



# SAFETY DATA SHEET

Preparation Date: 04/13/2015

Revision Date: 04/13/2015

Revision Number: G1

## 1. IDENTIFICATION

### Product identifier

**Product code:** F1010  
**Product Name:** FERRIC CHLORIDE, HEXAHYDRATE, LUMP, REAGENT, ACS

### Other means of identification

**Synonyms:** Ferric chloride, hexahydrate  
Ferric trichloride hexahydrate  
Iron (III), chloride, hexahydrate  
Iron trichloride hexahydrate  
Iron chloride (FeCl<sub>3</sub>), hexahydrate

**CAS #:** 10025-77-1  
**RTECS #** NO5425000  
**CI#:** Not available

### Recommended use of the chemical and restrictions on use

**Recommended use:** No information available.  
**Uses advised against** No information available

**Supplier:** Spectrum Chemical Mfg. Corp  
14422 South San Pedro St.  
Gardena, CA 90248  
(310) 516-8000

**Order Online At:** <https://www.spectrumchemical.com>

**Emergency telephone number** Chemtrec 1-800-424-9300  
**Contact Person:** Martin LaBenz (West Coast)  
**Contact Person:** Ibad Tirmiz (East Coast)

## 2. HAZARDS IDENTIFICATION

### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute toxicity - Oral	Category 4
Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Corrosive to metals	Category 1

### Label elements

**Product code:** F1010

**Product name:** FERRIC CHLORIDE,  
HEXAHYDRATE, LUMP, REAGENT,  
ACS

1 / 12

## **Danger**

### **Hazard statements**

Harmful if swallowed

Causes severe skin burns and eye damage

May be corrosive to metals



### **Hazards not otherwise classified (HNOC)**

Not Applicable

### **Other hazards**

Not available

### **Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling

Do not eat, drink or smoke when using this product

Do not breathe dust/fume/gas/mist/vapors/spray

Wear protective gloves/protective clothing/eye protection/face protection

Keep only in original container

### **Precautionary Statements - Response**

*Immediately call a POISON CENTER or doctor/physician*

*Specific treatment (see .? on this label)*

Absorb spillage to prevent material damage

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Immediately call a POISON CENTER or doctor/physician.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower

Wash contaminated clothing before reuse

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell

Rinse mouth

Do NOT induce vomiting

### **Precautionary Statements - Storage**

Store locked up

Store in corrosive resistant/ .? container with a resistant inner liner

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Components	CAS-No.	Weight %	Trade Secret
Ferric Chloride hexahydrate 10025-77-1	10025-77-1	100	*

**4. FIRST AID MEASURES****First aid measures****General Advice:**

Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

**Skin Contact:**

Wash off immediately with soap and plenty of water. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

**Eye Contact:**

Flush eye with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

**Inhalation:**

Move to fresh air. If not breathing, give artificial respiration. **WARNING!** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

**Ingestion:**

Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention. Call a physician immediately.

**Most important symptoms and effects, both acute and delayed****Symptoms**

Severe skin and eye irritation or burns. May cause corneal injury. Causes digestive (gastrointestinal) tract irritation. May cause gastrointestinal (digestive) tract burns. May affect the liver.

**Indication of any immediate medical attention and special treatment needed****Notes to Physician:**

Treat symptomatically

**Protection of first-aiders**

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

**5. FIRE-FIGHTING MEASURES****Extinguishing Media****Suitable Extinguishing Media:**

The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

**Unsuitable Extinguishing Media:**

No information available.

**Specific hazards arising from the chemical**

Product code: F1010

Product name: FERRIC CHLORIDE,  
HEXAHYDRATE, LUMP, REAGENT,  
ACS

3 / 12

**Hazardous Combustion Products:**

If involved the following products of combustion may be produced: Hydrogen Chloride gas, iron oxides

**Specific hazards:**

No information available.

**Special Protective Actions for Firefighters****Specific Methods:**

No information available.

**Special Protective Equipment for Firefighters:**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

**6. ACCIDENTAL RELEASE MEASURES****Personal precautions, protective equipment and emergency procedures****Personal Precautions:**

Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use personal protective equipment. Avoid breathing dust.

**Environmental precautions**

Do not let product enter drains. Prevent further leakage or spillage if safe to do so. Prevent entry into waterways, sewers, basements or confined areas.

