



## Material Safety Data Sheet

### Ferric Chloride Solutions, 10 - 40% W/V

#### Section 1 - Chemical Product and Company Identification

**MSDS Name:**

Ferric chloride solutions, 10 - 40% W/V

**Catalog Numbers:**

LC14360, LC14370

**Synonyms:**

Ferric chloride solutions with hydrochloric acid

**Company Identification:**

LabChem, Inc.  
200 William Pitt Way  
Pittsburgh, PA 15238

**Company Phone Number:**

(412) 826-5230

**Emergency Phone Number:**

(800) 424-9300

**CHEMTREC Phone Number:**

(800) 424-9300

#### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name:	Percent
7732-18-5	Water	balance
10025-77-1	Ferric chloride, hexahydrate	10 - 40
7647-01-0	Hydrogen chloride	4.5 - 6.5

#### Section 3 - Hazards Identification

##### Emergency Overview

**Appearance:** *Dark amber solution*

**Danger!** Corrosive. Causes severe burns by all exposure routes. May cause liver and kidney damage. May cause central nervous system effects. May cause cardiac disturbances.

**Target Organs:** *kidneys, central nervous system, liver.*

##### Potential Health Effects

**Eye:**

Vapors are irritating to the eye. Liquid contact may result in clouding of the cornea and erosion, up to total corneal opacification and loss of the eye.

**Skin:**

May cause severe burns and ulceration. Skin may turn brown-yellow. Deep burns are slow to heal and scarring may occur.

**Ingestion:**

Causes severe digestive tract burns with abdominal pain, vomiting, and possible death. May cause corrosion and permanent tissue destruction of the esophagus and digestive tract. Ingestion can result



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in abdominal pain, vomiting with blood, diarrhea, dehydration, shock, pallor, cyanosis, hypothermia, acidosis, coagulation defects, respiratory and cardiac involvement, vasomotor instability leading to coma and death. Survivors may develop reversible liver damage, gastric scarring and pyloric obstruction.

**Inhalation:**

May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary edema.

**Chronic:**

Chronic exposure may result in dental erosion, jaw necrosis, respiratory disease, dermatitis, conjunctivitis, corneal scarring and fever. Repeated ingestion may cause central nervous system damage, increase iron levels in the liver, spleen, and lymphatic system, and cause damage to the spleen and liver.

## Section 4 - First Aid Measures

**Eyes:**

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids until no evidence of chemical remains. Get medical aid at once. **SPEEDY ACTION IS CRITICAL!**

**Skin:**

Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. **SPEEDY ACTION IS CRITICAL!**

**Ingestion:**

Do NOT induce vomiting. Give conscious victim 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid at once.

**Inhalation:**

Get medical aid at once. Move victim to fresh air immediately. Give artificial respiration if necessary. If breathing is difficult, give oxygen.

**Notes to Physician:**

Treat symptomatically and supportively.

**Antidote:**

The use of Deferoxamine as a chelating agent should be determined only by qualified medical personnel.

## Section 5 - Fire Fighting Measures

**General Information:**

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Move container if possible; avoid breathing vapors or dust. Avoid corrosive vapors or hydrogen chloride formed by thermal decomposition. Contact with metals may liberate highly flammable hydrogen gas.

**Extinguishing Media:**

For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. For large fires, use water spray, fog, or alcohol-resistant foam.

**Autoignition Temperature:**

Not applicable.

**Flash Point:**

Not applicable.



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**NFPA Rating:**

CAS# 7732-18-5: H-0, R-0, I-0.  
CAS# 10025-77-1: H-3, R-0, I-1.  
CAS# 7647-01-0: H-3, R-0, I-1.

**Explosion Limits:**

Lower: n/a      Upper: n/a

### Section 6 - Accidental Release Measures

**General Information:**

Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:**

Absorb spills with absorbent (vermiculite, sand, fuller's earth) and place in plastic bags for later disposal. Large spills may be carefully neutralized with dilute alkaline solutions of soda ash, or lime. Clean up spills immediately, observing precautions in the Protective Equipment section.

### Section 7 - Handling and Storage

**Handling:**

Wash thoroughly after handling. Wash hands before eating. Use only in a well ventilated area. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Do not allow contact with water. Use caution when opening.

**Storage:**

Do not store in metal containers. Store in glass or approved plastic containers only. Store tightly closed in a cool, dry area away from incompatible substances.

### Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:**

Facilities storing or using this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low.

**Exposure Limits:**

Chemical Name:	ACGIH	NIOSH	OSHA
Water	None of the components are on this list.	None of the components are on this list.	None of the components are on this list.
Ferric chloride, hexahydrate	1 mg/m <sup>3</sup> (as Fe) (listed under Iron salts, soluble)	1 mg/m <sup>3</sup> (as Fe) (listed under Iron salts, soluble)	None of the components are on this list.
Hydrogen chloride	2 ppm Ceiling	50 ppm IDLH	5 ppm Ceiling; 7 mg/m <sup>3</sup> Ceiling

**OSHA Vacated PELs:**

None.

**Personal Protective Equipment**



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**Eyes:**

Do not wear contact lenses when working with chemicals. An eye wash fountain should be available in the immediate work area. Wear splash-proof safety goggles.

**Skin:**

Wear appropriate protective gloves to prevent skin exposure.

**Clothing:**

Wear appropriate protective clothing to prevent skin exposure.

