Manganese Sulfate Monohydrate
Safety Data Sheet
according to Regulation (EU) 2015/830
Date of issue: 7/2/2015   Revision date: 7/9/2019   Supersedes: 3/13/2019   Version: 8.2

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier
Product form: Substance
Substance name: Manganese Sulfate Monohydrate
EC-No.: 232-089-9
CAS-No.: 10034-96-5
Formula: MnSO₄ · H₂O

1.2. Relevant identified uses of the substance or mixture and uses advised against
1.2.1. Relevant identified uses
Use of the substance/mixture: Laboratory Reagent
Nutrient; Dietary Supplement; Treatment of potable water for radium removal

1.2.2. Uses advised against
No additional information available

1.3. Details of the supplier of the safety data sheet
Manufacturer: Jost Chemical Co.
8150 Lackland Rd.
63114 Saint Louis, Missouri
T 314-428-4300 - F 314-428-4366
sds@jostchemical.com - www.jostchemical.com

Distributor: JOST CHEMICAL EUROPE SPRL
rue du Bois Portal n° 30/1-3
B - 5300 Andenne - BELGIQUE
T +32 85-552655 - F +32 85-552654
info@jostchemical.com

1.4. Emergency telephone number
Emergency number: For Hazardous Materials [or Dangerous Goods] Incident Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night
United States and Canada: 1-800-424-9300 / +1 703-527-3887
Global: +1 703-741-5970

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
Classification according to Regulation (EC) No. 1272/2008 [CLP]
Specific target organ toxicity — Repeated exposure, Category 2 H373
Hazardous to the aquatic environment — Chronic Hazard, Category 2 H411
Full text of H statements: see section 16

Adverse physicochemical, human health and environmental effects
No additional information available

2.2. Label elements
Labelling according to Regulation (EC) No. 1272/2008 [CLP]
Hazard pictograms (CLP):

GHS08

GHS09

Signal word (CLP): Warning
Hazard statements (CLP):
H373 - May cause damage to organs through prolonged or repeated exposure (if inhaled, if swallowed).
H411 - Toxic to aquatic life with long lasting effects.
Precautionary statements (CLP):
P260 - Do not breathe dust.
P314 - Get medical advice/attention if you feel unwell.

2.3. Other hazards
Other hazards not contributing to the classification: None under normal conditions.
PBT: not yet assessed
vPvB: not yet assessed

SECTION 3: Composition/information on ingredients

3.1. Substances
Substance type: Mono-constituent
Manganese Sulfate Monohydrate
Safety Data Sheet
according to Regulation (EU) 2015/830

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese Sulfate Monohydrate</td>
<td>(CAS-No.) 10034-96-5 (EC-No.) 232-089-9</td>
<td>100</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

3.2. Mixtures
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general:

First-aid measures after inhalation:
- Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact:
- Rinse with water. Soap may be used. Take victim to a doctor if irritation persists. Wash skin with plenty of water.

First-aid measures after eye contact:
- Rinse with water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists. Rinse eyes with water as a precaution.

First-aid measures after ingestion:
- Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Call a poison center or a doctor if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/effects after inhalation:
- AFTER INHALATION OF DUST: Coughing. ON HEATING: Metal fume fever.

Symptoms/effects after skin contact:
- Slight irritation. Red skin.

Symptoms/effects after eye contact:
- Redness of the eye tissue.

Symptoms/effects after ingestion:
- AFTER INGESTION OF HIGH QUANTITIES: Irritation of the gastric/intestinal mucosa.

Chronic symptoms:

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:

5.2. Special hazards arising from the substance or mixture

Fire hazard:
- DIRECT FIRE HAZARD: Non combustible.

Explosion hazard:
- No data available on direct explosion hazard. No data available on indirect explosion hazard.

Hazardous decomposition products in case of fire:
- On burning: release of toxic and corrosive gases/vapours (sulphur oxides) and formation of metallic fumes.

5.3. Advice for firefighters

Precautionary measures fire:
- Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions:
- Dilute toxic gases with water spray. Take account of environmentally hazardous firefighting water. Use water moderately and if possible collect or contain it.

Protection during firefighting:
- Heat/fire exposure: compressed air/oxygen apparatus. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment:

Emergency procedures:
Measures in case of dust release: In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures: Avoid contact with skin and eyes.

6.2. Environmental precautions

Avoid release to the environment. Prevent soil and water pollution. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment: Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam up the solid spill. Knock down/dilute dust cloud with water spray. Collect spillage.

Methods for cleaning up: Mechanically recover the product. Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. Carefully collect the spill/leftovers. Take collected spill to manufacturer/competent authority. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.

Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Ensure good ventilation of the work station. Wear personal protective equipment. Avoid raising dust. Keep away from naked flames/heat. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Do not breathe dust/fume/gas/mist/vapours/spray.