**Methods and material for containment and cleaning up****Methods for containment**

Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

**Methods for cleaning up**

Sweep up and shovel into suitable containers for disposal. Use appropriate tools to put the spilled solid in a suitable waste disposal container. Clean contaminated surface thoroughly.

**7. HANDLING AND STORAGE****Precautions for safe handling****Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials. Do not allow contact with water.

**Safe Handling Advice**

Avoid contact with skin, eyes and clothing. Do not ingest. Do not smoke. Do not breathe vapours/dust. Handle in accordance with good industrial hygiene and safety practice. Keep container tightly sealed. Use only in well-ventilated areas. Wear personal protective equipment.

**Conditions for safe storage, including any incompatibilities****Technical Measures/Storage Conditions:**

Deliquescent. Keep container tightly closed in a dry and well-ventilated place. Protect from moisture. Store at room temperature in the original container. Store in a segregated and approved area.

**Incompatible Materials:**

Strong bases. Oxidizing agents. Allyl chloride. Ethylene oxide. Metals. Potassium. Sodium.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Control parameters**

## National occupational exposure limits

### United States

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Ferric Chloride hexahydrate 10025-77-1	None	1 mg/m <sup>3</sup> TWA (as Fe)	None	None

### Canada

Components	Alberta	British Columbia	Ontario	Quebec
Ferric Chloride hexahydrate 10025-77-1	1 mg/m <sup>3</sup> TWA (as Fe)	1 mg/m <sup>3</sup> TWA (as Fe) 2 mg/m <sup>3</sup> STEL (as Fe)	1 mg/m <sup>3</sup> TWA (as Fe)	1 mg/m <sup>3</sup> TWAEV (as Fe)

### Australia and Mexico

Components	Australia	Mexico
Ferric Chloride hexahydrate 10025-77-1	1 mg/m <sup>3</sup> TWA (as Fe)	1 mg/m <sup>3</sup> TWA (as Fe) 2 mg/m <sup>3</sup> STEL (as Fe)

## Appropriate engineering controls

### Engineering measures to reduce exposure:

Ensure adequate ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

## Individual protection measures, such as personal protective equipment

### Personal Protective Equipment

- Eye protection:** Goggles or Safety glasses with side-shields
- Skin and body protection:** Long sleeved clothing. Chemical resistant apron. Gloves.
- Respiratory protection:** Effective dust mask. or. Wear respirator with dust filter.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

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<b>Physical state:</b> Liquid	<b>Appearance:</b> Lumps.	<b>Color:</b> Yellow. Yellow Brown.
<b>Odor:</b> Odorless.	<b>Taste</b> No information available	<b>Molecular/Formula weight:</b> 270.30 g/mol
<b>Formula:</b> FeCl <sub>3</sub> ·6H <sub>2</sub> O	<b>Flammability:</b> No information available	<b>Flash point (°C):</b> No data available
<b>Flashpoint (°C/°F):</b> No information available.	<b>Flash Point Tested according to:</b> Not available	<b>Autoignition Temperature (°C/°F):</b> No information available
<b>Lower Explosion Limit (%):</b> No information available	<b>Upper Explosion Limit (%):</b> No information available	<b>pH:</b> 1.8
<b>Melting point/range(°C/°F):</b> 37°C/ 99°F	<b>Boiling point/range(°C/°F):</b> 280-285°C/ 536-545°F	<b>Decomposition temperature(°C/°F):</b> No information available
<b>Bulk density:</b> No information available	<b>Specific gravity:</b> 1.82	<b>Density (g/cm<sup>3</sup>):</b> No information available
<b>Vapor pressure @ 20°C (kPa):</b> No information available	<b>Evaporation rate:</b> No information available	<b>Vapor density:</b> No information available
<b>VOC content (g/L):</b> No information available	<b>Odor threshold (ppm):</b> No information available	<b>Partition coefficient (n-octanol/water):</b> No information available
<b>Viscosity:</b> No information available	<b>Miscibility:</b> No information available	<b>Solubility:</b> Soluble in water: 920 g/l @ 20°C Easily soluble in cold water Easily soluble in hot water Easily soluble in diethyl ether Easily soluble in acetone Soluble in Alcohol

## 10. STABILITY AND REACTIVITY

### Reactivity

Reactive with oxidizing agents

Reacts with alkali metals

Reactive with allyl chloride, ethylene oxide, potassium sodium

It may react with water to produce toxic and corrosive fumes of hydrogen chloride. This information comes from looking at the hazards for Ferric Chloride, anhydrous

### Chemical stability

#### Stability:

Deliquescent. Stable under recommended storage conditions.

