

Safety Data Sheet

CALCIUM NITRITE SOLUTION

MRD-223

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

Chemical Name:

Inorganic Nitrite Solution

Product Use:

Corrosion Inhibitor

Manufacturer Information

Mineral Research and Development
5910 Pharr Mill Road
Harrisburg, NC 28075

Phone: 800-454-4805
Fax: 704-455-6507
CHEMTREC 1-800-424-9300
US and Canadian Shipment 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 - Hazards Identification ***

GHS Classification

Eye Damage/Irritation, Category 2B
Acute Toxicity – Oral, Category 4

GHS Label Elements

Symbol(s)



Signal Word

WARNING

Hazard Statements

Causes eye irritation.
Harmful if swallowed.

Precautionary Statements

Prevention

Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do not eat, drink or smoke when using this product.

Response

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

IF ON SKIN (OR HAIR): Wash with plenty of soap and water. Take off contaminated clothing and wash it before

Safety Data Sheet

CALCIUM NITRITE SOLUTION

MRD-223

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. Give one to two glasses of water or milk. 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
7732-18-5	Water	60-65
13780-06-8	Nitrous acid, calcium salt	30 - 35
10124-37-5	Calcium nitrate	<5

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Nitrous acid salts, Water Dissociable Nitrate Compounds, Nitrates, inorganic, n.o.s., Nitrate compounds.

Component Information/Information on Non-Hazardous Components

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. Have contaminated individual "roll" their eyes. Seek medical attention at once.

Skin Contact

IF ON SKIN (or hair): For skin contact, wash immediately with soap and water. If irritation persists get medical attention.

Ingestion

IF SWALLOWED: 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: 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.

Safety Data Sheet

CALCIUM NITRITE SOLUTION

MRD-223

*** 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: 0

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.

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.

*** 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.

Special Precautions

Do not mix directly with acidic materials. Do not mix directly with concrete admixtures. Hazardous gas may form.

Safety Data Sheet

CALCIUM NITRITE SOLUTION

MRD-223

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

General Product Information

Keep formation of airborne mists to a minimum.

The addition of amines to this product may form cancer-causing nitrosamines. Direct contact with concrete admixtures, washwater, and other materials causing the pH to fall below specification can result in the formation of NO_x gas, creating a hazardous situation. Exposure to NO_x gas can cause eye and respiratory irritation, central nervous system or cardiovascular system issues, or death. This hazard is not likely to exist when mixed with concrete already containing admixtures.

Component Exposure Limits

ACGIH, OSHA, NIOSH or the provinces of Canada have not developed exposure limits for any of this product's components.

Engineering Controls

Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapors or mists generated from the handling of this product.

PERSONAL PROTECTIVE EQUIPMENT

Personal Protective Equipment: Eyes/Face

Wear chemical goggles and face shield.

Personal Protective Equipment: Skin

Wear impervious (neoprene) gloves, impervious apron.

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

Eye wash fountain and emergency showers are recommended. An emergency spill response will necessitate the use of more stringent personal protective equipment.

PPE Pictogram:



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

Appearance: Clear, light-yellow to colorless solution

Odor: Slight sweet

Safety Data Sheet

CALCIUM NITRITE SOLUTION

MRD-223

Physical State:	Liquid	Odor Threshold:	Not Applicable
Vapor Pressure:	Not available	pH:	8.0 - 9.5
Vapor Density:	1.0	Specific Gravity:	1.27 - 1.33
Boiling Point / Boiling Range:	Approx. 226°F (108°C)	Evaporation Rate:	0.16 (n-BuAc=1)
Melting Point / Freezing Point:	Not available / Not available	Relative Density:	Not available
Solubility (H₂O):	Complete (100%)	Auto-ignition Temperature:	Not available
Flash Point:	> 200°F (>93°C)	Decomposition Temperature:	Not available
Upper Flammable Limit (UFL):	Not Applicable	Lower Flammable Limit (LFL):	Not Applicable
Viscosity:	Not available	Partition Coefficient (n-octanol / water):	Not available
Flammability:	Not available		

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

Chemical Stability

Stable under normal conditions.

Chemical Stability: Conditions to Avoid

Avoid contact with extreme heat and incompatible materials.

Incompatibility

Ammonium salts, activated carbon, reducing agents, cyanides. Residue would be incompatible with combustible materials.

Hazardous Decomposition

Decomposition may yield calcium compounds and oxides of nitrogen.

Possibility of Hazardous Reactions

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.

This product has been tested for oral toxicity: LD50 (Oral-Rat) 940 mg/kg

Component Analysis - LD50/LC50

Water (7732-18-5)

Oral LD50 Rat: >90 mL/kg

Calcium nitrate (10124-37-5)

Oral LD50 Rat: 302 mg/kg

Information on Likely Routes of Exposure

Inhalation

Inhalation of vapors or mists of the product can cause sneezing, coughing and difficulty breathing.

Safety Data Sheet

CALCIUM NITRITE SOLUTION

MRD-223

Ingestion

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.

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 skin and eye 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

Calcium nitrate (10124-37-5)

IARC: Monograph 94 posted (related to Nitrates) (Group 2A (probably carcinogenic to humans))

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 either terrestrial and aquatic plant life.

Safety Data Sheet

CALCIUM NITRITE SOLUTION

MRD-223

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Calcium nitrate (10124-37-5)

Test & Species

96 Hr LC50 *Lepomis macrochirus* 10000 mg/L

120 Hr EC50 *Daphnia magna* 2355 mg/L

Conditions

Static

Environmental Fate

No data available for this product.

*** Section 13 - Disposal Considerations ***

US EPA Waste Number & Descriptions

A: General Product Information

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

B: Component Waste Numbers

No EPA Waste Numbers are applicable 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: This product is not regulated as a hazardous material for transportation.

Canada Transportation of Dangerous Goods Information

Shipping Name: This product is not regulated as a hazardous material for transportation.

*** 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 (10124-37-5)

SARA 313: 1.0 % de minimis concentration (reportable only when in aqueous solution, Chemical Category N511) (related to Nitrate Compounds, water dissociable)

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

State Regulations

A: General Product Information

Other state regulations may apply. Check individual state requirements.

B: Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Calcium nitrate	10124-37-5	No	No	No	Yes	No	No

Safety Data Sheet

CALCIUM NITRITE SOLUTION

MRD-223

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. None of the components are listed on the IDL.

WHMIS Classification

C, D2B

Additional Regulatory Information

A: General Product Information

No additional information available.

B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	NDSL	EINECS	AU	MITI	PH	KR	ELINCS	CN
Water	7732-18-5	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes
Nitrous acid, calcium salt	13780-06-8	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
Calcium nitrate	10124-37-5	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes

*** Section 16 – Other Information ***

Summary of Changes

New SDS: 07/24/2014 v1.0; Revised 04/20/2015 v1.5; Revised 03/10/2017 v2.0 – Update Section 7 and Section 8

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/m³** = 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

Safety Data Sheet

CALCIUM NITRITE SOLUTION

MRD-223

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-223