SECTION 1: Identification

1.1. Identification

Product form: Substance
Substance name: Ferric Chloride, Hexahydrate
CAS-No.: 10025-77-1
Product code: LC14290
Formula: FeCl₃·6H₂O
Synonyms: iron trichloride, hexahydrate / iron perchloride, hexahydrate

1.2. Recommended use and restrictions on use

Use of the substance/mixture: Water treatment
Waste water treatment
Chemical intermediate
Metal surface treatment
Agrochemical: component
Soil remediation

Recommended use: Laboratory chemicals
Restrictions on use: Not for food, drug or household use

1.3. Supplier

LabChem Inc
Jackson's Pointe Commerce Park Building 1000, 1010 Jackson's Pointe Court
Zelienople, PA 16063 - USA
T 412-826-5230 - 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: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification
Acute toxicity (oral) Category 4 H302 Harmful if swallowed
Skin corrosion/irritation Category 1C H314 Causes severe skin burns and eye damage
Serious eye damage/eye irritation Category 1 H318 Causes serious eye damage
Hazardous to the aquatic environment - Acute Hazard Category 2 H401 Toxic to aquatic life

Full text of H statements: see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labeling
Hazard pictograms (GHS-US): 

Signal word (GHS-US): Danger
Hazard statements (GHS-US):
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H401 - Toxic to aquatic life

Precautionary statements (GHS-US):
P260 - Do not breathe dust
P264 - Wash exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P273 - Avoid release to the environment
P280 - Wear protective gloves, protective clothing, eye protection, face protection
Ferric Chloride, Hexahydrate
Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

---

2.3. Other hazards which do not result in classification

Other hazards not contributing to the classification : None.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substances

Substance type : Mono-constituent

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferric Chloride, Hexahydrate</td>
<td>(CAS-No.) 10025-77-1</td>
<td>100</td>
<td>Acute Tox. 4 (Oral), H302</td>
</tr>
<tr>
<td>(Main constituent)</td>
<td></td>
<td></td>
<td>Skin Corr. 1C, H314</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Eye Dam. 1, H318</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Aquatic Acute 2, H401</td>
</tr>
</tbody>
</table>

Full text of hazard classes and 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 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. Take victim to a doctor if irritation persists. In case of burns: Wash immediately with lots of water (15 minutes)/shower. Do not apply (chemical) neutralizing agents. Remove clothing while washing. Do not remove clothing if it sticks to the skin. Cover wounds with sterile bandage. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital.

First-aid measures after eye contact : Rinse immediately with plenty of water for 15 minutes. Do not apply neutralizing agents. Take victim to an ophthalmologist.


4.2. Most important symptoms and effects (acute and delayed)


Symptoms/effects after skin contact : Tingling/irritation of the skin. ON CONTINUOUS EXPOSURE/CONTACT: Caustic burns/corrosion of the skin.

Symptoms/effects after eye contact : Inflammation/damage of the eye tissue. Corrosion of the eye tissue.


Chronic symptoms : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Slowing ossification.

4.3. Immediate medical attention and special treatment, if necessary

No additional information available
### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

**Suitable extinguishing media**: EXTINGUISHING MEDIA FOR SURROUNDING FIRES: Adapt extinguishing media to the environment.

**Unsuitable extinguishing media**: No unsuitable extinguishing media known.

#### 5.2. Specific hazards arising from the chemical

- **Fire hazard**: DIRECT FIRE HAZARD. Non combustible. INDIRECT FIRE HAZARD. Reactions involving a fire hazard: see "Reactivity Hazard".
- **Explosion hazard**: INDIRECT EXPLOSION HAZARD. Reactions with explosion hazards: see "Reactivity Hazard".
- **Reactivity**: Reacts slowly with water/(moist) air: release of toxic and corrosive gases/vapours (hydrogen chloride). Reacts on exposure to water (moisture) with (some) metals: release of highly flammable gases/vapours (hydrogen). Decomposes on exposure to temperature rise: release of toxic and corrosive gases/vapours (chlorine, hydrogen chloride). Reacts violently with (some) bases: release of heat.

