SAFETY DATA SHEET

MANGANESE NITRATE SOLUTION

Section 1 – Identification

Product	Manganese(II) Nitrate Solution
Manufacturer	TradeMark Nitrogen Corp.
Address	1216 Old Hopewell Road, Tampa, FL 33619
Phone	(813) 626-1181 (800) 452-3107
24 Hour Emergency Contact	Chemtrec (800) 424-9300

Recommended Use:
Used in the production of fertilizers and other chemicals.

Section 2 – Hazard Identification

Corrosive

Danger: Causes severe skin burns and eye damage.

Wear protective clothing.

Wash thoroughly after handling.

Oxidizer

Warning: May intensify fire; oxidizer

Keep away from heat. Store away from combustible materials

In case of fire: Use water to extinguish.

Respiratory Irritation

Warning: May cause respiratory irritation.

Avoid breathing vapors.

Use only in a well ventilated area.

Section 3 – Composition

Ingredients	Component	CAS. No.	Percent by Weight
	Manganese Nitrate ($Mn(NO_3)_2$)	10377-66-9	49%
	Water (H_20)	7732-18-5	51%

Section 4 – First Aid Measures

Inhalation	If inhaled: Remove person to fresh air and keep comfortable for breathing. Provide artificial respiration if necessary. Seek prompt medical attention.
Skin Contact	If on skin (or hair): Take off all contaminated clothing. Rinse skin with soap and water for at least 15 minutes.
Eye Contact	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes. Seek medical attention if irritation persists.
Ingestion	If swallowed: **Do NOT induce vomiting**. Drink large amounts of water. Never give anything by mouth to an unconscious person. Seek medical attention.
Acute Health Hazards	Harmful if swallowed or inhaled. Destructive to mucous membranes and upper respiratory tract, eyes and skin. Redness and irritation of tissue may occur.
Chronic Health Hazards	Prolonged exposure to manganese compounds may result in manganese poisoning, not usually fatal but disabling. Target organs include respiratory system, central nervous system, lungs blood and kidneys.

Section 5 – Fire Fighting Measures

Suitable Extinguishing Techniques & Equipment	Non-combustible, but can contribute to the intensity of the fire. Wear self-contained breathing apparatus and full protective gear.
Chemical hazards From Fire	Under fire conditions, this product behaves as an oxidizer. Contact with oxidizable substances may result in ignition. Violent combustion or explosion when involved in fire can occur. This material may decompose and produce acrid vapors, manganese compounds and oxides of nitrogen.

Section 5 – Fire Fighting Measures Continued

Special Fire Fighting Procedures	Use water. Do not use dry chemicals or foams. CO_2 or halon may provide limited control.
NFPA Rating	Health - 2 (Moderate), Fire - 0 (Least), Reactivity - 1 (Slight)

Section 6 – Accidental Release Measure

Personal Precautions	Prevent exposure to spilled material with the use of proper PPE.
Protective Equipment	PPE should include gloves, goggles, face shield and level C protective suit.
Containment	Control the flow of product using dikes of soil, sand bags or other commercially available inert sorbent socks or booms.
In Case of Spill	Absorb product with inert absorbent. Avoid splashing or spraying. Contain and pick up spill in diked area. Prevent discharge to sewers or water ways. If uncontaminated, recover and re-use.

Section 7 – Safe Handling and Storage

Precautions for Safe Handling and Storage	Store in a well ventilated cool place. Containers should be kept closed and labeled properly. Liquid is an oxidizer and may cause fire with combustibles.
Incompatibility	Avoid contamination with combustible materials. Keep away from fire. Extreme heat result in decomposition of material to toxic fumes of nitrogen oxides.

Section 8 – Exposure Controls / Personal Protection

Exposure Limits

Component	Permissible Exposure Limit	Threshold Limit Value	Short Term Exposure Limit	Immediately Dangerous to Life or Health
$(Mn(NO_3)_2)$	5 mg/m^3 (as Mn)[1]	0.2 mg/m^3 (TWA) [1]	N/A	500 mg/m^3 (as Mn)[2]
Water (H_20)	Not Established	Not Established	Not Established	Not Established

[1] Limits are listed under Manganese and inorganic compounds (OSHA / ACGIH).

[2] Limits are listed under Manganese compounds, N.O.S. (NIOSH)

Engineering Controls	Provide ventilation sufficient to maintain exposure below PEL/TWA/TLV. Washing facilities should be available.
Personal Protective Equipment	Eyes - Chemical safety goggles and full face shield. Hands - Impervious gloves with gauntlet. Respiratory - None required under normal conditions. Self contained respiratory equipment should be used under spill situations.


