

## Safety Data Sheet acc. to OSHA HCS

Printing date 10/21/2019

Reviewed on 04/09/2019

### 1 Identification

- **Product identifier**
- **Trade name:** Manganese Sulfate Monohydrate
- **Article number:** 155336
- **CAS Number:**  
10034-96-5
- **EC number:**  
232-089-9
- **Molecular Formula**  $Mn S O_4 \cdot H_2O$
- **Molecular Weight** 169
- **Application of the substance / the mixture** For Research Use Only
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
MP Biomedicals, LLC  
29525 Fountain Parkway  
Solon, OH 44139  
United States  
www.mpbio.com
- **Information department:** Quality Control Department
- **Emergency telephone number:** CHEMTREC: 1-800-424-9300 (1-703-527-3887)

### 2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

STOT RE 2 H373 May cause damage to the lung, the reproductive system and the nervous system through prolonged or repeated exposure. Route of exposure: Oral, Inhalation.

- **Label elements**
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS08

- **Signal word** Warning
- **Hazard-determining components of labeling:**  
Manganese Sulfate Monohydrate
- **Hazard statements**  
May cause damage to the lung, the reproductive system and the nervous system through prolonged or repeated exposure. Route of exposure: Oral, Inhalation.
- **Precautionary statements**  
Do not breathe dust/fume/gas/mist/vapors/spray.  
Get medical advice/attention if you feel unwell.  
Dispose of contents/container in accordance with local/regional/national/international regulations.

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- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description**  
10034-96-5 Manganese Sulfate Monohydrate
- **Identification number(s)**
- **EC number:** 232-089-9

### 4 First-aid measures

- **Description of first aid measures**
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Generally the product does not irritate the skin.
- **After eye contact:** Flush eyes with running water as a precaution.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**  
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Mount respiratory protective device.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.

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- **Methods and material for containment and cleaning up:**  
Pick up mechanically, dispose contaminated material as waste according to Section 13.  
Ensure adequate ventilation.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

· **PAC-1:**9.2 mg/m<sup>3</sup>· **PAC-2:**15 mg/m<sup>3</sup>· **PAC-3:**90 mg/m<sup>3</sup>

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace. Avoid direct contact with skin and eyes.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:** 15-30°C
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Further information about storage conditions:** Desiccate.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see Section 7.
- **Control parameters**

· **Components with limit values that require monitoring at the workplace:****10034-96-5 Manganese Sulfate Monohydrate**

|     |   |
|-----|---|
| PEL | Ceiling limit value: 5 mg/m <sup>3</sup><br>as Mn   |
| REL | Short-term value: 3 mg/m <sup>3</sup><br>Long-term value: 1 mg/m <sup>3</sup><br>as Mn    |
| TLV | Long-term value: 0.02* 0.1** mg/m <sup>3</sup><br>as Mn; *respirable **inhalable fraction |

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Wash hands before breaks and at the end of work.  
Store protective clothing separately.

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· **Breathing equipment:**

*In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.*

· **Protection of hands:**



Protective gloves

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

*Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.*

*Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation*

· **Material of gloves**

*The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.*

· **Penetration time of glove material**

*The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.*

· **Eye protection:**



Tightly sealed goggles

## 9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

|                        |                 |
|------------------------|-----------------|
| <b>Form:</b>           | Powder          |
| <b>Color:</b>          | White           |
| <b>Odor:</b>           | Indeterminate   |
| <b>Odor threshold:</b> | Not determined. |

· **pH-value:** Not applicable.

· **Change in condition**

**Boiling point/Boiling range:** Undetermined.

· **Flash point:** Not applicable.

· **Flammability (solid, gaseous):** Product is not flammable.

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Not determined.

· **Danger of explosion:** See section 10

· **Explosion limits:**

|               |                |
|---------------|----------------|
| <b>Lower:</b> | Not Applicable |
| <b>Upper:</b> | Not Applicable |

· **Vapor pressure:** Not applicable.

· **Density:** Not Applicable

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|   |  |
|---|--|
| · <b>Relative density</b>   | Not determined.                            |
| · <b>Vapor density</b>  | Not applicable.                            |
| · <b>Evaporation rate</b>   | Not applicable.                            |
| · <b>Solubility in / Miscibility with</b>                         | Not Determined                             |
| · <b>Water:</b>   | Soluble.                                   |
| · <b>Partition coefficient (n-octanol/water):</b> Not determined. |  |
| · <b>Viscosity:</b>   |  |
| <b>Dynamic:</b>   | Not applicable.                            |
| <b>Kinematic:</b>   | Not applicable.                            |
| <b>VOC content:</b>   | 0.00 %                                     |
| <b>Solids content:</b>  | 100.0 %                                    |
| · <b>Other information</b>  | No further relevant information available. |

## 10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid**  
No further relevant information available.  
Avoid contact with acids. Contact liberates a toxic gas.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** No irritant effect.
- **on the eye:** Irritant and potentially harmful
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

Substance is not listed.

- **NTP (National Toxicology Program)**

Substance is not listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

Substance is not listed.