#### 5.3. Special protective equipment and precautions for fire-fighters

- **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**: Cool tanks/drums with water spray/remove them into safety. Dilute toxic gases with water spray. Take account of toxic fire-fighting water. Use water moderately and if possible collect or contain it.
- **Protection during firefighting**: Heat/fire exposure: compressed air/oxygen apparatus.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

- **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 breathe dust. Equip cleanup crew with proper protection.
- **Emergency procedures**: Stop release. Ventilate area.

#### 6.2. Environmental precautions

Prevent soil and water pollution. Prevent spreading in sewers.

#### 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. Dam up the solid spill. Knock down/dilute dust cloud with water spray. Hazardous reaction: measure explosive gas-air mixture. If reacting: dilute combustible/toxic gases/vapours.
- **Methods for cleaning up**: Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Carefully collected the spill/leftovers. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

#### 6.4. Reference to other sections

No additional information available.

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

- **Precautions for safe handling**: Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Use corrosionproof equipment. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. 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.
7.2. Conditions for safe storage, including any incompatibilities

Storage conditions: Keep container tightly closed.
Incompatible materials: Hygroscopic.
Storage temperature: ≤ 35 °C
Heat-ignition: KEEP SUBSTANCE AWAY FROM: heat sources.
Storage area: Store at ambient temperature. Store in a dry area. Keep container in a well-ventilated place. Meet the legal requirements.
Special rules on packaging: SPECIAL REQUIREMENTS: hermetical, watertight, dry, clean. Correctly labelled. Meet the legal requirements. Secure fragile packagings in solid containers.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Ferric Chloride, Hexahydrate (10025-77-1) |
|-----------------|------------------|
| NIOSH            | NIOSH REL (TWA) (mg/m³) |
|                 | 1 mg/m³          |

8.2. Appropriate engineering controls

Appropriate engineering controls: Emergency eye wash fountains should be available in the immediate vicinity of any potential exposure. Provide adequate general and local exhaust ventilation.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:


Materials for protective clothing:


Hand protection:

Gloves

Eye protection:

Face shield. In case of dust production: protective goggles

Skin and body protection:

Protective clothing. In case of dust production: head/neck protection

Respiratory protection:

Dust production: dust mask with filter type P2. In moist conditions: Gas mask with filter type E

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: Solid
Appearance: Crystalline solid. Grains.
Color: Brown-yellow
Odor: Irritating/pungent odour. Almost odourless
Odor threshold: No data available
Ferric Chloride, Hexahydrate  
Safety Data Sheet  
according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>2 (2.7 %)</td>
</tr>
<tr>
<td>pH solution</td>
<td>2.7 %</td>
</tr>
<tr>
<td>Melting point</td>
<td>37 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>280 °C</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.66</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>270.32 g/mol</td>
</tr>
<tr>
<td>Solubility</td>
<td>Soluble in water. Soluble in ethanol. Soluble in ether. Soluble in acetone. Soluble in methanol. Water: 92 g/100ml (20 °C)</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Decomposition temperature</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>Explosion limits</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>
<tr>
<td>9.2. Other information</td>
<td></td>
</tr>
<tr>
<td>Minimum ignition energy</td>
<td>Not applicable</td>
</tr>
<tr>
<td>VOC content</td>
<td>0 %</td>
</tr>
<tr>
<td>Other properties</td>
<td>Hygroscopic. Substance has acid reaction.</td>
</tr>
</tbody>
</table>

**SECTION 10: Stability and reactivity**

**10.1. Reactivity**
Reacts slowly with water/ (moist) air: release of toxic and corrosive gases/vapours (hydrogen chloride). Reacts on exposure to water (moisture) with (some) metals: release of highly flammable gases/vapours (hydrogen). Decomposes on exposure to temperature rise: release of toxic and corrosive gases/vapours (chlorine, hydrogen chloride). Reacts violently with (some) bases: release of heat.