**Respirators:**

Follow the OSHA respirator regulations found in 29CFR 1910.134. Always use a NIOSH-approved respirator when necessary.

## Section 9 - Physical and Chemical Properties

**Physical State:** Liquid

**Color:** Dark amber

**Odor:** Slight hydrogen chloride

**pH:** Acidic

**Vapor Pressure:** 14 mm Hg @ 20°C

**Vapor Density:** 0.7 (Air=1)

**Evaporation Rate:** >1 (ether=1)

**Viscosity:** No information found.

**Boiling Point:** 212-227°F

**Freezing/Melting Point:** 32°F ( 0.00°C)

**Decomposition Temperature:** No information found.

**Solubility in water:** Soluble.

**Specific Gravity/Density:** No information found.

**Molecular Formula:** No information found.

**Molecular Weight:** No information found.

## Section 10 - Stability and Reactivity

**Chemical Stability:**

Stable under normal temperatures and pressures.

**Conditions to Avoid:**

Incompatible materials.

**Incompatibilities with Other Materials:**

Metals, organic acids, alcohols and glycols, aldehydes, amides, amines, azo, diazo, and hydrazines, carbamates, strong bases, cyanides, dithiocarbamates, esters, ethers, fluorides, aromatic hydrocarbons.

**Hazardous Decomposition Products:**

Hydrogen chloride, chlorine, oxides of iron.

**Hazardous Polymerization:**

Has not been reported.



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#### Section 11 - Toxicological Information

**RTECS:**

CAS# 7732-18-5: ZC0110000.  
 CAS# 10025-77-1: NO5425000.  
 CAS# 7647-01-0: MW4025000.

**LD50/LC50:**

CAS# 7732-18-5:  
 Oral, rat: LD50 = >90 mL/kg.  
 CAS# 10025-77-1:  
 No information found.  
 CAS# 7647-01-0:  
 Inhalation, mouse: LC50 =1108 ppm/1H  
 Inhalation, rat: LC50 =3124 ppm/1H  
 Oral, rabbit: LD50 = 900 mg/kg.

**Carcinogenicity:**

CAS# 7732-18-5: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.  
 CAS# 10025-77-1: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.  
 CAS# 7647-01-0: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

**Epidemiology:**

Ferric chloride hexahydrate is an eye, mucous membrane, and skin irritant; poisoning affects digestive tract, respiratory, cardiovascular, and central nervous systems, liver and kidneys.

**Teratogenicity:**

Embryo or Fetus: Stunted fetus, ihl-rat TCL0=450 mg/m3/1H Specific Developmental Abnormalities: homeostatis, ihl-rat

**Reproductive:**

No information available.

**Mutagenicity:**

Sln-dmg-ihl:100 ppm/24H sln-dmg-ord:100 ppm cyt-grh-par:20 mg cyt-ham lung:30 mmol/l cyt-ovr-ham:8 mmol/l

**Neurotoxicity:**

No information available.

#### Section 12 - Ecological Information

**Ecotoxicity:**

Trout LC100=10 mg/l/24H Shrimp LC50=100-330 ppm Starfish LC50=100-330 mg/l/48H Shore crab LC50=240 mg/l/48H Chronic plant toxicity=100 ppm Fish-toxicity LC50:862 mg/l

**Environmental:**

Substance will neutralize soil carbonate-based components.



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### Section 13 - Disposal Considerations

Dispose of in accordance with federal, state, and local regulations.

### Section 14 - Transport Information

#### US DOT

**Shipping Name:** Ferric chloride solution

**Hazard Class:** 8

**UN Number:** UN2582

**Packing Group:** PG III

### Section 15 - Regulatory Information

#### US Federal

##### TSCA:

CAS# 7732-18-5 is listed on the TSCA Inventory.

CAS# 10025-77-1 is not on the TSCA Inventory; however, its anhydrous form is on the inventory, and so this hydrate is exempt from TSCA Inventory requirements (40CFR270.3(u)(2)).

CAS# 7647-01-0 is listed on the TSCA Inventory.

##### SARA Reportable Quantities (RQ):

CAS# 7647-01-0: final RQ = 5000 pounds (2270 kg)

##### CERCLA/SARA Section 313:

This material contains Hydrogen chloride (CAS# 7647-01-0, 4.5 – 6.5%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

##### OSHA - Highly Hazardous:

CAS# 7647-01-0 is considered highly hazardous by OSHA.

#### US State

##### State Right to Know:

CAS# 7647-01-0 can be found on the following state Right-to-Know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, Massachusetts.

CAS# 10025-77-1 can be found on the following state Right-to-Know lists: California (listed as Iron salts, soluble), Pennsylvania (listed as Iron salts, soluble), Minnesota (listed as Iron salts, soluble).

##### California Regulations:

None.

#### European/International Regulations

##### Canadian DSL/NDSL:

CAS# 7732-18-5 is listed on Canada's DSL List.

CAS# 10025-77-1 is not listed on Canada's DSL or NDSL Lists.

CAS# 7647-01-0 is listed on Canada's DSL List.

##### Canada Ingredient Disclosure List:

CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.



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CAS# 10025-77-1 is listed on Canada's Ingredient Disclosure List as Iron salts, soluble.

CAS# 7647-01-0 is listed on Canada's Ingredient Disclosure List.

**Section 16 - Other Information**

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