

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: August 22, 2020

1 Identification

- **Product identifier**
- **Trade name:** Manganous Sulfate Solution
- **Product code:** MN5150SS
- **Recommended use and restriction on use**
- **Recommended use:** Laboratory chemicals
- **Restrictions on use:** No relevant information available.
- **Details of the supplier of the Safety Data Sheet**
- **Manufacturer/Supplier:**
AquaPhoenix Scientific, Inc.
860 Gitts Run Road
Hanover, PA 17331 USA
Tel +1 (717)632-1291
Toll-Free: (866)632-1291
info@aquaphoenixsci.com
- **Distributor:**
AquaPhoenix Scientific
860 Gitts Run Road,
Hanover, PA 17331
(717) 632-1291
- **Emergency telephone number:**
ChemTel Inc.
(800)255-3924 (North America)
+1 (813)248-0585 (International)

2 Hazard(s) identification

- **Classification of the substance or mixture**
Met. Corr.1 H290 May be corrosive to metals.
Skin Corr. 1C H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.
STOT RE 2 H373 May cause damage to the brain through prolonged or repeated exposure. Route of exposure: Inhalation.

· Label elements

· GHS label elements

The product is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms:



GHS05 GHS08

· Signal word: Danger

· Hazard statements:

H290 May be corrosive to metals.

H314 Causes severe skin burns and eye damage.

H373 May cause damage to the brain through prolonged or repeated exposure. Route of exposure: Inhalation.

(Cont'd. on page 2)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: August 22, 2020

Trade name: Manganous Sulfate Solution

(Cont'd. of page 1)

· **Precautionary statements:**

- P234 Keep only in original container.
 P260 Do not breathe mist/vapors/spray.
 P264 Wash thoroughly after handling.
 P280 Wear protective gloves/protective clothing/eye protection.
 P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
 P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310 Immediately call a poison center/doctor.
 P314 Get medical advice/attention if you feel unwell.
 P363 Wash contaminated clothing before reuse.
 P390 Absorb spillage to prevent material damage.
 P405 Store locked up.
 P406 Store in corrosive resistant container with a resistant inner liner.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Other hazards** There are no other hazards not otherwise classified that have been identified.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Components:**

7732-18-5	Water	75-90%
7664-93-9	Sulfuric acid Met. Corr. 1, H290; Skin Corr. 1A, H314; Eye Dam. 1, H318	5-10%
7664-38-2	Phosphoric acid Met. Corr. 1, H290; Skin Corr. 1B, H314; Eye Dam. 1, H318	5-10%
10034-96-5	manganese (II) sulfate monohydrate STOT RE 2, H373	1-5%

· **Additional information:**

For the listed ingredient(s), the identity and/or exact percentage(s) are being withheld as a trade secret.
 For the wording of the listed Hazard Statements, refer to section 16.

4 First-aid measures

· **Description of first aid measures**

· **After inhalation:** Supply fresh air; consult doctor in case of complaints.

· **After skin contact:**

Immediately remove any clothing soiled by the product.

Immediately rinse with water.

If skin irritation is experienced, consult a doctor.

Seek immediate help for blistering or open wounds.

· **After eye contact:**

Protect unharmed eye.

(Cont'd. on page 3)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: August 22, 2020

Trade name: Manganous Sulfate Solution

(Cont'd. of page 2)

Remove contact lenses if worn.

Rinse opened eye for several minutes under running water. Then consult a doctor.

· **After swallowing:**

Rinse out mouth and then drink plenty of water.

Do not induce vomiting; immediately call for medical help.

· **Most important symptoms and effects, both acute and delayed:**

Caustic effect on skin and mucous membranes.

Breathing difficulty

Coughing

Gastric or intestinal disorders

Nausea

Vomiting.

· **Danger:**

May cause neurotoxic effects.

Danger of gastric perforation.

Causes serious eye damage.

· **Indication of any immediate medical attention and special treatment needed:**

Medical supervision for at least 48 hours.

If medical advice is needed, have product container or label at hand.