**10.2. Chemical stability**
Unstable on exposure to moisture.

**10.3. Possibility of hazardous reactions**
Not established.

**10.4. Conditions to avoid**
Incompatible materials. Moisture.

**10.5. Incompatible materials**

**10.6. Hazardous decomposition products**

**SECTION 11: Toxicological information**

**11.1. Information on toxicological effects**

- Likely routes of exposure: Inhalation; Skin and eye contact
- Acute toxicity: Oral: Harmful if swallowed.

**Ferric Chloride, Hexahydrate (10025-77-1)**

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>1872 mg/kg (Rat)</td>
</tr>
<tr>
<td>ATE US (oral)</td>
<td>1872 mg/kg body weight</td>
</tr>
</tbody>
</table>
### Ferric Chloride, Hexahydrate (10025-77-1)

**Section 1: Product Information**
- **Identification**
  - Product identifier: Ferric Chloride, Hexahydrate
  - Manufacturer: [Manufacturer Information]

**Section 2: Hazards Identification**
- **Inhalation**: AFTER INHALATION OF DUST: Dry/sore throat. Coughing. Irritation of the respiratory tract. Irritation of the nasal mucous membranes. FOLLOWING SYMPTOMS MAY APPEAR LATER: Respiratory difficulties.
- **Skin Contact**: Tingling/irritation of the skin. ON CONTINUOUS EXPOSURE/CONTACT: Caustic burns/corrosion of the skin.
- **Eye Contact**: Inflammation/damage of the eye tissue. Corrosion of the eye tissue.
- **Ingestion**: Nausea. Vomiting. Irritation of the gastric/intestinal mucosa. AFTER ABSORPTION OF LARGE QUANTITIES: Burns to the gastric/intestinal mucosa. FOLLOWING SYMPTOMS MAY APPEAR LATER: Urine discoloration.

**Section 3: First Aid Measures**
- **Inhalation**: Remove from exposure and bring to fresh air. Provide artificial respiration if necessary. Seek medical attention.
- **Skin Contact**: Wash affected area with soap and water. If symptoms persist, seek medical attention.
- **Eye Contact**: Flush with large amounts of water for 15 minutes. Seek medical attention.
- **Ingestion**: Do not induce vomiting. If swallowed, rinse mouth and gargle. Do not attempt to induce emesis. Seek medical attention.

**Section 4: Fire Fighting Measures**
- **Extinguishing Media**: Water, foam, alcohol-resistant foam, carbon dioxide, dry chemical, or chemically reactive. Avoid using water in large quantities.

**Section 5: Spill Containment and Clean-up**
- **Personal Protective Equipment**: Wear self-contained breathing apparatus (SCBA), self-contained breathing apparatus with a full facepiece (SCBA, full facepiece) if空气中is contaminated.

**Section 6: Handling and Storage**
- **Safe Handling Instructions**: Avoid contact with skin and eyes. Wash hands before eating, drinking, or smoking.

**Section 7: Exposure Controls/Personal Protection**
- **Engineering Controls**: Use closed systems and local exhaust ventilation.
- **Personal Protective Equipment**: Use appropriate respiratory protection, gloves, and eye protection.

**Section 8: Physical and Chemical Properties**
- **Appearance**: Colorless or nearly colorless crystals or granules.
- **Odor**: Characteristic iron-like odor.
- **Odor Threshold**: Not specified.

**Section 9: Stability and Reactivity**
- **Stability**: Stable under normal conditions.
- **Reactivity**: Reacts with acids to form hydrogen chloride gas.

**Section 10: Stability and Reactivity**
- **Stability**: Stable under normal conditions.
- **Reactivity**: Reacts with acids to form hydrogen chloride gas.

