

Safety Data Sheet

Zinc Nitrate Solution 50%

MRD-227

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

Product Identifier:

Zinc Nitrate Solution 50%

Chemical Name

Zinc 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

Skin Corrosion/Irritation, Category 2
Serious Eye Damage/ Eye Irritation, Category 2B
Oxidizing Liquids, Category 2
Specific target organ toxicity - Single exposure, Category 3
Acute Toxicity - Oral, Category 4

GHS Label Elements

Symbol(s)



Signal Word -

Danger

Hazard Statements

Harmful if swallowed
Causes skin irritation.
Causes eye irritation.
May cause respiratory irritation.

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May intensify fire; oxidizer.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep/Store away from clothing/combustible materials. Wear protective gloves/protective clothing/eye protection/face protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Do not eat, drink or smoke when using this product. Take any precaution to avoid mixing with combustibles.

Response

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

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If symptoms persist: Get medical advice/attention.

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 or doctor/physician.

Storage

Store in a well-ventilated place. Keep container tightly closed. 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	50
7779-88-6	Zinc nitrate	50

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

Eye Contact

IF IN EYES: Immediately flush eyes with large amounts of water, continuing to flush for 15 minutes. Have contaminated individual "roll" their eyes. Seek immediate medical attention.

Skin Contact

IF ON SKIN (or hair): Immediately take off all contaminated clothing. For skin contact, flush with large amounts of water. If irritation persists, get medical 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: Move person to non-contaminated air. Call a physician if symptoms develop or persist.

Notes to Physician

Provide general supportive measures and treat symptomatically.

*** Section 5 - Fire Fighting Measures ***

General Fire Hazards

This product is an aqueous mixture, which will not burn. If evaporated to dryness, the solid residue may pose a slight fire hazard. This product is an oxidizing agent, which may cause spontaneous ignition of combustible materials.

Hazardous Combustion Products

Decomposition may yield zinc 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. 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

Follow all Local, State, Federal and Provincial regulations for disposal.

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*** Section 7 - Handling and Storage ***

Handling Procedures

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. Do not pressurize, cut, heat or weld containers. Empty product containers may contain product residue. Do not reuse empty 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

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.

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

Appearance:	Colorless	Odor:	odorless
Physical State:	Liquid	Odor Threshold:	Not available
Vapor Pressure:	Not available	pH:	2.8 - 3.0 @ 59°F (15°C)
Vapor Density:	Not Determined	Specific Gravity:	1.58 - 1.60 @ 15°C (59°F)
Boiling Point / Boiling Range:	>212 °F (>100 °C)	Evaporation Rate:	Not available
Melting Point / Freezing Point:	Not available	Relative Density:	Not available
Solubility (H₂O):	Complete	Auto-ignition Temperature:	Not available
Flash Point:	Not Flammable	Decomposition Temperature:	Not available
Upper Flammable Limit (UFL):	Not Applicable	Lower Flammable Limit (LFL):	Not Applicable

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Viscosity: Not available
Flammability: Not available

Partition Coefficient (n-octanol / water): Not available

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

Chemical Stability

Stable under normal conditions.

Chemical Stability: Conditions to Avoid

Avoid exposure to extreme temperatures and contact with incompatible chemicals.

Incompatibility

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

Hazardous Decomposition

Decomposition may yield zinc compounds and oxides of nitrogen.

Hazardous Polymerization

Will not occur.

*** Section 11 - Toxicological Information ***

Acute Toxicity

This product is irritating to the eyes, respiratory system and skin. This product is an aqueous solution, which will not burn. 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

No LD50/LC50's are available for this product's components.

Information on Likely Routes of Exposure

Skin

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 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.

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. A component of this product may cause methemoglobinemia upon ingestion characterized by cyanosis, headache, dizziness, fatigue, nausea, vomiting, drowsiness, stupor, coma and rarely death.

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Inhalation

This product is irritating to the respiratory system. Inhalation of vapors or mists of the product can cause sneezing, coughing and difficulty breathing. Excessive inhalation of this product may cause a metallic taste in the mouth along with tissue damage to the respiratory system.

Immediate Effects

Skin and eye irritation/damage.

Delayed Effects

Repeated skin overexposures can result in dermatitis (inflammation and reddening of the skin).

Medical Conditions Aggravated by Exposure

Pre-existing skin and eye conditions.

Respiratory Sensitization/Skin Sensitization

No information available for the product.

Mutagenicity

No information available for the product.

Carcinogenicity

No information available for the product.

Component Carcinogenicity

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

Reproductive Toxicity

No information available for the product.

Specified Target Organ Toxicity: Single Exposure

May cause irritation to upper and lower respiratory tract.

Specified Target Organ Toxicity: Repeated Exposure

No information available for the product.

Aspiration Hazard

No information available for the product.

*** Section 12 - Ecological Information ***

Ecotoxicity

A: General Product Information

In high concentrations, this product may be dangerous to aquatic life and fouling to shorelines.

Zinc nitrate (7779-88-6)

Test & Species		Conditions
LC50 (96 hr) rainbow trout (juvenile)	0.43 mg/L.	Flow-through, soft water.
LC50 (96 hr) rainbow trout (juvenile)	1.2-7.2 mg/L.	Flow-through, hard water.
LC50 (96 hr) fathead minnow	0.1-7.2 mg/L.	
LC50 (96 hr) bluegill	0.1-7.2 mg/L.	

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.

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*** 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. As packaged this product is a D001 ignitable waste [40 CFR 261.21(a)(4)]; applicable to wastes consisting only of this product.

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: Zinc nitrate solution

UN/NA #: UN1514 **Hazard Class:** 5.1 **Packing Group:** II

Required Label(s): OXIDIZER

ERG: #140



Canada Transportation of Dangerous Goods Information

Shipping Name: Zinc nitrate solution

UN/NA #: UN1514 **Hazard Class:** 5.1 **Packing Group:** II

Required Label(s): OXIDIZER



International Maritime Dangerous Goods Information

Shipping Name: Zinc nitrate solution

UN/NA #: UN1514 **Hazard Class:** 5.1 **Packing Group:** II

Required Label(s): OXIDIZER

ERP: F-H, S-Q



*** 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).

Zinc nitrate (7779-88-6)

SARA 313: form R reporting required for 1.0% de minimis concentration; Chemical Category N982 (related to Zinc compounds)

CERCLA: final RQ = 1,000 pounds (454 kg)

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

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Federal Insecticide, Fungicide, and Rodenticide Act

No information is available.

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	FL	MA	MN	NJ	PA
Zinc nitrate	7779-88-6	Yes	No	Yes	No	Yes	Yes

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

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
Zinc nitrate	7779-88-6	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes

* * * Section 16 - Other Information * * *

Summary of Changes

New SDS: 12/19/2014 v1.0; Revised 04/19/2018 v1.6

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**

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= 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; **NJTSSR** = 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-227