#### Possibility of Hazardous Reactions:

Hazardous polymerization does not occur

#### Conditions to avoid:

Exposure to moisture. Exposure to moist air. Incompatible materials.

#### Incompatible Materials:

Strong bases. Oxidizing agents. Allyl chloride. Ethylene oxide. Metals. Potassium. Sodium.

Hazardous decomposition products: Hydrogen chloride gas. Iron oxides.

### Other Information

**Product code:** F1010

**Product name:** FERRIC CHLORIDE,  
HEXAHYDRATE, LUMP, REAGENT,  
ACS

**6 / 12**

**Corrosivity:** No information available

**Special Remarks on Corrosivity:** No information available

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

**Principal Routes of Exposure:**

Ingestion. Inhalation.

### Acute Toxicity

### Component Information

*Ferric Chloride hexahydrate - 10025-77-1*

**LD50/oral/rat** = 900 mg/kg Oral LD50 Rat

**LD50/oral/mouse** = No information available

**LD50/dermal/rat** = No information available

**LD50/dermal/rabbit** = > 2000 mg/kg

**LC50/inhalation/rat** = No information available

**LC50/inhalation/mouse** = No information available

**Other LD50 or LC50 information** = No information available

### Product Information

**LD50/oral/rat** =

**VALUE- Acute Tox Oral** = 900mg/kg

**LD50/oral/mouse** =

**Value - Acute Tox Oral** = No information available

**LD50/dermal/rabbit**

**VALUE-Acute Tox Dermal** = No information available

**LD50/dermal/rat**

**VALUE -Acute Tox Dermal** = > 2000mg/kg

**LC50/inhalation/rat**

**VALUE-Vapor** = No information available

**VALUE-Gas** = No information available

**VALUE-Dust/Mist** = No information available

**LC50/Inhalation/mouse**

**VALUE-Vapor** = No information available

**VALUE - Gas** = No information available

**VALUE - Dust/Mist** = No information available

### Symptoms

**Skin Contact:**

Causes severe irritation and burns. Ferric chloride has been infrequently associated with skin sensitization in humans.

**Eye Contact:** Causes severe eye irritation and possible burns. Effects can vary from mild irritation to chemical conjunctivitis and corneal damage depending on the intensity and duration of exposure.

**Inhalation**  
**Ingestion** Causes irritation of the respiratory tract with possible burns.  
Harmful if swallowed. Causes irritation of the gastrointestinal (digestive) tract with nausea, vomiting, diarrhea, hemorrhage and possible burns. May cause severe and permanent damage to the digestive tract. Delayed effects may include cardiovascular disturbances, liver damage, kidney damage, metabolic acidosis, cerebral coma and possible death. It may also affect behavior/central nervous system (convulsions, lethargy)..

**Aspiration hazard** No information available

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Chronic Toxicity** Ingestion: May affect liver/spleen (increased iron levels and damage), urinary system (kidney, ureter, bladder), blood (changes in white blood cell count), central nervous system, and cardiovascular system. . May cause eye discoloration.

**Sensitization:** No information available

**Mutagenic Effects:** May affect genetic material

**Carcinogenic effects:** Not considered carcinogenic

Components	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Prohibited Carcinogenic Substances	Australia - Notifiable Carcinogenic Substances
Ferric Chloride hexahydrate	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

**Reproductive toxicity** No data is available

**Reproductive Effects:** May cause adverse reproductive effects based on animal data  
**Developmental Effects:** No information available  
**Teratogenic Effects:** No information available

**Specific Target Organ Toxicity**

**STOT - single exposure** No information available  
**STOT - repeated exposure** No information available  
**Target Organs:** Liver. Skin. Eyes.

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Ecotoxicity effects:** No data available.

**Persistence and degradability:** No information available

**Bioaccumulative potential:** No information available

**Product code:** F1010

**Product name:** FERRIC CHLORIDE,  
HEXAHYDRATE, LUMP, REAGENT,  
ACS

**8 / 12**



**Mobility:** No information available

### 13. DISPOSAL CONSIDERATIONS

#### Disposal Methods

**Waste from residues / unused products:**

Waste must be disposed of in accordance with Federal, State and Local regulation.