Hygiene measures: Observe very strict hygiene - avoid contact. Keep container tightly closed. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems.

Storage conditions: Store in a well-ventilated place. Keep cool.

Incompatible materials: Strong oxidisers. Metals. Reactive metals (Al, K, Zn ...).

Heat and ignition sources: KEEP SUBSTANCE AWAY FROM: heat sources.

Information on mixed storage: KEEP SUBSTANCE AWAY FROM: oxidizing agents. water/moisture.

Storage area: Store in a dry area. Unauthorized persons are not admitted. Meet the legal requirements.

Special rules on packaging: SPECIAL REQUIREMENTS: closing. watertight. dry. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials: SUITABLE MATERIAL: cardboard. plastics. glass.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

DNEL: 0.2 mg/m³ (Long-term - systemic effects, inhalation, workers)

PNEC: 0.0128 mg/l (aqua, freshwater)

8.2. Exposure controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

Personal protective equipment:


Materials for protective clothing:

GIVE GOOD RESISTANCE: butyl rubber. PVC

Hand protection:

Gloves

Eye protection:

Safety glasses. In case of dust production: protective goggles. Safety glasses
Manganese Sulfate Monohydrate
Safety Data Sheet
according to Regulation (EU) 2015/830

SECTION 9: Physical and chemical properties
9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Powder, Granular solid.</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>169.01 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>Rose</td>
</tr>
<tr>
<td>Odour</td>
<td>Odourless</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>3.0 - 3.5 (5 %)</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>700 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>&gt; 117 °C</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Non flammable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative density</td>
<td>3</td>
</tr>
<tr>
<td>Density</td>
<td>2950 kg/m³</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water.</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidising properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

9.2. Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>VOC content</td>
<td>0 %</td>
</tr>
<tr>
<td>Other properties</td>
<td>Hygroscopic. Acid reaction.</td>
</tr>
</tbody>
</table>

SECTION 10: Stability and reactivity

10.1. Reactivity
The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability
Hygroscopic.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials
Oxidizing agent. Powdered metals.
10.6. Hazardous decomposition products

Sulphur oxides. Metallic oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

<table>
<thead>
<tr>
<th>Effect</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (oral)</td>
<td>Not classified (Based on available data, the classification criteria are not met)</td>
</tr>
<tr>
<td>Acute toxicity (dermal)</td>
<td>Not classified (Based on available data, the classification criteria are not met)</td>
</tr>
<tr>
<td>Acute toxicity (inhalation)</td>
<td>Not classified (Based on available data, the classification criteria are not met)</td>
</tr>
</tbody>
</table>

Manganese Sulfate Monohydrate (10034-96-5)

- **LD50 oral rat**: 2150 mg/kg (Published data)
- **LC50 inhalation rat (mg/l)**: > 4.45 mg/l/4h

Causes serious eye damage.

Serious eye damage/irritation: Not classified (Based on available data, the classification criteria are not met)

Respiratory or skin sensitisation: Not classified (Lack of data)

Germ cell mutagenicity: Not classified (Lack of data)

Carcinogenicity: Not classified (Lack of data)

Reproductive toxicity: Not classified (Lack of data)

STOT-single exposure: Not classified (Lack of data)

STOT-repeated exposure: May cause damage to organs through prolonged or repeated exposure (if inhaled, if swallowed).

Aspiration hazard: Not classified (Lack of data)

Potential adverse human health effects and symptoms: Slightly harmful if swallowed. Slightly irritant to skin.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general: Dangerous for the environment. Toxic to aquatic life with long lasting effects. Toxic to aquatic life.

Ecology - air: Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).


Chronic aquatic toxicity: Toxic to aquatic life with long lasting effects.

Manganese Sulfate Monohydrate (10034-96-5)

- **LC50 fish 1**: 33.8 mg/l (96 h; Pimephales promelas, Anhydrous form)
- **EC50 Daphnia 1**: 8.28 mg/l (48 h; Daphnia magna, Anhydrous form)
- **ErC50 (algae)**: 61 mg/l (72 hr; Desmodesmus subspicatus) (OECD 201) (OECD 201)
- **NOEC (chronic)**: 1 mg/l (Desmodesmus Subspicatus) (OECD 201)

12.2. Persistence and degradability

Manganese Sulfate Monohydrate (10034-96-5)

- **Persistence and degradability**: Biodegradability: not applicable.
- **Chemical oxygen demand (COD)**: Not applicable
- **ThOD**: Not applicable
- **BOD (% of ThOD)**: Not applicable

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Manganese Sulfate Monohydrate (10034-96-5)

- **PBT**: not yet assessed
- **vPvB**: not yet assessed
### 12.6. Other adverse effects

No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

- **Waste treatment methods**
  - Dispose of contents/container in accordance with licensed collector’s sorting instructions.

