

**Material Safety Data Sheet (MSDS)**  
**Iron(III) chloride hexahydrate**

ACC# 09754

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

MSDS Name: Iron(III) chloride hexahydrate

Catalog Numbers: AC125030000, AC125030010, AC196690000, AC196690010, AC196690025, AC196690050, AC217090000, AC217091000, AC217095000, AC423700000, AC423700050, AC423705000, I86-10, I86-3, I88-100, I88-500, NC9647605

Synonyms: Ferric chloride hexahydrate; ferric trichloride hexahydrate.

Company Identification:

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

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

CAS#	Chemical Name	Percent	EINECS/ELINCS	
10025-77-1	Iron(III) chloride, hexahydrate		97-100	unlisted

**Section 3 - Hazards Identification**

**EMERGENCY OVERVIEW**

Appearance: yellow to brown crystals.

Danger! Causes burns by all exposure routes. Harmful if swallowed. 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: Causes eye burns.

Skin: Causes skin burns.

Ingestion: Harmful if swallowed. May cause severe and permanent damage to the digestive tract. Causes gastrointestinal tract burns. Based upon known information concerning inorganic iron-containing substances, may cause severe digestive tract irritation with nausea, vomiting, diarrhea, and hemorrhage. May cause delayed effects including cardiovascular disturbances, liver/kidney damage, cerebral swelling, coma, and

Inhalation: Causes chemical burns to the respiratory tract.

Chronic: Repeated exposure may cause central nervous system damage. Repeated exposure may increase iron levels in the liver, spleen and lymphatic system. Damage may occur in the spleen and liver. Repeated exposure may cause an increase in body iron content with possible damage to the spleen and

**Section 4 - First Aid Measures**

Eyes: Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Do NOT allow victim to rub eyes or keep eyes closed.

Skin: Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Destroy contaminated shoes.

Ingestion: Do not induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

Inhalation: Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

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. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.

Extinguishing Media: Do NOT get water inside containers. For small fires, use dry chemical, carbon dioxide, or water spray. For large fires, use dry chemical, carbon dioxide, alcohol-resistant foam, or water spray.

Flash Point: Noncombustible.

Autoignition Temperature: Noncombustible.

Explosion Limits, Lower: Not available.

Upper: Not available.

NFPA Rating: (estimated) Health: 3; Flammability: 0; Instability: 1

## **Section 6 - Accidental Release Measures**

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks: Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation. Do not get water inside containers.

## **Section 7 - Handling and Storage**

Handling: Minimize dust generation and accumulation. Keep container tightly closed. Do not get on skin or in eyes. Do not ingest or inhale. Use with adequate ventilation. Use only in a chemical fume hood. Discard contaminated shoes.

Storage: Keep container closed when not in use. Corrosives area. Store protected from moisture. Do not get water inside containers. Store in a cool, dry area away from incompatible substances.

## **Section 8 - Exposure Controls, Personal Protection**

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations low. Use only under a chemical fume hood.

#### Exposure Limits

Chemical Name ACGIH/NIOSH/OSHA - Final PELs

Iron(III) chloride, hexahydrate 1 mg/m<sup>3</sup> TWA (as Fe) (listed under Iron salts (soluble)). 1

mg/m<sup>3</sup> TWA (as Fe) (listed under Iron salts (soluble)). none listed

Ferric chloride, anhydrous 1 mg/m<sup>3</sup> TWA (as Fe) (listed under Iron salts (soluble)). 1

mg/m<sup>3</sup> TWA (as Fe) (listed under Iron salts (soluble)). none listed

OSHA Vacated PELs: Iron(III) chloride, hexahydrate: No OSHA Vacated PELs are listed for this chemical. Ferric chloride, anhydrous: No OSHA Vacated PELs are listed for this chemical.

#### Personal Protective Equipment

Eyes: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin: Wear appropriate protective gloves to prevent skin exposure.

Clothing: Wear appropriate protective clothing to minimize contact with skin.