**Section 11: Toxicological Information**
- **Skin irritation/corrosion**: Causes severe skin burns and eye damage.
- **Serious eye damage/irritation**: Causes serious eye damage.
- **Respiratory/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.

**Section 12: Ecological Information**

#### 12.1. Toxicity
- **Ecology - General**: Classification concerning the environment: not applicable.

<table>
<thead>
<tr>
<th>Ferric Chloride, Hexahydrate (10025-77-1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50 Daphnia 1</td>
</tr>
<tr>
<td>LC50 fish 2</td>
</tr>
</tbody>
</table>

#### 12.2. Persistence and Degradability
- **Ferric Chloride, Hexahydrate (10025-77-1)**
- **Persistence and degradation**: Biodegradability: not applicable. Biodegradability in soil: not applicable. No test data on mobility of the substance available.
- **Biochemical oxygen demand (BOD)**: Not applicable
- **Chemical oxygen demand (COD)**: Not applicable
- **ThOD**: Not applicable

#### 12.3. Bioaccumulative Potential
- **Ferric Chloride, Hexahydrate (10025-77-1)**
- **BCF fish 1**: <= 100 (BCF)
- **Bioaccumulative potential**: No bioaccumulation data available.

#### 12.4. Mobility in Soil
- **Ferric Chloride, Hexahydrate (10025-77-1)**
- **No additional information available**

#### 12.5. Other Adverse Effects
- **Ferric Chloride, Hexahydrate (10025-77-1)**
- **No additional information available**
SECTION 13: Disposal considerations

13.1. Disposal 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. Remove for physico-chemical/biological treatment. Remove to an authorized dump (Class I). Do not discharge into drains or the environment.

Additional information: LWCA (the Netherlands): KGA category 04. Hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Transport document description: UN3260 Corrosive solid, acidic, inorganic, n.o.s., 8, III

UN-No.(DOT): UN3260

Proper Shipping Name (DOT): Corrosive solid, acidic, inorganic, n.o.s.

Transport hazard class(es) (DOT): 8 - Class 8 - Corrosive material 49 CFR 173.136

Packing group (DOT): III - Minor Danger

Hazard labels (DOT): 8 - Corrosive

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): 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.

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.

DOT Packaging Exceptions (49 CFR 173.xxx): 154

DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27): 25 kg

DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75): 100 kg

DOT Vessel Stowage Location: A - The material may be stowed “on deck” or “under deck” on a cargo vessel and on a passenger vessel.

Other information: No supplementary information available.
SECTION 15: Regulatory information

15.1. US Federal regulations

Ferric Chloride, Hexahydrate (10025-77-1)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

SARA Section 311/312 Hazard Classes

Immediate (acute) health hazard

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

| Ferric Chloride, Hexahydrate | CAS-No. 10025-77-1 | 100% |

15.2. International regulations

CANADA

No additional information available

EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

SECTION 16: Other information

Revision date : 06/14/2017

Full text of H-phrases: see section 16:

<table>
<thead>
<tr>
<th>H302</th>
<th>Harmful if swallowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>H314</td>
<td>Causes severe skin burns and eye damage</td>
</tr>
<tr>
<td>H318</td>
<td>Causes serious eye damage</td>
</tr>
<tr>
<td>H401</td>
<td>Toxic to aquatic life</td>
</tr>
</tbody>
</table>

NFPA health hazard

: 3 - Materials that, under emergency conditions, can cause serious or permanent injury.

NFPA fire hazard

: 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity

: 2 - Materials that readily undergo violent chemical change at elevated temperatures and pressures.

Hazard Rating

Health : 3 Serious Hazard - Major injury likely unless prompt action is taken and medical treatment is given

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 2 Moderate Hazard - Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion. Materials may react violently with water or form peroxides upon exposure to air.

Personal protection

: F

F - Safety glasses, Gloves, Synthetic apron, Dust respirator

SDS US LabChem

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