



Material Safety Data Sheet

Section 1. Product and Company Identification

Product Name Manganese Standard
1ml = 1mg in Nitric Acid **Product Code** VW3573

Manufacturer EMD Chemicals Inc.
P.O. Box 70
480 Democrat Road
Gibbstown, NJ 08027
Prior to January 1, 2003 EMD Chemicals Inc. was EM Industries, Inc. or EM Science, Division of EM Industries, Inc.

Effective Date 9/9/2004
Print Date 9/9/2004

For More Information Call

856-423-6300 Technical Service
Monday-Friday: 8:00 AM - 5:00 PM

In Case of Emergency Call

800-424-9300 CHEMTREC (USA)
613-996-6666 CANUTEC (Canada)
24 Hours/Day: 7 Days/Week

Synonym None.

Material Uses Laboratory Reagent

Chemical Family Inorganic acid solution

Section 2. Composition and Information on Ingredients

Component	CAS #	% by Weight
Manganese Sulfate	10034-96-5	0.307
Nitric Acid	7697-37-2	1
Water	7732-18-5	>99

Section 3. Hazards Identification

Physical State and Appearance Liquid.

Emergency Overview CAUTION !
CAUSES RESPIRATORY TRACT, EYE AND SKIN IRRITATION.
MAY BE HARMFUL IF INHALED OR SWALLOWED.
Irritating to mucous membranes.

Routes of Entry Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Potential Acute Health Effects

Eyes Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching.

Skin Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Inhalation Hazardous in case of inhalation (lung irritant). May be hazardous in case of inhalation.

Ingestion May be hazardous in case of ingestion. Do not ingest.

Potential Chronic Health Effects

Carcinogenic Effects This material is not known to cause cancer in animals or humans.

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Additional information See Toxicological Information (section 11)

Medical Conditions
Aggravated by
Overexposure:

Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

Section 4. First Aid Measures

Eye Contact

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Inhalation

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

Section 5. Fire Fighting Measures

Flammability of the Product

Non-flammable.

Auto-ignition Temperature

Not applicable.

Flash Points

Not applicable.

Flammable Limits

Not applicable.

Products of Combustion

Not applicable.

Fire Hazards in Presence of Various Substances

Not applicable.

Explosion Hazards in Presence of Various Substances

Risks of explosion of the product in presence of static discharge: No.

Risks of explosion of the product in presence of mechanical impact: No.

Fire Fighting Media and Instructions

Use an extinguishing agent suitable for surrounding fires.

Protective Clothing (Fire)

Wear MSHA/NIOSH approved self-contained breathing apparatus or equivalent and full protective gear.

Special Remarks on Fire Hazards

Contact with combustible material may cause fire. Contact with many metals produces highly flammable hydrogen gas.

Special Remarks on Explosion Hazards

Thermal decomposition may release toxic and/or hazardous gases.

Section 6. Accidental Release Measures

Small Spill and Leak

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill and Leak

Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Spill Kit Information No specific spill kit required for this product.

Section 7. Handling and Storage

Handling Avoid contact with eyes, skin and clothing. Do not ingest. Avoid breathing vapors or spray mists. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling.

Storage Keep in a well-ventilated place.

Section 8. Exposure Controls/Personal Protection

Engineering Controls Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection

Eyes Face shield.

Body Full suit.

Respiratory Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Hands Gloves.

Feet Boots.

Protective Clothing (Pictograms)



Personal Protection in Case of a Large Spill

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Product Name

Exposure Limits

Manganese Sulfate

Belgium Minister of Labour (Belgium, 1998).

VL: 0.2 mg/m³ 8 hour(s).

BAUA (Germany, 1997).

Spitzenbegrenzung: 2 mg/m³

TWA: 0.5 mg/m³ 8 hour(s).

DK-Arbejdstylsinet (Denmark, 1996).

GV: 2.5 mg/m³ 8 hour(s).

Tyterveyslaitos (Finland, 1998).

TWA: 0.5 mg/m³ 8 hour(s).

INRS (France, 1996).

VME: 1 mg/m³ 8 hour(s).

National Authority for Occupational Safety/Health (Ireland, 1999).

OEL: 5 mg/m³ 8 hour(s).

Arbeidsinspectie (Netherlands, 1999).

TGG 15 min: 3 mg/m³ 15 minute(s).

TGG 8 uur: 1 mg/m³ 8 hour(s).

N-Arbeidstylsinet (Norway, 1996).

AN: 2.5 mg/m³ 8 hour(s).

AFS (Sweden, 1996).

NGV: 1 mg/m³ 8 hour(s).

EH40-OES (United Kingdom (UK), 1997).

TWA: 5 mg/m³ 8 hour(s).

Nitric Acid

ACGIH (United States, 1994).

STEL: 10 mg/m³ 15 minute(s).

STEL: 4 ppm 15 minute(s).

TWA: 5.2 mg/m³ 8 hour(s).
TWA: 2 ppm 8 hour(s).
NIOSH REL (United States, 1994).
STEL: 10 mg/m³ 15 minute(s).
STEL: 4 ppm 15 minute(s).
TWA: 5 mg/m³ 10 hour(s).
TWA: 2 ppm 10 hour(s).
OSHA Final Rule (United States, 1989).
STEL: 10 mg/m³ 15 minute(s).
STEL: 4 ppm 15 minute(s).
TWA: 5 mg/m³ 8 hour(s).
TWA: 2 ppm 8 hour(s).
National Authority for Occupational Safety/Health (Ireland, 1999).
STEL: 10 mg/m³ 15 minute(s).
STEL: 4 ppm 15 minute(s).
OEL: 5 mg/m³ 8 hour(s).
OEL: 2 ppm 8 hour(s).
Not available.