Respirators: A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

## Section 9 - Physical and Chemical Properties

Physical State: Crystals

Appearance: yellow to brown

Odor: odorless

pH: 2 (0.1M in water)

Vapor Pressure: Negligible.

Vapor Density: Not available.

Evaporation Rate: Negligible.

Viscosity: Negligible.

Boiling Point: 280 - 285 deg C

Freezing/Melting Point: 37 deg C

Decomposition Temperature: Not available.

Solubility: 920 g/l (20°C)

Specific Gravity/Density: 1.82 (water=1)

Molecular Formula: FeCl<sub>3</sub>·6H<sub>2</sub>O

Molecular Weight: 270.2864

## Section 10 - Stability and Reactivity

Chemical Stability: Hygroscopic: absorbs moisture or water from the air.

Conditions to Avoid: Incompatible materials, dust generation, excess heat, exposure to moist air or water.

Incompatibilities with Other Materials: Allyl chloride, oxidizing agents, potassium, sodium, alkali metals, ethylene oxide.

Hazardous Decomposition Products: Hydrogen chloride, chlorine, chloride fumes, oxides of iron.

Hazardous Polymerization: Has not been reported.

## Section 11 - Toxicological Information

RTECS#:

CAS# 10025-77-1: NO5425000

CAS# 7705-08-0: LJ9100000

LD50/LC50:

Not available.

CAS# 7705-08-0:

Oral, mouse: LD50 = 200 mg/kg;

Oral, rat: LD50 = 316 mg/kg;

Carcinogenicity:

CAS# 10025-77-1: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 7705-08-0: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information available.

Teratogenicity: No information available.

Reproductive Effects: No information available.

Mutagenicity: No information available.

Neurotoxicity: No information available.

Other Studies:

## Section 12 - Ecological Information

Ecotoxicity: No data available. No information available.

Environmental: No information available.

Physical: No information available.

Other: Avoid entering into waters or underground water.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: None listed.

## Section 14 - Transport Information

US DOT      Canada TDG

Shipping Name:      FERRIC CHLORIDE, ANHYDROUS CORROSIVE SOLID NOS (IRON CHLORIDE HEXAHYDRATE)

Hazard Class: 8      8

UN Number: UN1773      UN1759

Packing Group:      III      III

## Section 15 - Regulatory Information

US FEDERAL

TSCA

CAS# 10025-77-1 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the inventory (40CFR720.3(u)(2)).

CAS# 7705-08-0 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

CAS# 7705-08-0: 1000 lb final RQ; 454 kg final RQ

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

#### SARA Codes

CAS # 10025-77-1: immediate.

CAS # 7705-08-0: immediate.

Section 313 No chemicals are reportable under Section 313.

#### Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

#### Clean Water Act:

CAS# 7705-08-0 is listed as a Hazardous Substance under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

#### OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

#### STATE

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)).

CAS# 7705-08-0 can be found on the following state right to know lists: California, New Jersey, Pennsylvania, Minnesota, (listed as Iron salts (soluble)), Massachusetts.

#### California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

#### European/International Regulations

#### European Labeling in Accordance with EC Directives

#### Hazard Symbols:

C

#### Risk Phrases:

R 22 Harmful if swallowed.

R 34 Causes burns.

#### Safety Phrases:

S 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S 36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 10025-77-1: No information available.

CAS# 7705-08-0: 1

Canada - DSL/NDSL

CAS# 7705-08-0 is listed on Canada's DSL List.

Canada - WHMIS

This product has a WHMIS classification of E.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

CAS# 10025-77-1 (listed as Iron salts (soluble)) is listed on the Canadian Ingredient Disclosure List.

CAS# 7705-08-0 (listed as Iron salts (soluble)) is listed on the Canadian Ingredient Disclosure List.

## **Section 16 - Additional Information**

MSDS Creation Date: 12/12/1997

Revision #7 Date: 6/01/2007

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.