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

1.1. **Product identifier**

- **Product form**: Substance
- **Trade name**: Ferrous Sulfate, Heptahydrate
- **CAS No**: 7782-63-0
- **Formula**: FeSO4.7H2O
- **Synonyms**: copperas, green / copperas, heptahydrate / duretter, heptahydrate / duroferon, heptahydrate / exsiccated ferrous sulfate / exsiccated ferrous sulphate / feosol / feospan / fer in sol / ferro gradumet / ferralyn / ferro theron / ferrosulfate, heptahydrate / ferrous sulfate, heptahydrate / fosfor / fosotyme / green vitrol / haemofort / iron sulfate, heptahydrate / iron sulphate, heptahydrate / iron vitriol, heptahydrate / iron(II)sulfate-7-hydrate / ironate / ironmonosulfate, heptahydrate / ironous sulfate, heptahydrate / irosol / melanterite / melanterite, natural / mol-iron / presfersul / slow-Fe / sulfate, sugar / sulfurous / sulfuric acid iron salt, heptahydrate / sulfuric acid iron(II)salt, heptahydrate / sulfuric acid, iron(2+) salt (1:1), heptahydrate / vitriol, green, heptahydrate

**BIG no**: 15905

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

- **Use of the substance/mixture**: Herbicide
- **Fertilizer**: raw material
- **Animal feeding stuff**: supplement
- **Food industry**: supplement

1.3. **Details of the supplier of the safety data sheet**

MarVista Resources
745 North Ave.
Corcoran, Ca. 93212 - USA
T 559-992-4535

1.4. **Emergency telephone number**

- **Emergency number**: 24 Hour Emergency HAZMAT Response: (800) 229-5252: EPA National Response Center: (800) 424-8802

**SECTION 2: Hazards identification**

2.1. **Classification of the substance or mixture**

- **Classification (GHS-US)**
  - Acute Tox. 4 (Oral) H302
  - Skin Irrit. 2 H315

**Full text of H-phrases: see section 16**

2.2. **Label elements**

**GHS-US labeling**

- **Hazard pictograms (GHS-US)**:  ![](https://via.placeholder.com/150)

**Signal word (GHS-US)**: Warning

**Hazard statements (GHS-US)**: H302 - Harmful if swallowed
H315 - Causes skin irritation
H319 - Causes serious eye irritation

**Precautionary statements (GHS-US)**: P264 - Wash Skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear eye protection, protective gloves
P301+P312 - If swallowed: Call a doctor if you feel unwell
P302+P352 - If on skin: Wash with plenty of 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
P321 - Specific treatment (see Section 4 on this label)
2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/information on ingredients

3.1. Substance

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>iron(II) sulfate, heptahydrate (Main constituent)</td>
<td>(CAS No) 7782-63-0</td>
<td>100</td>
<td>Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315</td>
</tr>
</tbody>
</table>

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures


First-aid measures after inhalation: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

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

First-aid measures after eye contact: Rinse immediately with plenty of water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.


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

Symptoms/injuries: If you feel unwell, seek medical advice (show the label where possible).
Symptoms/injuries after inhalation: AFTER INHALATION OF DUST: Dry/sore throat. Irritation of the respiratory tract. Irritation of the nasal mucous membranes.
Symptoms/injuries after skin contact: Red skin. Itching. Tingling/irritation of the skin.
Symptoms/injuries after eye contact: Irritation of the eye tissue.

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: Adapt extinguishing media to the environment.

Unsuitable extinguishing media: No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

Fire hazard: DIRECT FIRE HAZARD. Non combustible.

Explosion hazard: DIRECT EXPLOSION HAZARD. No data available on direct explosion hazard. INDIRECT EXPLOSION HAZARD. No data available on indirect explosion hazard.

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.

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel
Emergency procedures: Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes.
Measures in case of dust release: In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. 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*.

6.2. Environmental precautions
Avoid release to the environment.

6.3. Methods and material for containment and cleaning up
For containment: Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.
Methods for cleaning up: Stop dust cloud by humidifying. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Wash down leftovers with plenty 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 8: Exposure controls/personal protection**.

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Precautions for safe handling: Comply with the legal requirements. Remove contaminated clothing immediately. Thoroughly clean/dry the installation before use. Avoid raising dust. Keep away from naked flames/heat. Observe strict hygiene. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.
Hygiene measures: Wash contaminated clothing before reuse. 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
Storage conditions: Store in a well-ventilated place. Keep cool.
Heat-ignition: KEEP SUBSTANCE AWAY FROM: heat sources.
Prohibitions on mixed storage: KEEP SUBSTANCE AWAY FROM: oxidizing agents. (strong) bases. water/moisture.
Storage area: Store in a dry area. Store at ambient temperature. Meet the legal requirements.
Special rules on packaging: SPECIAL REQUIREMENTS: herметical, watertight, dry, clean, correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
Packaging materials: SUITABLE MATERIAL: cardboard. wood. synthetic material. glass.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection
8.1. Control parameters
<table>
<thead>
<tr>
<th>Ferrous Sulfate, Heptahydrate (7782-63-0)</th>
<th>ACGIH</th>
<th>ACGIH TWA (mg/m³)</th>
<th>1 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACGIH</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