Water

Section 9. Physical and Chemical Properties

Odor	Odorless.
Color	Clear.
Physical State and Appearance	Liquid.
Molecular Weight	Not applicable.
Molecular Formula	Not applicable.
pH	Not available.
Boiling/Condensation Point	The lowest known value is 83.94°C (183.1°F) (Nitric Acid). Weighted average: 99.74°C (211.5°F)
Melting/Freezing Point	May start to solidify at -0.1°C (31.8°F) based on data for: Water. Weighted average: -0.51°C (31.1°F)
Specific Gravity	1 (Water = 1)
Vapor Pressure	The highest known value is 0.3 kPa (2.6 mmHg) (@ 20°C) (Nitric Acid).
Vapor Density	The highest known value is >1 (Air = 1) (Nitric Acid).
Odor Threshold	The lowest known value is 2 ppm (Nitric Acid)
Evaporation Rate	0.36 (Water) compared to(n-Butyl Acetate =1)
LogK_{ow}	Not available.
Solubility	Soluble in water.

Section 10. Stability and Reactivity

Stability and Reactivity	The product is stable.
Conditions of Instability	Container explosion may occur under fire conditions or when heated. (Nitric Acid)
Incompatibility with Various Substances	Highly reactive with combustible materials, metals, alkalis. Slightly reactive to reactive with oxidizing agents.

Rem/Incompatibility Avoid contact with combustible materials. Incompatible with cyanides Incompatible with metal carbonates, cyanides, sulphides, acetylides, hydrides, halogens, perchlorates,, Turpentine ,Organic solvents

Hazardous Decomposition Products NOx , HNO3 , SOx

Hazardous Polymerization Will not occur.

Section 11. Toxicological Information

RTECS Number: Manganous Sulphate Monohydrate OP0893500
Nitric Acid QU5900000, QU5775000
Water ZC0110000

Toxicity Acute toxicity of the vapor (LC₅₀): 76 ppm 4 hour(s) [Rat]. (Nitric Acid).

Chronic Effects on Humans Not available.

Acute Effects on Humans Hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching. Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Hazardous in case of inhalation (lung irritant). May be hazardous in case of inhalation. May be hazardous in case of ingestion.

Special Remarks on Other Toxic Effects on Humans Irritating to mucous membranes.

Synergetic Products (Toxicologically) Not available.

Irritancy Draize Test: Not available.

Sensitization Not available.

Carcinogenic Effects This material is not known to cause cancer in animals or humans.

Toxicity to Reproductive System Not available.

Teratogenic Effects Not available.

Mutagenic Effects Not available.

Section 12. Ecological Information

Ecotoxicity Not available.

BOD5 and COD Not available.

Toxicity of the Products of Biodegradation The products of degradation are less toxic than the product itself.

Section 13. Disposal Considerations

EPA Waste Number Not available.

Treatment Material does not have an EPA Waste number and is not a listed waste, however consultation with a permitted waste disposal site (TSD) should be accomplished.
ALWAYS CONTACT A PERMITTED WASTE DISPOSER (TSD) TO ASSURE COMPLIANCE WITH ALL CURRENT LOCAL, STATE AND FEDERAL REGULATIONS.

Section 14. Transport Information

DOT Classification Not available.

TDG Classification Not available.

IMO/IMDG Classification Not available.

ICAO/IATA Classification Not available.

Section 15. Regulatory Information

U.S. Federal Regulations TSCA 8(b) inventory: Manganese Sulfate; Nitric Acid; Water
SARA 302/304/311/312 extremely hazardous substances: Nitric Acid
SARA 302/304 emergency planning and notification: Nitric Acid
SARA 302/304/311/312 hazardous chemicals: Nitric Acid
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Nitric Acid: Fire Hazard, reactive, Immediate (Acute) Health Hazard
SARA 313 toxic chemical notification and release reporting: Nitric Acid 1%
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: Nitric Acid
Clean air act (CAA) 112 accidental release prevention: Nitric Acid
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: Nitric Acid

WHMIS (Canada) Class D-2A: Material causing other toxic effects (VERY TOXIC).

CEPA DSL: Nitric Acid; Water

This product has been classified in accordance with the hazard criteria of the Controlled Product Regulations and the MSDS contains all required information.

International Regulations

EINECS Manganese Sulfate 232-089-9
Nitric Acid 231-714-2
Water 231-791-2

DSCL (EEC) R23- Toxic by inhalation.
R36/38- Irritating to eyes and skin.

International Lists Australia (NICNAS): Manganese Sulfate; Nitric Acid; Water

Japan (MITI): Nitric Acid; Water

Korea (TCCL): Nitric Acid; Water

Philippines (RA6969): Manganese Sulfate; Nitric Acid; Water
China: No products were found.

State Regulations

Pennsylvania RTK: Nitric Acid: (environmental hazard, generic environmental hazard)
Massachusetts RTK: Nitric Acid
New Jersey: Manganese Standard
California prop. 65: No products were found.

Section 16. Other Information

**National Fire
Protection
Association
(U.S.A.)**



**Changed Since Last
Revision**



Notice to Reader

The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.