Gloves


Goggles


Face Shield


Apron

Section 9 – Physical and Chemical Properties

Appearance and Odor	Colorless to slightly pink liquid with slight nitric acid odor.						
Boiling Point	> 212°F (> 100°C) at 1 atmosphere	Specific Gravity		1.540			
Salt Out Temp	24.5°F (-4.2°C)	Molecular Weight		N/A			
Vapor Pressure	N/A	Water Reactive		N/A			
Solubility In Water	Highly Soluble	Evaporative Rate		N/A			
Density	12.84 pounds per gallon at 60°F (1.54 kg/L at 15°C)	pH		< 1.0			
Flash Point N/A	Auto Ignition Temp N/A	Flammability Limits	N/A	LEL	N/A	UEL	N/A

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Section 10 – Stability and Reactivity

Reactivity	Product may act as an oxidizer.
Stability	Product is stable under normal conditions.
Hazardous Reactions	Hazardous polymerization will not occur.
Conditions to Avoid	Elevated temperatures may cause container to rupture.
Incompatible Materials	Organic or other oxidizable materials, copper and brass.
Hazardous Decomposition Products	Extreme heat may cause decomposing to toxic fumes of nitrogen oxides.

Section 11 – Toxicology Information

Routes of Exposure	Inhalation, ingestion or skin absorption
Symptoms and Signs of Exposure	**Eyes & Skin** mild irritant. **Inhalation** of gases or mist causes irritation to the upper respiratory system, including the mucous membranes of the nose, mouth and throat. Coughing, fever, nausea, irritability, spasms, possible pneumonia, apathy, headaches, weakness and chemical burns if inhaled. I**ngestion** may cause upset stomach.
Long Term Effects	Prolonged exposure to manganese compounds may result in manganese poisoning, not usually fatal but disabling. Target organs include respiratory system, central nervous system, lungs blood and kidneys.
Toxicity	500 mg/m^3 (as Mn) is Immediately Dangerous to Life and Health (NIOSH).
Carcinogen	The International Agency for Research on Cancer has not classified manganese nitrate for its carcinogenic potential (IARC 1987).

Section 12 – Ecological Information

Water	Low concentrations are harmful to fish and other aquatic organisms.

Section 13 – Disposal Considerations

Waste	Disposal must be done in accordance with local, state and federal environmental regulations. Place waste in an appropriate container with correct labeling. EPA waste number: D001 (Ignitability).

Section 14 – Transport Information

This material is hazardous as defined by 49 CFR 172.101 by the US Department of Transportation

UN ID Number	UN 3093
Proper Shipping Name	Corrosive Liquid, Oxidizing, N.O.S. (Manganese Nitrate Solution)
Hazard Class	8 (5.1)
Packing Group	PG II
US DOT Label	Corrosive
Marine Pollutant	Dangerous to aquatic life in high concentrations.
Emergency Response Guide Number	140

Section 15 – Regulatory Information

United States - SARA Hazard Category

This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of Title III of the Superfund Amendments and Reauthorization Act (SARA) and is considered, under applicable definitions, to meet the following categories:

Fire - No	Pressure - No	Acute - No	Chronic - No

SARA Title III Information

This product contains the following substances subject to the reporting requirements of Title III (EPCRA) of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

Chemical	CAS No.	CERCLA RQ (pounds)	SARA Reporting		
			302	304	313
Manganese Nitrate	10377-66-9	N/A	No	No	Yes [1]

[1] As manganese compounds

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Section 15 – Regulatory Information Continued

CERCLA / Superfund, 40 CFR Part 117, 302	If this product contains components subject to substances designated as CERCLA reportable Quantity (RQ) Substances, it will be designated in the above table with the RQ value in pounds. If there is a release of RQ Substance to the environment, notification to the National Response Center, Washington DC (800-424-8802) is required.
TSCA	Manganese Nitrate Solution is a hydrated form of nitric acid, manganese(II) salt, which is found on the TSCA inventory list .

Section 16 – Other Information

Date of Revision	August 2014 TSCA statement revised. July 2013 revision prepared in accordance with 29 CFR 1910.1200 Appendix D to meet Global Harmonization Standards.
Disclaimer	The information contained in this SDS refers only to the specific material designated and does not relate to any process or use with any other materials. This information is furnished free of charge and is based on data believed to be accurate and reliable as of the date hereof. It is intended for use by persons possessing technical knowledge at their own discretion and risk. Since actual use is beyond our control, no warranty, expressed or implied, and no liability is assumed by TradeMark Nitrogen Corp. in conjunction with the use of this information. Nothing herein is to be construed as a recommendation to infringe any patents. TradeMark Nitrogen Corp. assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in his use of the material.