5 Fire-fighting measures

· **Extinguishing media**

· **Suitable extinguishing agents:**

The product is not flammable.

Use fire fighting measures that suit the environment.

· **For safety reasons unsuitable extinguishing agents:** None.

· **Special hazards arising from the substance or mixture**

Formation of toxic gases is possible during heating or in case of fire.

· **Advice for firefighters**

· **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

For large spills, use respiratory protective device against the effects of fumes/dust/aerosol.

Ensure adequate ventilation.

· **Environmental precautions**

Do not allow to enter sewers/ surface or ground water.

Inform respective authorities in case of seepage into water course or sewage system.

· **Methods and material for containment and cleaning up**

Use limestone to neutralize and/or absorb spill.

Send for recovery or disposal in suitable receptacles.

· **Reference to other sections**

See Section 7 for information on safe handling.

(Cont'd. on page 4)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: August 22, 2020

Trade name: Manganous Sulfate Solution

(Cont'd. of page 3)

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage

- **Handling**

- **Precautions for safe handling:**

Avoid splashes or spray in enclosed areas.

Use only in well ventilated areas.

Avoid contact with the eyes and skin.

Avoid breathing mist, vapors, or spray.

Open and handle receptacle with care.

- **Information about protection against explosions and fires:** No special measures required.

- **Conditions for safe storage, including any incompatibilities**

- **Requirements to be met by storerooms and receptacles:**

Store in cool, dry conditions in well sealed receptacles.

Store only in the original receptacle.

- **Information about storage in one common storage facility:**

Store away from foodstuffs.

Do not store together with alkalis (caustic solutions).

- **Specific end use(s)** No relevant information available.

8 Exposure controls/personal protection

- **Control parameters**

- **Components with limit values that require monitoring at the workplace:**

7664-93-9 Sulfuric acid

PEL (USA)	Long-term value: 1 mg/m ³
REL (USA)	Long-term value: 1 mg/m ³
TLV (USA)	Long-term value: 0.2* mg/m ³ *as thoracic fraction
EL (Canada)	Long-term value: 0.2 mg/m ³ ACGIH A2; IARC 1
EV (Canada)	Long-term value: 0.2 mg/m ³
LMPE (Mexico)	Long-term value: 0.2* mg/m ³ A2;*fracción torácica

7664-38-2 Phosphoric acid

PEL (USA)	Long-term value: 1 mg/m ³
REL (USA)	Short-term value: 3 mg/m ³ Long-term value: 1 mg/m ³
TLV (USA)	Short-term value: 3 mg/m ³ Long-term value: 1 mg/m ³
EL (Canada)	Short-term value: 3 mg/m ³ Long-term value: 1 mg/m ³

(Cont'd. on page 5)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: August 22, 2020

Trade name: Manganous Sulfate Solution

(Cont'd. of page 4)

EV (Canada)	Short-term value: 3 mg/m ³ Long-term value: 1 mg/m ³
LMPE (Mexico)	Short-term value: 3 mg/m ³ Long-term value: 1 mg/m ³
10034-96-5 manganese (II) sulfate monohydrate	
PEL (USA)	Ceiling limit value: 5 mg/m ³ as Mn
REL (USA)	Short-term value: 3 mg/m ³ Long-term value: 1 mg/m ³ as Mn
TLV (USA)	Long-term value: 0.02* 0.1** mg/m ³ as Mn; *respirable **inhalable fraction
EL (Canada)	Long-term value: 0.2 mg/m ³ as Mn; R
LMPE (Mexico)	Long-term value: 0.2 mg/m ³ como Mn

Exposure controls

General protective and hygienic measures:

The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

Engineering controls: Provide adequate ventilation.

Breathing equipment:

Wear appropriate NIOSH respirator when ventilation is inadequate and occupational exposure limits are exceeded.
Use suitable respiratory protective device when aerosol or mist is formed.

Protection of hands:



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Material of gloves

Nitrile rubber, NBR
Natural rubber, NR
Neoprene gloves
Laminated film gloves.

Eye protection:



Safety glasses

Follow relevant national guidelines concerning the use of protective eyewear.

