SECTION 1: Identification of the substance/mixture

1.1. Product identifier

Product form: Substance
Substance name: Ferrous Sulfate Heptahydrate
Formula: \( \text{FeSO}_4 \cdot 7\text{H}_2\text{O} \)
Molecular weight: 278.01 g/mol
CAS No.: 7782-63-0
Product code: LW-FESO4
Synonyms: Iron(II) sulfate heptahydrate

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture: Laboratory chemicals, Manufacture of substances

1.3. Emergency telephone number

Emergency number: 1.800.424.9300 (USA)
+1.703.527.3887 (INT)

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302
Skin irritation (Category 2), H315
Eye irritation (Category 2A), H319

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2. GHS Label elements, including precautionary statements

Pictogram:

Signal word: Warning

Hazard statement(s)

H302: Harmful if swallowed.
H315: Causes skin irritation.
H319: Causes serious eye irritation.

Precautionary statement(s)

P264: Wash skin thoroughly after handling.
P270: Do not eat, drink or smoke when using this product.
Ferrous Sulfate
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P280 : Wear eye protection/ face protection.
P280 : Wear protective gloves.
P301 + P312 + P330 : IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
P302 + P352 : IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338 : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P332 + P313 : If skin irritation occurs: Get medical advice/ attention.
P337 + P313 : If eye irritation persists: Get medical advice/ attention.
P362 : Take off contaminated clothing and wash before reuse.
P501 : Dispose of contents/ container to an approved waste disposal plant.

2.3. Hazards not otherwise classified (HNOC) or not covered by GHS

none

SECTION 3: Composition/information on ingredients

3.1. Substances

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrous sulfate heptahydrate</td>
<td>Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2A; H302, H315, H319</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: Description of first aid measures

4.1. Description of first aid measures

General advice : Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

First-aid measures after inhalation : If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

First-aid measures after skin contact : Wash off with soap and plenty of water. Consult a physician.

First-aid measures after eye contact : Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

First-aid measures after ingestion : Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
4.2. **Most important symptoms and effects, both acute and delayed**
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3. **Indication of any immediate medical attention and special treatment needed**
No data available

### SECTION 5: Firefighting measures

5.1. **Extinguishing media**
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

5.2. **Special hazards arising from the substance or mixture**
No data available.

5.3. **Advice for firefighters**
Wear self-contained breathing apparatus for firefighting if necessary.

5.4. **More Information**
The product itself does not burn.

### SECTION 6: Accidental release measures

6.1. **Personal precautions, protective equipment and emergency procedures**
Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Avoid breathing dust.
For personal protection see section 8.

6.2. **Environmental precautions**
Do not let product enter drains.

6.3. **Methods and material for containment and cleaning up**
Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4. **Reference to other sections**
For disposal see section 13.

### SECTION 7: Handling and storage

7.1. **Precautions for safe handling**
Avoid contact with skin and eyes. Avoid formation of dust and aerosols.
Provide appropriate exhaust ventilation at places where dust is formed.
For precautions see section 2.2.
7.2. Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.
Air sensitive. Store under inert gas. hygroscopic

7.3. Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Components with workplace control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferrous sulfate heptahydrate</td>
<td>7782-63-0</td>
<td>TWA</td>
<td>1.000000 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Upper Respiratory Tract irritation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin irritation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Varies</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>1.000000 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>Upper Respiratory Tract irritation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skin irritation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Varies</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>PEL</td>
<td>1 mg/m³</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
</tr>
</tbody>
</table>

8.2. Exposure controls
Appropriate engineering controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3. Personal protective equipment
Eye protection: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Skin Protection: Handle with gloves. Gloves must be inspected prior to use. Use
proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M)
data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body protection : Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection : For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Environmental exposure controls : Do not let product enter drains.

SECTION 9: Physical and chemical properties
Ferrous Sulfate
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>Form: solid</td>
</tr>
<tr>
<td>Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>3.0 - 4.0 at 50 g/l at 25 °C (77 °F)</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>Melting point/range: 64 °C (147 °F)</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Upper/lower flammability or explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>14.6 hPa (11.0 mmHg) at 25 °C (77 °F)</td>
</tr>
<tr>
<td>Vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.898 g/cm3 at 25 °C (77 °F)</td>
</tr>
<tr>
<td>Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
</tbody>
</table>

9.2. Other information

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk density</td>
<td>1,300 kg/m3</td>
</tr>
</tbody>
</table>

SECTION 10: Stability and reactivity

10.1. Reactivity
No data available

10.2. Chemical stability
Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions
No data available

10.4. Conditions to avoid
No data available
10.5. Incompatible materials
Strong oxidizing agents

10.6. Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Sulphur oxides, Iron oxides
Other decomposition products - No data available
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity
- LD50 Oral - Mouse - 1,520 mg/kg
- Inhalation: No data available
- Dermal: No data available
- LD50 Intraperitoneal - Mouse - 245 mg/kg
- LD50 Intravenous - Mouse - 51 mg/kg

Skin corrosion/irritation: No data available
Serious eye damage/irritation: No data available
Respiratory or skin sensitization: No data available
Germ cell mutagenicity: No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity: No data available
Specific target organ toxicity (single exposure): No data available
Specific target organ toxicity (repeated exposure): No data available
Aspiration hazard: No data available
Additional Information: RTECS: NO8510000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

**SECTION 12: Ecological information**

12.1. Toxicty : No data available

12.3. Persistence and Degradability : No data available

12.3. Bioaccumulative potential : No data available

12.3. Mobility in soil : No data available

12.4. Results of PBT and vPvB assessment : PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6. Other adverse effects : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life.

**SECTION 13: Disposal considerations**

13.1. Waste treatment methods

Product : Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated Packaging : Dispose of as unused product.

**SECTION 14: Transport information**

**DOT (US)**

UN number : 3077

Class : 9

Packing group : III

Proper shipping name : Environmentally hazardous substances, solid, n.o.s. (Ferrous sulfate heptahydrate)

Reportable Quantity (RQ) : 1000 lbs

Poison Inhalation Hazard : No

**IMDG**

Not dangerous goods

**IATA**

Not dangerous goods
SECTION 15: Regulatory information

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Acute Health Hazard

Massachusetts Right To Know Components
Ferrous sulfate heptahydrate  
CAS-No.  
7782-63-0  
Revision Date  
1993-04-24  
No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components
Ferrous sulfate heptahydrate  
CAS-No.  
7782-63-0  
Revision Date  
1993-04-24  

New Jersey Right To Know Components
Ferrous sulfate heptahydrate  
CAS-No.  
7782-63-0  
Revision Date  
1993-04-24  

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox. : Acute toxicity
Eye Irrit. : Eye irritation
H302 : Harmful if swallowed.
H315 : Causes skin irritation.
H319 : Causes serious eye irritation.
Skin Irrit. : Skin irritation
H318 : Causes serious eye damage.
H401 : Toxic to aquatic life.
Met. Corr. : Corrosive to metals

HMIS Rating
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Health Hazard : 2
Chronic Health Hazard : *
Flammability : 0
Physical Hazard : 0

NFPA Rating
Health hazard : 2
Fire Hazard : 0
Reactivity Hazard : 0

Further Information
Information in this SDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and Issuer assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his/her application.