## 12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.

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- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**  
*Water hazard class 1 (Self-assessment): slightly hazardous for water*  
*Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.*
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
*Can not be disposed together with household garbage. Do not allow product to reach sewage system.*
- **Uncleaned packagings:**
- **Recommendation:** *Discard must be made according to official regulations.*
- **Recommended cleansing agent:** *Water, if necessary with cleaning agents.*

## 14 Transport information

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>· <b>UN-Number</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul>  | <p style="margin-left: 20px;">UN3077</p>  |
| <ul style="list-style-type: none"> <li>· <b>UN proper shipping name</b></li> <li>· <b>DOT</b></li> <li>· <b>ADR</b></li> <li>· <b>IMDG</b></li> <li>· <b>IATA</b></li> </ul> | <p style="margin-left: 20px;"><i>Environmentally hazardous substance, solid, n.o.s. (Manganese Sulfate Monohydrate)</i></p> <p style="margin-left: 20px;">3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Manganese Sulfate Monohydrate)</p> <p style="margin-left: 20px;">ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Manganese Sulfate Monohydrate), MARINE POLLUTANT</p> <p style="margin-left: 20px;">ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Manganese Sulfate Monohydrate)</p> |
| <ul style="list-style-type: none"> <li>· <b>Transport hazard class(es)</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul>   | <p style="margin-left: 20px;">9</p>   |
| <ul style="list-style-type: none"> <li>· <b>Class</b></li> <li>· <b>Label</b></li> </ul>   | <p style="margin-left: 20px;">9 Miscellaneous dangerous substances and articles</p> <p style="margin-left: 20px;">9</p>   |
| <ul style="list-style-type: none"> <li>· <b>Packing group</b></li> <li>· <b>DOT, ADR, IMDG, IATA</b></li> </ul>  | <p style="margin-left: 20px;">III</p>   |
| <ul style="list-style-type: none"> <li>· <b>Environmental hazards:</b></li> <li>· <b>Marine pollutant:</b></li> </ul>  | <p style="margin-left: 20px;">Yes (DOT)</p> <p style="margin-left: 20px;">Symbol (fish and tree)</p>  |

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|  |  |
|--|--|
| · <b>Special marking (ADR):</b>  | Symbol (fish and tree)   |
| · <b>Special marking (IATA):</b>   | Symbol (fish and tree)   |
| · <b>Special precautions for user</b>  | Warning: Miscellaneous dangerous substances and articles   |
| · <b>EMS Number:</b>   | F-A,S-F  |
| · <b>Stowage Category</b>  | A  |
| · <b>Stowage Code</b>  | SW23 When transported in BK3 bulk container, see 7.6.2.12 and 7.7.3.9.   |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable.  |
| · <b>Transport/Additional information:</b>                                       |  |
| · <b>DOT</b>   |  |
| · <b>Quantity limitations</b>  | On passenger aircraft/rail: No limit<br>On cargo aircraft only: No limit                                       |
| · <b>Remarks:</b>  | Special marking with the symbol (fish and tree).   |
| · <b>ADR</b>   |  |
| · <b>Excepted quantities (EQ)</b>  | Code: E1<br>Maximum net quantity per inner packaging: 30 g<br>Maximum net quantity per outer packaging: 1000 g |
| · <b>IMDG</b>  |  |
| · <b>Limited quantities (LQ)</b>   | 5 kg   |
| · <b>Excepted quantities (EQ)</b>  | Code: E1<br>Maximum net quantity per inner packaging: 30 g<br>Maximum net quantity per outer packaging: 1000 g |
| · <b>UN "Model Regulation":</b>  | UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (MANGANESE SULFATE MONOHYDRATE), 9, III             |

## 15 Regulatory information

- Safety, health and environmental regulations/legislation specific for the substance or mixture
- Sara

· **Section 355 (extremely hazardous substances):**

Substance is not listed.

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

Substance is listed.

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

Substance is not listed.

· **Hazardous Air Pollutants**

Substance is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

D

· **TLV (Threshold Limit Value established by ACGIH)**

Substance is not listed.

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

Substance is not listed.

· **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS08

· **Signal word** Warning

· **Hazard-determining components of labeling:**

Manganese Sulfate Monohydrate

· **Hazard statements**

May cause damage to the lung, the reproductive system and the nervous system through prolonged or repeated exposure. Route of exposure: Oral, Inhalation.

· **Precautionary statements**

Do not breathe dust/fume/gas/mist/vapors/spray.

Get medical advice/attention if you feel unwell.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 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.

· **Department issuing SDS:** Quality Control Dept.

· **Date of preparation / last revision** 10/21/2019 / -

· **Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (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

ACGIH: American Conference of Governmental Industrial Hygienists

EINECS: European Inventory of Existing Commercial Chemical Substances

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

NFPA: National Fire Protection Association (USA)

HMIS: Hazardous Materials Identification System (USA)

VOC: Volatile Organic Compounds (USA, EU)

PBT: Persistent, Bioaccumulative and Toxic

vPvB: very Persistent and very Bioaccumulative

NIOSH: National Institute for Occupational Safety

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

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REL: Recommended Exposure Limit

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

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