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

1.1. Product identifier
Product form : Substance
Substance name : Manganous Sulfate, Monohydrate
Chemical name : Manganese (II) Sulfate Monohydrate
CAS No : 10034-96-5
Product code : LC16555
Formula : MnSO₄·H₂O

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/mixture : For laboratory and manufacturing use only.

1.3. Details of the supplier of the safety data sheet
LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-6230 - F 724-473-0647
info@labchem.com - www.labchem.com

1.4. Emergency telephone number
Emergency number : CHEMTREC: 1-800-424-9300 or 011-703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture
GHS-US classification
STOT RE 2 H373
Aquatic Chronic 2 H411

2.2. Label elements
GHS-US labelling
Hazard pictograms (GHS-US) :

GHS08
GHS09

Signal word (GHS-US) : Warning
Hazard statements (GHS-US) :
H373 - May cause damage to organs (central nervous system) through prolonged or repeated exposure (Inhalation)
H411 - Toxic to aquatic life with long lasting effects
Precautionary statements (GHS-US) :
P260 - Do not breathe dust
P273 - Avoid release to the environment
P314 - Get medical advice and attention if you feel unwell
P391 - Collect spillage
P501 - Dispose of contents/container to comply with local, state and federal regulations

2.3. Other hazards
Other hazards not contributing to the classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS-US)
No data available

SECTION 3: Composition/information on ingredients

3.1. Substance
Substance type : Mono-constituent
Name : Manganous Sulfate, Monohydrate
CAS No : 10034-96-5
Name: Manganous Sulfate, Monohydrate  
Product identifier: (CAS No) 10034-96-5  
%: 100  
GHS-US classification: STOT RE 2, H373 Aquatic Chronic 2, H411

3.2. Mixture  
Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures  
First-aid measures general: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).
First-aid measures after inhalation: Assure fresh air breathing. Allow the victim to rest.
First-aid measures after skin contact: Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse.
First-aid measures after eye contact: Rinse immediately with plenty of water. Obtain medical attention if pain, blinking or redness persist.
First-aid measures after ingestion: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

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

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

SECTION 5: Firefighting measures

5.1. Extinguishing media  
Unsuitable extinguishing media: Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture  
No additional information available

5.3. Advice for firefighters  
Firefighting instructions: Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment.
Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel  
Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders  
Protective equipment: Equip cleanup crew with proper protection.
Emergency procedures: Ventilate area.

6.2. Environmental precautions  
Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters. Avoid release to the environment.

6.3. Methods and material for containment and cleaning up  
Methods for cleaning up: On land, sweep or shovel into suitable containers. Minimize generation of dust. Store away from other materials.

6.4. Reference to other sections  
See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling  
Precautions for safe handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapour. Avoid breathing dust.
7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container closed when not in use.
Incompatible materials: Sources of ignition. Direct sunlight.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Manganese Sulfate, Monohydrate (10034-96-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA ACGIH ACGIH TWA (mg/m³)</td>
</tr>
<tr>
<td>USA OSHA OSHA PEL (Ceiling) (mg/m³)</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Appropriate engineering controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation.
Personal protective equipment: Avoid all unnecessary exposure.
Hand protection: Wear protective gloves.
Eye protection: Chemical goggles or safety glasses.
Respiratory protection: Wear appropriate mask.
Other information: Do not eat, drink or smoke during use.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Solid
Molecular mass: 169.02 g/mol
Colour: Pink
Odour: None.
Odour threshold: No data available
pH: No data available
pH solution: 5 (3 - 3.5) %
Relative evaporation rate (butylacetate=1): No data available
Melting point: 700 °C
Freezing point: No data available
Boiling point: 850 °C
Flash point: No data available
Auto-ignition temperature: No data available
Decomposition temperature: 850 °C
Flammability (solid, gas): No data available
Vapour pressure: No data available
Relative vapour density at 20 °C: No data available
Relative density: 3.25
Solubility: Water:
Log Pow: No data available
Log Kow: No data available
Viscosity, kinematic: No data available
Viscosity, dynamic: No data available
Explosive properties: No data available
Oxidising properties: No data available
Explosive limits: No data available

9.2. Other information

No additional information available
SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Hygroscopic.

10.3. Possibility of hazardous reactions
Not established.

10.4. Conditions to avoid
Direct sunlight. Extremely high or low temperatures.

10.5. Incompatible materials

10.6. Hazardous decomposition products
Sulfur compounds.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

<table>
<thead>
<tr>
<th>Manganese Sulfate, Monohydrate ((10034-96-5))</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD₅₀ oral rat</td>
</tr>
<tr>
<td>ATE US (oral)</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Not classified

Serious eye damage/irritation : Not classified

Respiratory or skin sensitisation : Not classified

Germ cell mutagenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : May cause damage to organs (central nervous system) through prolonged or repeated exposure. May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

Potential adverse human health effects and symptoms : Based on available data, the classification criteria are not met.


SECTION 12: Ecological information

12.1. Toxicity
Ecology - water : Toxic to aquatic life with long lasting effects.

12.2. Persistence and degradability

<table>
<thead>
<tr>
<th>Manganese Sulfate, Monohydrate (10034-96-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>Manganese Sulfate, Monohydrate (10034-96-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioaccumulative potential</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
Effect on ozone layer : No additional information available
SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations: Dispose in a safe manner in accordance with local/national regulations. Dispose of contents/container to comply with local, state and federal regulations.

Ecology - waste materials: Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT
Not regulated for transport

Additional information

Other information: No supplementary information available.

ADR

Transport document description:

Transport by sea
No additional information available

Air transport
No additional information available

SECTION 15: Regulatory information

15.1. US Federal regulations

<table>
<thead>
<tr>
<th>Manganous Sulfate, Monohydrate (10034-96-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not listed on the United States TSCA (Toxic Substances Control Act) inventory</td>
</tr>
<tr>
<td>Listed on SARA Section 313 (Specific toxic chemical listings)</td>
</tr>
<tr>
<td>SARA Section 311/312 Hazard Classes Delayed (chronic) health hazard</td>
</tr>
</tbody>
</table>

15.2. International regulations

CANADA

<table>
<thead>
<tr>
<th>Manganous Sulfate, Monohydrate (10034-96-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not listed on the Canadian DSL (Domestic Substances List) inventory.</td>
</tr>
<tr>
<td>WHMIS Classification Class D Division 2 Subdivision B - Toxic material causing other toxic effects</td>
</tr>
</tbody>
</table>

EU-Regulations

No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Not classified

Classification according to Directive 67/548/EEC or 1999/45/EC
Not classified

15.2.2. National regulations

<table>
<thead>
<tr>
<th>Manganous Sulfate, Monohydrate (10034-96-5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed on the Canadian Ingredient Disclosure List</td>
</tr>
</tbody>
</table>

15.3. US State regulations

No additional information available

SECTION 16: Other information

Other information: None.

Full text of H-phrases: see section 16:

|Aquatic Chronic 2| Hazardous to the aquatic environment — Chronic Hazard, Category 2|
|STOT RE 2| Specific target organ toxicity — Repeated exposure, Category 2|
Manganous Sulfate, Monohydrate
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>H373</th>
<th>May cause damage to organs through prolonged or repeated exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>H411</td>
<td>Toxic to aquatic life with long lasting effects</td>
</tr>
</tbody>
</table>

NFPA health hazard  : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.
NFPA fire hazard   : 0 - Materials that will not burn.
NFPA reactivity    : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.

**HMIS III Rating**

Health            : 1 Slight Hazard - Irritation or minor reversible injury possible
Flammability       : 0 Minimal Hazard
Physical          : 0 Minimal Hazard
Personal Protection : E

SDS US (GHS HazCom 2012)

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