

# Material Safety Data Sheet

## Manganous Nitrate Solution

ACC# 91759

### Section 1 - Chemical Product and Company Identification

MSDS Name: Manganous Nitrate Solution

Catalog Numbers: XXMANNI50%17, XXMANNI50%65

Synonyms: Manganese Nitrate Solution; Manganese (II) Nitrate Solution; Manganese Dinitrate Solution.

Company Identification:

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
10377-66-9	Manganese nitrate	50-72	233-828-8
7732-18-5	Water	23-45	231-791-2
7697-37-2	Nitric acid	5	231-714-2

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: pink liquid.

Danger! Causes eye and skin irritation and burns. Corrosive. Harmful if inhaled. Oxidizer. May cause blood abnormalities. May cause severe respiratory and digestive tract irritation with possible burns. May cause central nervous system effects.

Target Organs: Blood, central nervous system, lungs.

#### Potential Health Effects

Eye: Causes eye burns. May cause permanent corneal opacification. May cause chemical conjunctivitis and corneal damage.

Skin: Causes skin burns. May cause deep, penetrating ulcers of the skin. May cause skin rash (in milder cases), and cold and clammy skin with cyanosis or pale color.

Ingestion: May cause severe and permanent damage to the digestive tract. Causes

gastrointestinal tract burns. May cause perforation of the digestive tract. May cause systemic effects. Ingestion of large amounts may cause nausea, vomiting, diarrhea, and abdominal discomfort. Although they are poorly absorbed through the intestine, inorganic manganese salts may produce hypoglycemia and decreased calcium blood levels should absorption occur. Inhalation: Causes chemical burns to the respiratory tract. Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count. Aspiration may lead to pulmonary edema. May cause systemic effects. Chronic: Repeated exposure may cause erosion of teeth. Effects may be delayed. Chronic manganese exposure may result in impairment of the central nervous system. Kidney effects, blood changes, and manganese psychosis also may occur as a result of chronic exposure. Repeated overexposures may cause gradual brain damage from Manganese. Early effects include sleepiness, weakness, and poor appetite. If exposure is stopped at this point, damage may be temporary. With continued exposure, changes in speech, muscle coordination, and personality may result. (New Jersey Hazardous Substance Fact

## Section 4 - First Aid Measures

**Eyes:** Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed. Extensive irrigation with water is required (at least 30 minutes).

**Skin:** Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

**Ingestion:** Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

**Inhalation:** Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

**Notes to Physician:** Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Strong oxidizer. Contact with other material may cause fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water with caution and in flooding amounts. Some oxidizers may react explosively with hydrocarbons(fuel). Contact with metals may evolve flammable hydrogen gas. May accelerate burning if involved in a fire. Containers may explode when heated. Runoff from fire control or dilution water may cause pollution.

**Extinguishing Media:** Use water spray to cool fire-exposed containers. Do NOT get water inside containers. For small fires, use dry chemical, carbon dioxide, or water spray. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray. Contact professional fire-fighters immediately.

**Flash Point:** Not available.

**Autoignition Temperature:** Not available.

**Explosion Limits, Lower:**Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 3; Flammability: 0; Instability: 1; Special Hazard: OX

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.  
**Spills/Leaks:** Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Absorb spill with an alkaline material such as soda ash or lime. Provide ventilation. Do not use combustible materials such as paper towels to clean up spill.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Use only in a well-ventilated area. Use with adequate ventilation. Do not breathe dust, mist, or vapor. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Do not ingest or inhale. Discard contaminated shoes.

**Storage:** Keep away from heat, sparks, and flame. Do not store near combustible materials. Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Manganese nitrate	0.2 mg/m <sup>3</sup> TWA (as Mn) (listed under Manganese, inorganic compounds).	1 mg/m <sup>3</sup> TWA (as Mn) (listed under Manganese compounds, n.o.s.). 500 mg/m <sup>3</sup> IDLH (as Mn) (listed under Manganese compounds, n.o.s.).	5 mg/m <sup>3</sup> Ceiling (as Mn) (listed under Manganese compounds, n.o.s.).
Water	none listed	none listed	none listed
Nitric acid	2 ppm TWA; 4 ppm STEL	2 ppm TWA; 5 mg/m <sup>3</sup> TWA 25 ppm IDLH	2 ppm TWA; 5 mg/m <sup>3</sup> TWA

**OSHA Vacated PELs:** Manganese nitrate: No OSHA Vacated PELs are listed for this chemical.

**Water:** No OSHA Vacated PELs are listed for this chemical. **Nitric acid:** 2 ppm TWA; 5 mg/m<sup>3</sup> TWA

### Personal Protective Equipment

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear a chemical apron. Wear appropriate protective clothing to prevent skin exposure.

Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

## Section 9 - Physical and Chemical Properties

Physical State: Liquid

Appearance: pink

Odor: slight acid odor

pH: <1.0

Vapor Pressure: Not available.

Vapor Density: Not available.

Evaporation Rate: Not available.

Viscosity: Not available.

Boiling Point: 241 deg F

Freezing/Melting Point: 32 deg F

Decomposition Temperature: Not available.

Solubility: Soluble.

Specific Gravity/Density: 1.54

Molecular Formula: Not available.

Molecular Weight: Not available.

## Section 10 - Stability and Reactivity

Chemical Stability: Stable at room temperature in closed containers under normal storage and handling conditions.

Conditions to Avoid: Incompatible materials, ignition sources, combustible materials, reducing agents, heat.

Incompatibilities with Other Materials: Reducing agents, easily oxidizable materials.

Hazardous Decomposition Products: Nitrogen oxides, irritating and toxic fumes and gases, oxides of manganese.

Hazardous Polymerization: Has not been reported

## Section 11 - Toxicological Information

RTECS#:

CAS# 10377-66-9: QU9780000

CAS# 7732-18-5: ZC0110000

CAS# 7697-37-2: QU5775000; QU5900000

LD50/LC50:

Not available.

CAS# 7732-18-5:

Oral, rat: LD50 = >90 mL/kg;

CAS# 7697-37-2:

- Inhalation, rat: LC50 = 260 mg/m<sup>3</sup>/30M;
- Inhalation, rat: LC50 = 130 mg/m<sup>3</sup>/4H;
- Inhalation, rat: LC50 = 67 ppm(NO<sub>2</sub>)/4H;

Carcinogenicity:

- CAS# 10377-66-9: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
- CAS# 7732-18-5: Not listed by ACGIH, IARC, NTP, or CA Prop 65.
- CAS# 7697-37-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

- Epidemiology: No data available.
- Teratogenicity: No data available.
- Reproductive Effects: No data available.
- Mutagenicity: No data available.
- Neurotoxicity: No data available.
- Other Studies:

## Section 12 - Ecological Information

Ecotoxicity: Fish: *Pseudomonas putida*:

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	Not regulated as a hazardous material	No information available.
<b>Hazard Class:</b>		
<b>UN Number:</b>		
<b>Packing Group:</b>		

## Section 15 - Regulatory Information

## US FEDERAL

### TSCA

CAS# 10377-66-9 is listed on the TSCA inventory.

CAS# 7732-18-5 is listed on the TSCA inventory.

CAS# 7697-37-2 is listed on the TSCA inventory.

### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

### Section 12b

None of the chemicals are listed under TSCA Section 12b.

### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

### CERCLA Hazardous Substances and corresponding RQs

CAS# 7697-37-2: 1000 lb final RQ; 454 kg final RQ

### SARA Section 302 Extremely Hazardous Substances

CAS# 7697-37-2: 1000 lb TPQ

### SARA Codes

CAS # 10377-66-9: delayed, fire.

CAS # 7697-37-2: immediate, delayed, fire.

### Section 313

This material contains Manganese nitrate (listed as Manganese compounds, n.o.s.), 50-72%, (CAS# 10377-66-9) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

This material contains Nitric acid (CAS# 7697-37-2, 5%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

### Clean Air Act:

CAS# 10377-66-9 (listed as Manganese compounds, n.o.s.) is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

### Clean Water Act:

CAS# 7697-37-2 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

### OSHA:

CAS# 7697-37-2 is considered highly hazardous by OSHA.

### STATE

CAS# 10377-66-9 can be found on the following state right to know lists: California, (listed as Manganese compounds, n.o.s.), New Jersey, Pennsylvania, (listed as Manganese compounds, n.o.s.), Minnesota, (listed as Manganese compounds, n.o.s.).

CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

CAS# 7697-37-2 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, Massachusetts.

### California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

## European/International Regulations

### European Labeling in Accordance with EC Directives

### Hazard Symbols:

O C

Risk Phrases:

R 34 Causes burns.

R 8 Contact with combustible material may cause fire.

Safety Phrases:

WGK (Water Danger/Protection)

CAS# 10377-66-9: No information available.

CAS# 7732-18-5: No information available.

CAS# 7697-37-2: 1

Canada - DSL/NDSL

CAS# 10377-66-9 is listed on Canada's DSL List.

CAS# 7732-18-5 is listed on Canada's DSL List.

CAS# 7697-37-2 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of E, C.

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

Canadian Ingredient Disclosure List

CAS# 10377-66-9 (listed as Manganese compounds, n.o.s.) is listed on the Canadian

Ingredient Disclosure List.

CAS# 7697-37-2 is listed on the Canadian Ingredient Disclosure List.

## Section 16 - Additional Information

MSDS Creation Date: 3/07/2001

Revision #5 Date: 3/16/2007

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.