Body protection: Acid resistant protective clothing.

Limitation and supervision of exposure into the environment

No relevant information available.

(Cont'd. on page 6)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: August 22, 2020

Trade name: Manganous Sulfate Solution

(Cont'd. of page 5)

· **Risk management measures** No relevant information available.

9 Physical and chemical properties

· Information on basic physical and chemical properties

· Appearance:

Form: Liquid
Color: Colorless

· Odor: Acrid

· Odor threshold: Not determined.

· pH-value at 20 °C (68 °F): <2

· Melting point/Melting range: Not determined.

· Boiling point/Boiling range: Not determined.

· Flash point: The product is not flammable.

· Flammability (solid, gaseous): Not applicable.

· Auto-ignition temperature: Not determined.

· Decomposition temperature: Not determined.

· Danger of explosion: Product does not present an explosion hazard.

· Explosion limits

Lower: Not determined.

Upper: Not determined.

· Oxidizing properties: Not determined.

· Vapor pressure: Not determined.

· Density:

Relative density: Not determined.

Vapor density: Not determined.

Evaporation rate: Not determined.

· Solubility in / Miscibility with

Water: Soluble.

· Partition coefficient (n-octanol/water): Not determined.

· Viscosity

Dynamic: Not determined.

Kinematic: Not determined.

· Other information No relevant information available.

10 Stability and reactivity

· **Reactivity:** Corrosive action on metals.

· **Chemical stability:** Stable under normal temperatures and pressures.

· **Thermal decomposition / conditions to be avoided:**

No decomposition if used and stored according to specifications.

(Cont'd. on page 7)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: August 22, 2020

Trade name: Manganous Sulfate Solution

(Cont'd. of page 6)

- **Possibility of hazardous reactions**
Reacts with alkali (lyes).
Toxic fumes may be released if heated above the decomposition point.
- **Conditions to avoid** No relevant information available.
- **Incompatible materials**
Metals.
Alkalis.
- **Hazardous decomposition products**
Under fire conditions only:
Sulfur oxides (SOx)
Phosphorus oxides (e.g. P2O5)
Toxic metal oxide smoke

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Based on available data, the classification criteria are not met.
- **LD/LC50 values that are relevant for classification:** None.
- **Primary irritant effect:**
- **On the skin:** Caustic effect on skin and mucous membranes.
- **On the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:** Based on available data, the classification criteria are not met.

IARC (International Agency for Research on Cancer):
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None of the ingredients are listed.

NTP (National Toxicology Program):

7664-93-9	Sulfuric acid	K
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OSHA-Ca (Occupational Safety & Health Administration):

None of the ingredients are listed.

- **Probable route(s) of exposure:**

Ingestion.
Inhalation.
Eye contact.
Skin contact.

- **Germ cell mutagenicity:** Based on available data, the classification criteria are not met.
- **Carcinogenicity:** Based on available data, the classification criteria are not met.
- **Reproductive toxicity:** Based on available data, the classification criteria are not met.
- **STOT-single exposure:** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure:**
May cause damage to the brain through prolonged or repeated exposure. Route of exposure: Inhalation.
- **Aspiration hazard:** Based on available data, the classification criteria are not met.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity** Harmful to aquatic life with long lasting effects.
- **Persistence and degradability** No relevant information available.

(Cont'd. on page 8)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: August 22, 2020

Trade name: Manganous Sulfate Solution


(Cont'd. of page 7)

