

# Safety Data Sheet

Manganese Nitrate Solution

MRD-214

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

### Product Identifier:

Manganese Nitrate Solution

### 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

Oxidizing Liquids- Category 3

Skin Corrosion/Irritation- Category 2

Serious Eye Damage/Eye Irritation- Category 1

Specific Target Organ Toxicity- Single Exposure- Category 3

Hazardous to aquatic environment - chronic hazard - Category 3

### GHS Label Elements

#### Symbol(s)



#### Signal Word -

Warning

### Hazard Statements

May intensify fire, oxidizer.

Causes mild skin irritation.

Causes serious eye irritation.

May cause respiratory irritation.

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## 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.

### Response

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.  
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.  
If skin irritation occurs: Get medical advice/attention. Call a POISON CENTER or doctor/physician if you feel unwell. In case of fire: Use appropriate media for extinction.

### Storage

Store in a well-ventilated place. Keep container tightly. 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
10377-66-9	Manganese nitrate	45-55
7732-18-5	Water	Balance

## Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: Manganese (7439-96-5), Manganese compounds, n.o.s., Manganese compounds, inorganic, Manganese inorganic salts, Water Dissociable Nitrate Compounds.

## Component Information/Information on Non-Hazardous Components

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

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

### Description of Necessary Measures

#### First Aid: Eyes

In case of contact, immediately flush eyes with large amounts of water, continuing to flush for 15 minutes. Have contaminated individual "roll" their eyes. Seek immediate medical attention.

#### First Aid: Skin

Immediately take off all contaminated clothing. For skin contact, flush with large amounts of water. If irritation persists, get medical attention.

#### First Aid: Ingestion

Do not induce vomiting. Call a physician immediately.

#### First Aid: Inhalation

Move person to non-contaminated air. Call a physician if symptoms develop or persist.

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## First Aid: 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 of this product may produce acid vapors, manganese compounds, and oxides of nitrogen.

#### Extinguishing Media

Use any media suitable for the surrounding fires.

#### 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. Shovel 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.

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

#### Handling Procedures

Do not get this material in your eyes, on your skin, or on your clothing. Avoid breathing vapors or mists of this product. Wash thoroughly after handling. Do not eat, drink or use tobacco products when handling this material. Use this product with adequate ventilation. Launder work clothes frequently. See Section 8 for appropriate protective clothing, equipment and air monitoring procedures.

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Open containers slowly, on a stable surface. Containers of this product must be properly labeled. Empty containers may contain residual liquid or vapors. Empty containers should be handled with care.

## Storage Procedures

Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials (see SECTION 10: Stability and Reactivity). Material should be stored in secondary containers, or in a diked area, as appropriate. Keep container tightly closed when not in use. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.

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

### Component Exposure Limits

#### Manganese Nitrate (10377-66-9)

ACGIH:	0.2 mg/m <sup>3</sup> TWA
OSHA Vacated:	1 mg/m <sup>3</sup> TWA (fume), 5 mg/m <sup>3</sup> Ceiling
OSHA Final:	5 mg/m <sup>3</sup> Ceiling (fume)
NIOSH:	1 mg/m <sup>3</sup> TWA (fume) 3 mg/m <sup>3</sup> STEL

### 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. When respiratory protection is required, wear a NIOSH/MSHA approved self-contained breathing apparatus with full-face piece operated in a positive-pressure mode. If ventilation is not sufficient to effectively prevent buildup of vapors or mists, appropriate approved NIOSH respiratory protection must be provided (i.e. air-purifying respirator with an ammonia cartridge). 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 \* \* \*

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<b>Appearance:</b>	Light pink to light orange	<b>Odor:</b>	odorless
<b>Physical State:</b>	liquid	<b>Odor Threshold:</b>	Not Applicable
<b>Vapor Pressure:</b>	Not available / Not available	<b>pH:</b>	0 to 1
<b>Vapor Density:</b>	Not available / Not available	<b>Specific Gravity:</b>	1.5 to 1.65 @ 25°C (77°F)
<b>Boiling Point / Boiling Range:</b>	>100°C (>212°F) / Not available	<b>Evaporation Rate:</b>	Not available
<b>Melting Point / Freezing Point:</b>	Not available / Not available	<b>Relative Density:</b>	Not available
<b>Solubility (H2O):</b>	Soluble	<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

Stable under normal conditions.