05/22/2015 EN (English US)
SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Physical state: Solid
- Appearance: Crystalline solid. Grains.
- Color: Blue-green On exposure to air: yellow-brown
- Odor: Odourless
- Odor threshold: No data available
- pH: 3.0 (5.0 %)
- pH solution: 5.0 %
- Melting point: 64 °C
- Freezing point: Not applicable
- Boiling point: Not applicable
- Flash point: Not applicable
- Relative evaporation rate (butyl acetate=1): No data available
- Flammability (solid, gas): No data available
- Explosion limits: Not applicable
- Explosive properties: No data available
- Oxidizing properties: No data available
- Vapor pressure: < 0.1 hPa
- Relative density: 1.9
- Relative vapor density at 20 °C: No data available
- Specific gravity / density: 1898 kg/m³
- Molecular mass: 278.05 g/mol
- Solubility: Soluble in water. Soluble in methanol. Soluble in glycerol. Water: 42 g/100ml
- Log Pow: No data available
- Log Kow: No data available
- Auto-ignition temperature: Not applicable
- Decomposition temperature: > 400 °C
- Viscosity: No data available
- Viscosity, kinematic: Not applicable
- Viscosity, dynamic: No data available

9.2. Other information

- VOC content: Not applicable
- Other properties: Substance has acid reaction.

SECTION 10: Stability and reactivity

10.1. Reactivity

On burning: release of toxic and corrosive gases/vapours (sulphur oxides). Oxidizes slowly in moist air. Reacts with (some) bases.

10.2. Chemical stability
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

Strong oxidizers.

10.6. Hazardous decomposition products

Sulfur oxides. Iron Oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure : Inhalation; Dermal

Acute toxicity : Oral: Harmful if swallowed.

Ferrous Sulfate, Heptahydrate (7782-63-0)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>1480 mg/kg (Rat)</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>1480.000 mg/kg body weight</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation : Causes skin irritation.

pH: 3.0 (5.0 %)

Serious eye damage/irritation : Not classified

pH: 3.0 (5.0 %)

Respiratory or skin sensitization : Not classified

Germ cell mutagenicity : Not classified

Carcinogenicity : Not classified

Reproductive toxicity : Not classified

Specific target organ toxicity (single exposure) : Not classified

Specific target organ toxicity (repeated exposure) : Not classified

Aspiration hazard : Not classified

Symptoms/injuries after inhalation : AFTER INHALATION OF DUST: Dry/sore throat. Irritation of the respiratory tract. Irritation of the nasal mucous membranes.

Symptoms/injuries after skin contact : Red skin. Itching. Tingling/irritation of the skin.

Symptoms/injuries after eye contact : Irritation of the eye tissue.


SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

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

Ecology - water : Mild water pollutant (surface water). Maximum concentration in drinking water: 0.200 mg/l (iron) (Directive 98/83/EC); 250 mg/l (sulfate) (Directive 98/83/EC). Slightly harmful to fishes (LC50(96h) 100-1000 mg/l). Slightly harmful to invertebrates (Daphnia) (EC50 (48h): 100 - 1000 mg/l). Slightly harmful to bacteria (EC50: 100 - 1000 mg/l). pH shift. Not harmful to activated sludge.

Ferrous Sulfate, Heptahydrate (7782-63-0)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish 1</td>
<td>925 mg/l (96 h; Poecilia reticulata)</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>7.2 mg/l (48 h; Daphnia magna; Metal ion)</td>
</tr>
<tr>
<td>LC50 fish 2</td>
<td>&gt; 200 mg/l (48 h; Leuciscus idus)</td>
</tr>
<tr>
<td>EC50 Daphnia 2</td>
<td>152 mg/l (48 h; Daphnia magna; Anhydrous form)</td>
</tr>
</tbody>
</table>
### 12.2. Persistence and degradability


### 12.3. Bioaccumulative potential

| Ferrous Sulfate, Heptahydrate (7782-63-0) | Not bioaccumulative. |

### 12.4. Mobility in soil

No additional information available

### 12.5. Other adverse effects

No additional information available

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### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

| Waste 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. Precipitate/make insoluble. Remove to an authorized dump (Class I). |

| Additional information | LWCA (the Netherlands): KGA category 05. Hazardous waste according to Directive 2008/98/EC. |

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### SECTION 14: Transport information

#### Department of Transportation (DOT)

In accordance with DOT

| Transport document description | UN3077 Environmentally hazardous substances, solid, n.o.s. (Iron (II) Sulfate, Heptahydrate), 9, III |

| UN-No.(DOT) | UN3077 |
| Proper Shipping Name (DOT) | Environmentally hazardous substances, solid, n.o.s. Iron (II) Sulfate, Heptahydrate |
| Hazard Classes (DOT) | 9 - Class 9 - Miscellaneous hazardous material 49 CFR 173.140 |
| Hazard labels (DOT) | 9 - Class 9 (Miscellaneous dangerous materials) |

| Packing group (DOT) | III - Minor Danger |
| DOT Packaging Non Bulk (49 CFR 173.xxx) | 213 |
| DOT Packaging Bulk (49 CFR 173.xxx) | 240 |
| DOT Symbols | G - Identifies PSN requiring a technical name |
**DOT Special Provisions (49 CFR 172.102)**

8 - A hazardous substance that is not a hazardous waste may be shipped under the shipping description "Other regulated substances, liquid or solid, n.o.s.,” as appropriate. In addition, for solid materials, special provision B54 applies.