- **Bioaccumulative potential:** No relevant information available.
- **Mobility in soil:** No relevant information available.
- **Additional ecological information**
- **General notes:**
Do not allow product to reach ground water, water course or sewage system.
Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. If the dilution of the use-level pH-value is considerably increased after use, the aqueous waste, emptied into drains, is only low water-dangerous.
- **Other adverse effects** No relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Dilute concentrate with water and neutralize afterwards with suitable material (lime or chalk). The formed salts are inert and pose little hazard.
The user of this material has the responsibility to dispose of unused material, residues and containers in compliance with all relevant local, state and federal laws and regulations regarding treatment, storage and disposal for hazardous and nonhazardous wastes.
- **Uncleaned packagings**
- **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- | | |
|---|---|
| · UN-Number | UN3264 |
| · DOT, ADR/RID/ADN, IMDG, IATA | |
| · UN proper shipping name | Corrosive liquid, acidic, inorganic, n.o.s. (Sulfuric acid, Phosphoric acid) |
| · DOT | |
| · ADR/RID/ADN, IMDG | CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. (SULPHURIC ACID, PHOSPHORIC ACID) |
| · IATA | Corrosive liquid, acidic, inorganic, n.o.s. (Sulphuric acid, Phosphoric acid) |
| · Transport hazard class(es) | |
| · DOT | |
|  | |
| · Class | 8 |
| · Label | 8 |

(Cont'd. on page 9)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: August 22, 2020

Trade name: Manganous Sulfate Solution

(Cont'd. of page 8)

· **ADR/RID/ADN**



· **Class** 8 (C1)
 · **Label** 8

· **IMDG, IATA**



· **Class** 8
 · **Label** 8

· **Packing group**

· **DOT, ADR/RID/ADN, IMDG, IATA** III

· **Environmental hazards**

· **Marine pollutant:** No

· **Special precautions for user**

Warning: Corrosive substances

· **Hazard identification number (Kemler code):** 80

· **EMS Number:** F-A,S-B

· **Segregation groups** Acids

· **Transport in bulk according to Annex II of**

MARPOL73/78 and the IBC Code Not applicable.

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **United States (USA)**

· **SARA**

· **Section 302 (extremely hazardous substances):**

None of the ingredients are listed.

· **Section 313 (Specific toxic chemical listings):**

7664-93-9 Sulfuric acid

10034-96-5 manganese (II) sulfate monohydrate

· **TSCA (Toxic Substances Control Act)**

7664-93-9 Sulfuric acid

7664-38-2 Phosphoric acid

7732-18-5 Water

· **Proposition 65 (California)**

(Cont'd. on page 10)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: August 22, 2020

Trade name: Manganous Sulfate Solution

(Cont'd. of page 9)

· **Chemicals known to cause cancer:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for females:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity for males:**

None of the ingredients are listed.

· **Chemicals known to cause developmental toxicity:**

None of the ingredients are listed.

· **EPA (Environmental Protection Agency):**

10034-96-5 | manganese (II) sulfate monohydrate

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· **IARC (International Agency for Research on Cancer):**

None of the ingredients are listed.

· **Canadian Domestic Substances List (DSL):**

7664-93-9 | Sulfuric acid

7664-38-2 | Phosphoric acid

7732-18-5 | Water

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Abbreviations and acronyms:**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association

CAS: Chemical Abstracts Service (division of the American Chemical Society)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

OSHA: Occupational Safety & Health Administration

Met. Corr. 1: Corrosive to metals – Category 1

Skin Corr. 1A: Skin corrosion/irritation – Category 1A

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Skin Corr. 1C: Skin corrosion/irritation – Category 1C

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

· **Sources**

Website, European Chemicals Agency (echa.europa.eu)

Website, US EPA Substance Registry Services (ofmpub.epa.gov/sor internet/registry/substreg/home/overview/home.do)

Website, Chemical Abstracts Registry, American Chemical Society (www.cas.org)

Patty's Industrial Hygiene, 6th ed., Rose, Vernon, ed. ISBN: 978-0-470-07488-6

Casarett and Doull's Toxicology: The Basic Science of Poisons, 8th Ed., Klaasen, Curtis D., ed., ISBN: 978-0-07-176923-5.

Safety Data Sheets, Individual Manufacturers

SDS Prepared by:

ChemTel

1305 North Florida Avenue

(Cont'd. on page 11)

Safety Data Sheet

according to OSHA HCS (29CFR 1910.1200) and WHMIS 2015 Regulations

Revision: August 22, 2020

Trade name: Manganous Sulfate Solution

(Cont'd. of page 10)

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