### Chemical Stability: Conditions to Avoid

Avoid exposure to extreme temperatures, contact with incompatible chemicals, and all contact with combustible materials.

### Incompatibility

This product can act to initiate and sustain the combustion of combustible materials. This product is incompatible with water-reactive materials. Reacts violently with reducing agents.

### Hazardous Decomposition

Manganese and nitrogen oxides.

### Hazardous Polymerization

Will not occur.

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

### Acute and Chronic Toxicity

#### A: General Product Information

This product is moderately to severely irritating to contaminated tissue.

#### B: Component Analysis - LD50/LC50

##### Manganese nitrate (10377-66-9)

Oral LD50 Rat: 9 g/kg (related to Manganese)

500 mg/m<sup>3</sup> IDLH (related to Manganese)

### Carcinogenicity

#### A: General Product Information

No carcinogenicity data available for this product.

#### B: Component Carcinogenicity

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

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

### Ecotoxicity

#### A: General Product Information

In high concentrations, this product may be dangerous to aquatic life and fouling to shorelines.  
11,060 ppm/ 96 hours/ stickleback/ TLm/ tap water

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

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

### Environmental Fate

No information available for the 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. 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:** Corrosive liquids, oxidizing, n.o.s., (Manganese nitrate solution)

**UN/NA #:** UN3093 **Hazard Class:** 8 (5.1) **Packing Group:** II

**Required Label(s):** Corrosive, Oxidizer



### Canada Transportation of Dangerous Goods Information

**Shipping Name:** Corrosive liquids, oxidizing, n.o.s., (Manganese nitrate solution)

**UN/NA #:** UN3093 **Hazard Class:** 8 (5.1) **Packing Group:** II

**Required Label(s):** Corrosive, Oxidizer

### International Maritime Dangerous Goods Information

**Shipping Name:** Corrosive liquids, oxidizing, n.o.s., (Manganese nitrate solution)

**UN/NA #:** UN3093 **Hazard Class:** 8 (5.1) **Packing Group:** II

**Required Label(s):** Corrosive, Oxidizer

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

### US Federal Regulations

#### A: General Product Information

Components of this product have been checked against the non-confidential TSCA inventory by CAS Registry Number. Components not identified on this non-confidential inventory are exempt from listing (i.e. as polymers) or are listed on the confidential inventory as declared by the supplier.

#### B: 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).

##### Manganese nitrate (10377-66-9)

SARA 313: 1.0 % de minimis concentration (related to Manganese)  
1.0 % de minimis concentration (Chemical Category N511) (related to Water Dissociable Nitrate Compounds)

#### C: Federal Insecticide, Fungicide, and Rodenticide Act

No information is available.

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

### 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
Manganese nitrate (related to Manganese)	10377-66-9	Yes <sup>1</sup>	Yes	Yes <sup>1</sup>	Yes	Yes <sup>1</sup>	Yes

### Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Minimum Concentration
Manganese nitrate	10377-66-9	1 % (English Item 974, French Item 1077) (related to Manganese, elemental)

### Additional Regulatory Information

#### A: General Product Information

No additional information available.

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## B: Component Analysis - Inventory

Component	CAS #	TSCA	DSL	NDSL	EINECS	AUST	MITI	PHIL	KOREA	ELINCS	CHINA
Manganese nitrate	10377-66-9	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Water	7732-18-5	Yes	Yes	No	Yes	Yes	Yes	No	Yes	No	Yes

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

## Summary of Changes

New SDS: 08/04/2014 v.1.0; 02/19/2015 v.1.50 (hazards review)

## 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; **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-214