- **Product/Packaging disposal recommendations**
  - Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle/reuse. Remove to an authorized dump (Class I). Precipitate/make insoluble.

#### Additional information

### SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

#### 14.1. UN number

<table>
<thead>
<tr>
<th>UN-No. (ADR)</th>
<th>UN-No. (IMDG)</th>
<th>UN-No. (IATA)</th>
<th>UN-No. (ADN)</th>
<th>UN-No. (RID)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3077</td>
<td>3077</td>
<td>3077</td>
<td>3077</td>
<td>3077</td>
</tr>
</tbody>
</table>

#### 14.2. UN proper shipping name

| Proper Shipping Name (ADR) | Environmentally hazardous substance, solid, n.o.s. (Manganese Sulfate Monohydrate) |
| Proper Shipping Name (IMDG) | Environmentally hazardous substance, solid, n.o.s. (Manganese Sulfate Monohydrate) |
| Proper Shipping Name (IATA) | Environmentally hazardous substance, solid, n.o.s. (Manganese Sulfate Monohydrate) |
| Proper Shipping Name (ADN) | Environmentally hazardous substance, solid, n.o.s. |
| Proper Shipping Name (RID) | Environmentally hazardous substance, solid, n.o.s. |

| Transport document description (ADR) | UN 3077 Environmentally hazardous substance, solid, n.o.s., 9, III, (Manganese Sulfate Monohydrate) |
| Transport document description (IMDG) | UN 3077 environmentally hazardous substance, solid, n.o.s. (Manganese Sulfate Monohydrate), 9, III, MARINE POLLUTANT |
| Transport document description (IATA) | UN 3077 Environmentally hazardous substance, solid, n.o.s. (Manganese Sulfate Monohydrate), 9, III |
| Transport document description (ADN) | UN 3077 Environmentally hazardous substance, solid, n.o.s., 9, III |
| Transport document description (RID) | UN 3077 Environmentally hazardous substance, solid, n.o.s., 9, III |

#### 14.3. Transport hazard class(es)

<table>
<thead>
<tr>
<th>ADR</th>
<th>Transportation hazard class(es) (ADR)</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Danger labels (ADR)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="danger_labels.png" alt="Danger Labels" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IMDG</th>
<th>Transportation hazard class(es) (IMDG)</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Danger labels (IMDG)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="danger_labels.png" alt="Danger Labels" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IATA</th>
<th>Transportation hazard class(es) (IATA)</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hazard labels (IATA)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><img src="danger_labels.png" alt="Danger Labels" /></td>
</tr>
</tbody>
</table>
# Manganese Sulfate Monohydrate

## Safety Data Sheet

according to Regulation (EU) 2015/830

7/2/2015 (Version: 1.0)

### ADN

Transport hazard class(es) (ADN) : 9
Danger labels (ADN) : 9

### RID

Transport hazard class(es) (RID) : 9
Danger labels (RID) : 9

### 14.4. Packing group

<table>
<thead>
<tr>
<th>Packing group (ADR)</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packing group (IMDG)</td>
<td>III</td>
</tr>
<tr>
<td>Packing group (IATA)</td>
<td>III</td>
</tr>
<tr>
<td>Packing group (ADN)</td>
<td>III</td>
</tr>
<tr>
<td>Packing group (RID)</td>
<td>III</td>
</tr>
</tbody>
</table>

### 14.5. Environmental hazards

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dangerous for the environment</td>
<td>Yes</td>
</tr>
<tr>
<td>Marine pollutant</td>
<td>Yes</td>
</tr>
<tr>
<td>Other information</td>
<td>No supplementary information available</td>
</tr>
</tbody>
</table>

### 14.6. Special precautions for user

#### Overland transport

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport regulations (ADR)</td>
<td>Subject</td>
</tr>
<tr>
<td>Classification code (ADR)</td>
<td>M7</td>
</tr>
<tr>
<td>Special provisions (ADR)</td>
<td>274, 335, 601, 375</td>
</tr>
<tr>
<td>Limited quantities (ADR)</td>
<td>5kg</td>
</tr>
<tr>
<td>Excepted quantities (ADR)</td>
<td>E1</td>
</tr>
<tr>
<td>Packing instructions (ADR)</td>
<td>P002, IBC08, LP02, R001</td>
</tr>
<tr>
<td>Special packing provisions (ADR)</td>
<td>PP12, B3</td>
</tr>
<tr>
<td>Mixed packing provisions (ADR)</td>
<td>MP10</td>
</tr>
<tr>
<td>Portable tank and bulk container instructions (ADR)</td>
<td>T1, BK1, BK2</td>
</tr>
<tr>
<td>Portable tank and bulk container special provisions (ADR)</td>
<td>TP33</td>
</tr>
<tr>
<td>Tank code (ADR)</td>
<td>SGA, LGBV</td>
</tr>
<tr>
<td>Vehicle for tank carriage</td>
<td>AT</td>
</tr>
<tr>
<td>Transport category (ADR)</td>
<td>3</td>
</tr>
<tr>
<td>Special provisions for carriage - Packages (ADR)</td>
<td>V13</td>
</tr>
<tr>
<td>Special provisions for carriage - Bulk (ADR)</td>
<td>VC1, VC2</td>
</tr>
<tr>
<td>Special provisions for carriage - Loading, unloading and handling (ADR)</td>
<td>CV13</td>
</tr>
<tr>
<td>Hazard identification number (Kemler No.)</td>
<td>90</td>
</tr>
<tr>
<td>Orange plates</td>
<td>90</td>
</tr>
</tbody>
</table>

