoxicity - Aquatic Toxicity

No ecotoxicity data are available for this product's components.

## Environmental Fate

Based on the physical properties of this product, significant environmental persistence and bioaccumulation would not be expected.

### \*\*\* Section 13 - Disposal Considerations \*\*\*

## US EPA Waste Number & Descriptions

### General Product Information

Wastes must be tested using methods described in 40 CFR Part 261 to determine if it meets applicable definitions

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of hazardous wastes. No EPA Waste Numbers have been assigned for this product's components.

## Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

### \*\*\* Section 14 - Transportation Information \*\*\*

## US DOT Information

**Shipping Name:** Not regulated as a hazardous material for transportation in current form.

## Canada Transportation of Dangerous Goods Information

**Shipping Name:** Not regulated as a hazardous material for transportation in current form.

## International Maritime Dangerous Goods

**Shipping Name:** Not regulated as a hazardous material for transportation in current form.

### \*\*\* Section 15 - Regulatory Information \*\*\*

## US Federal Regulations

### Component Analysis

This material contains one or more of the following chemicals required to be identified under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65) and/or CERCLA (40 CFR 302.4).

#### Calcium Nitrate Tetrahydrate (13477-34-4)

SARA 313: form R reporting required for 1.0% de minimis concentration; Chemical Category N511 (related to Water Dissociable Nitrate Compounds)

**SARA 311/312:** Acute Health Yes Chronic Health No Fire No Pressure No Reactive No

## Federal Insecticide, Fungicide, and Rodenticide Act

No information is available.

## State Regulations

### General Product Information

Other state regulations may apply. Check individual state requirements.

### Component Analysis - State

None of this product's components are listed on the state lists from CA, FL, MA, MN, NJ, or PA.

## Component Analysis - WHMIS IDL

Components of this material have been checked against the Canadian WHMIS Ingredients Disclosure List. The List is composed of chemicals which must be identified on MSDSs if they are included in products which fall under WHMIS criteria specified in the Controlled Products Regulations and present above the threshold limits listed on the IDL. No components are listed in the WHMIS IDL.

## WHMIS Classification

C, D2B

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## Additional Regulatory Information

### A: General Product Information

Calcium Nitrate Tetrahydrate is a hydrate of an anhydrous form that is on the US TSCA and Canadian DSL inventories, and can be referenced under the parent compound name.

### B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	NDSL	EINECS	AU	MITI	PH	KR	ELINCS	CN
Calcium Nitrate Tetrahydrate	13477-34-4	Yes	Yes	No	No	Yes	Yes	Yes	No	No	Yes
Water	7732-18-5	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes

### \*\*\* Section 16 - Other Information \*\*\*

## Summary of Changes

New SDS: 08/14/2014 v1.0; Revised 05/26/2015 v1.5

## Key / Legend

**ACGIH** = American Conference of Governmental Industrial Hygienists; **AU** = Australia; **BOD** - Biochemical Oxygen Demand; **C** - Celsius; **CA** - Canada; **CAS** = Chemical Abstracts Service; **CERCLA** = Comprehensive Environmental Response, Compensation, and Liability Act; **CFR** = Code of Federal Regulations; **CN** = China; **CPR** = Controlled Products Regulations; **DOT** = Department of Transportation; **DSL** = Domestic Substances List; **EINECS** = European Inventory of Existing Commercial Chemical Substances; **ELINCS** = European List of Notified Chemical Substances; **EmS** = Emergency Response Procedures for Ships Carrying Dangerous Goods; **EPA** = Environmental Protection Agency; **EU** = European Union; **F** - Fahrenheit; **HEPA** = High Efficiency Particulate Air; **HMIS** = Hazardous Material Information System; **HPV** – High Production Volume Chemical (EU); **IARC** = International Agency for Research on Cancer; **IATA** = International Air Transport Association; **ICL** – In Commerce List (Canada); **IDL** - Ingredient Disclosure List; **IDLH** - Immediately Dangerous to Life and Health; **JP** = Japan; **KR** = Korea; **LEL** - Lower Explosive Limit; **MITI** = Japan Ministry of International Trade and Industry; **mg/Kg** = milligrams per Kilogram; **mg/L** = milligrams per Liter; **mg/m<sup>3</sup>** = milligrams per Cubic Meter; **MSHA** = Mine Safety and Health Administration; **NA** = Not Applicable or Not Available; **NFPA** = National Fire Protection Association; **NIOSH** = National Institute for Occupational Safety and Health; **NJTSR** = New Jersey Trade Secret Registry; **NDSL** = Non-Domestic Substances Inventory; **NTP** = National Toxicology Program; **NZ** = New Zealand; **OSHA** = Occupational Safety and Health Administration; **PH** = Philippines; **RCRA** = Resource Conservation & Recovery Act; **RQ** = Reportable Quantity; **SARA** = Superfund Amendments and Reauthorization Act; **STEL** = Short Term Exposure Limit; **TDG** = Transport Dangerous Goods; **TSCA** = Toxic Substances Control Act; **TWA** - Time Weighted Average; **UEL** - Upper Explosive Limit; **US** - United States; **WHMIS** = Workplace Hazardous Materials Information System.

## Other Information

Disclaimer: Supplier gives no warranty of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser will make his own tests to determine the quality and suitability of the product. Supplier expressly disclaims any and all liability for incidental and/or consequential property damage arising out of the use of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights. Read the Safety Data Sheet before handling product.

End of Sheet MRD-210