146 - This description may be used for a material that poses a hazard to the environment but does not meet the definition for a hazardous waste or a hazardous substance, as defined in 171.8 of this subchapter, or any hazard class as defined in Part 173 of this subchapter, if it is designated as environmentally hazardous by the Competent Authority of the country of origin, transit or destination.

335 - Mixtures of solids that are not subject to this subchapter and environmentally hazardous liquids or solids may be classified as "Environmentally hazardous substances, solid, n.o.s,” UN3077 and may be transported under this entry, provided there is no free liquid visible at the time the material is loaded or at the time the packaging or transport unit is closed. Each transport unit must be leak-proof when used as bulk packaging.

A112 - Notwithstanding the quantity limits shown in Column (9A) and (9B) for this entry, the following IBCs are authorized for transportation aboard passenger and cargo-only aircraft. Each IBC may not exceed a maximum net quantity of 1,000 kg:

- b. Rigid plastics: 11H1, 11H2, 21H1 and 21H2
- c. Composite with plastic inner receptacle: 11HZ1, 11HZ2, 21HZ1 and 21HZ2
- d. Fiberboard: 11G
- e. Wooden: 11C, 11D and 11F (with inner liners)
- f. Flexible: 13H2, 13H3, 13H4, 13H5, 13L2, 13L3, 13L4, 13M1 and 13M2 (flexible IBCs must be silt-proof and water resistant or must be fitted with a silt-proof and water resistant liner).

B54 - Open-top, silt-proof rail cars are also authorized.

IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1, 21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).

IP3 - Flexible IBCs must be silt-proof and water-resistant or must be fitted with a silt-proof and water-resistant liner.

N20 - A 5M1 multi-wall paper bag is authorized if transported in a closed transport vehicle.

T1 - 1.5 178.274(d)(2) Normal............. 178.275(d)(2)

TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

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**Additional Information**

**Other Information**

- No supplementary information available.

**ADR**

No additional information available

**Transport by Sea**

**UN-No. (IMDG)**

- 3077

**Proper Shipping Name (IMDG)**

- ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.

**Class (IMDG)**

- 9 - Miscellaneous dangerous compounds

**Packing group (IMDG)**

- III - substances presenting low danger

**Air Transport**

**UN-No.(IATA)**

- 3077

**Proper Shipping Name (IATA)**

- ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
Ferrous Sulfate, Heptahydrate
Safety Data Sheet
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 15: Regulatory information

15.1. US Federal regulations

Ferrous Sulfate, Heptahydrate (7782-63-0)
Not listed on the United States TSCA (Toxic Substances Control Act) inventory
Not listed on SARA Section 313 (Specific toxic chemical listings)
RQ (Reportable quantity, section 304 of EPA's List of Lists) 1000 lb

15.2. International regulations

CANADA
No additional information available

EU-Regulations
No additional information available

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Acute Tox. 4 (Oral) H302
Eye Irrit. 2 H319
Skin Irrit. 2 H315
Full text of H-phrases: see section 16

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]
Xn; R22
Xi; R36/38
Full text of R-phrases: see section 16

15.3. US State regulations

Ferrous Sulfate, Heptahydrate(7782-63-0)
State or local regulations
U.S. - Pennsylvania - RTK (Right to Know)
List<STATE_OR_LOCAL_REGULATIONS&disp=value&t>

SECTION 16: Other information

Full text of H-phrases:

<table>
<thead>
<tr>
<th>Acute Tox. 4 (Oral)</th>
<th>Acute toxicity (oral) Category 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skin Irrit. 2</td>
<td>Skin corrosion/irritation Category 2</td>
</tr>
<tr>
<td>H302</td>
<td>Harmful if swallowed</td>
</tr>
<tr>
<td>H315</td>
<td>Causes skin irritation</td>
</tr>
</tbody>
</table>

NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 1 - Normally stable, but can become unstable at elevated temperatures and pressures or may react with water with some release of energy, but not violently.

SDS US (GHS HazCom 2012)

All information contained in this Safety Data Sheet is furnished free of charge and is intended for your evaluation. In our opinion the information is, as of the date of this Safety Data Sheet, reliable, however, it is your responsibility to determine the suitability of the information for your use. You are advised not to construe the information as absolutely complete since additional information may be necessary or desirable when particular, exceptional or variable conditions or circumstances exist or because of applicable laws or government regulations. Therefore, you should use this information only as a supplement to other information gathered by you, and you must make independent determinations of the suitability and completeness of the information from all sources to assure both proper use of the material described herein and the safety and health of employees. Accordingly, no guarantee is expressed or implied as to the results to be obtained based upon your use of the information.