### Tunnel restriction code (ADR)

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3077</td>
</tr>
</tbody>
</table>
Manganese Sulfate Monohydrate  
Safety Data Sheet  
according to Regulation (EU) 2015/830  

**Transport by sea**

- **Transport regulations (IMDG):** Subject
- **Special provisions (IMDG):** 274, 335, 966, 967, 969
- **Limited quantities (IMDG):** 5 kg
- **Excepted quantities (IMDG):** E1
- **Packing instructions (IMDG):** P002, LP02
- **Special packing provisions (IMDG):** PP12
- **IBC packing instructions (IMDG):** IBC08
- **IBC special provisions (IMDG):** B3
- **Tank instructions (IMDG):** T1, BK1, BK2, BK3
- **Tank special provisions (IMDG):** TP33
- **EmS-No. (Fire):** F-A
- **EmS-No. (Spillage):** S-F
- **Stowage category (IMDG):** A
- **Stowage and handling (IMDG):** SW23

**Air transport**

- **Transport regulations (IATA):** Subject to the provisions
- **PCA Excepted quantities (IATA):** E1
- **PCA Limited quantities (IATA):** Y956
- **PCA limited quantity max net quantity (IATA):** 30kgG
- **PCA packing instructions (IATA):** 956
- **PCA max net quantity (IATA):** 400kg
- **CAO packing instructions (IATA):** 956
- **CAO max net quantity (IATA):** 400kg
- **Special provisions (IATA):** A97, A158, A179, A197
- **ERG code (IATA):** 9L

**Inland waterway transport**

- **Transport regulations (ADN):** Subject
- **Classification code (ADN):** M7
- **Special provisions (ADN):** 274, 335, 375, 601
- **Limited quantities (ADN):** 5 kg
- **Excepted quantities (ADN):** E1
- **Carriage permitted (ADN):** T*, B**
- **Equipment required (ADN):** PP, A
- **Number of blue cones/lights (ADN):** 0

**Rail transport**

- **Transport regulations (RID):** Subject
- **Classification code (RID):** M7
- **Special provisions (RID):** 274, 335, 375, 601
- **Limited quantities (RID):** 5kg
- **Excepted quantities (RID):** E1
- **Packing instructions (RID):** P002, IBC08, LP02, R001
- **Special packing provisions (RID):** PP12, B3
- **Mixed packing provisions (RID):** MP10
- **Portable tank and bulk container instructions (RID):** T1, BK1, BK2
- **Portable tank and bulk container special provisions (RID):** TP33
- **Tank codes for RID tanks (RID):** SGAV, LGBV
- **Transport category (RID):** 3
- **Special provisions for carriage – Packages (RID):** W13
- **Special provisions for carriage – Bulk (RID):** VC1, VC2
- **Special provisions for carriage - Loading, unloading and handling (RID):** CW13, CW31
- **Colis express (express parcels) (RID):** CE11
- **Hazard identification number (RID):** 90

**14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

Not applicable

7/2/2015 (Version: 1.0)  
7/9/2019 (Version: 8.2)
Manganese Sulfate Monohydrate
Safety Data Sheet
according to Regulation (EU) 2015/830

SECTION 15: Regulatory information
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations
No REACH Annex XVII restrictions
Manganese Sulfate Monohydrate is not on the REACH Candidate List
Manganese Sulfate Monohydrate is not on the REACH Annex XIV List

VOC content : 0 %
Directive 2012/18/EU (SEVESO III)

15.1.2. National regulations
Not listed on the United States TSCA (Toxic Substances Control Act) inventory
Not listed on the Canadian DSL (Domestic Substances List)/NDSL (Non-Domestic Substances List)

15.2. Chemical safety assessment
No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes:
This sheet was updated (refer to the date at the top of this page).

Full text of H- and EUH-statements:

| H373  | May cause damage to organs through prolonged or repeated exposure. |
| H411  | Toxic to aquatic life with long lasting effects. |

SDS EU (REACH Annex II)
This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.