**Contaminated packaging:**

Empty containers should be taken for local recycling, recovery or waste disposal

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Ferric Chloride hexahydrate	None	None	None	None

### 14. TRANSPORT INFORMATION

#### DOT

**UN-No:** UN3260  
**Proper Shipping Name:** Corrosive solid, acidic, inorganic, n.o.s. (Ferric Chloride, hexahydrate)  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**ERG No:** 154  
**Marine Pollutant:** No data available  
**DOT RQ (lbs):** No information available  
**Symbol(s):** G

#### TDG (Canada)

**UN-No:** UN3260  
**Proper Shipping Name:** Corrosive solid, acidic, inorganic, n.o.s.  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**Description:** No information available

#### ADR

**UN-No:** UN3260  
**Proper Shipping Name:** Corrosive solid, acidic, inorganic, n.o.s.  
**Hazard Class:** 8  
**Packing Group:** III  
**Subsidiary Risk:** No information available  
**Classification Code:** No information available  
**Description:** No information available  
**CEFIC Tremcard No:** No information available

#### IMO / IMDG

**UN-No:** UN3260  
**Proper Shipping Name:** Corrosive solid, acidic, inorganic, n.o.s.  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available

**Product code:** F1010

**Product name:** FERRIC CHLORIDE,  
HEXAHYDRATE, LUMP, REAGENT,  
ACS

## 14. TRANSPORT INFORMATION

**Packing Group:** III  
**Description:** No information available  
**IMDG Page:** No information available  
**Marine Pollutant:** No information available  
**EMS:** F-A  
**MFAG:** No information available  
**Maximum Quantity:** No information available

### RID

**UN-No:** UN3260  
**Proper Shipping Name:** Corrosive solid, acidic, inorganic, n.o.s.  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**Classification Code:** No information available  
**Description:** No information available

### ICAO

**UN-No:** UN3260  
**Proper Shipping Name:** Corrosive solid, acidic, inorganic, n.o.s.  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**Description:** No information available

### IATA

**UN-No:** UN3260  
**Proper Shipping Name:** Corrosive solid, acidic, inorganic, n.o.s.  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**ERG Code:** 8L  
**Description:** No information available

## 15. REGULATORY INFORMATION

### International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
<i>Ferric Chloride hexahydrate</i>	Not Listed	Not present	Present	Not present	Present [23517]	Present	Not present

### U.S. Regulations

#### *Ferric Chloride hexahydrate*

**Pennsylvania RTK:** Present (as iron salts)

**Pennsylvania RTK - Environmental Hazard List** Present (as iron salts)

**Minnesota - Hazardous Substance List:** Present (as iron soluble salts)

**California Directors List of Hazardous Substances:** Present (as iron soluble salts; refers only to water-soluble salts not mixed in food or animal feed)

**FDA - Food Additives Generally Recognized as Safe (GRAS):** 21 CFR 184.1297

#### California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

#### Chemicals Known to the State of California to Cause Cancer:

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

**Product code:** F1010

**Product name:** FERRIC CHLORIDE,  
HEXAHYDRATE, LUMP, REAGENT,  
ACS

**10 / 12**

**Chemicals Known to the State of California to Cause Reproductive Toxicity:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Ferric Chloride hexahydrate	Not Listed	Not Listed	Not Listed	Not Listed

**CERCLA/SARA**

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting <i>de minimis</i>
<i>Ferric Chloride hexahydrate</i>	None	None	None	None	None

**U.S. TSCA**

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
<i>Ferric Chloride hexahydrate</i>	Not Applicable	Not Applicable

**Canada****WHMIS hazard class:**

Non-controlled

**Canada Controlled Products Regulation:**

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

**Inventory**

Components	Canada (DSL)	Canada (NDSL)
Ferric Chloride hexahydrate	Not Listed	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting
Ferric Chloride hexahydrate	Not listed	Not listed

**EU Classification****R-phrases)**

R22 - Harmful if swallowed.

R34 - Causes burns.

**S -phrase(s)**

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection.

Components	Classification	Concentration Limits:	Safety Phrases
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Product code: F1010

Product name: FERRIC CHLORIDE,  
HEXAHYDRATE, LUMP, REAGENT,  
ACS

11 / 12

Ferric Chloride hexahydrate		No information	
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The product is classified in accordance with Annex VI to Directive 67/548/EEC

**Indication of danger:**

C - Corrosive.

Xn - Harmful.



## 16. OTHER INFORMATION

Preparation Date: 04/13/2015  
Revision Date: 04/13/2015  
Prepared by: Sonia Owen

**Disclaimer:**

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet