



## SAFETY DATA SHEET

Creation Date 08-Feb-2010

Revision Date 30-Jan-2015

Revision Number 2

### 1. Identification

**Product Name** Ferric chloride hexahydrate  
**Cat No. :** I86-3; I86-10; I88-100; I88-500  
**Synonyms** Iron(III) chloride hexahydrate (Lumps/Technical/Certified ACS)  
**Recommended Use** Laboratory chemicals.  
**Uses advised against** No Information available  
**Details of the supplier of the safety data sheet**

**Company** Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

**Emergency Telephone Number**  
CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. Hazard(s) identification

#### Classification

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

|  |            |
|--|------------|
| Acute oral toxicity                                  | Category 4 |
| Skin Corrosion/irritation                            | Category 2 |
| Serious Eye Damage/Eye Irritation                    | Category 1 |
| Skin Sensitization                                   | Category 1 |
| Specific target organ toxicity (single exposure)     | Category 3 |
| Target Organs - Respiratory system.                  |            |
| Specific target organ toxicity - (repeated exposure) | Category 2 |
| Target Organs - Kidney, Liver, Blood.                |            |

#### Label Elements

##### **Signal Word**

Danger

##### **Hazard Statements**

Harmful if swallowed  
Causes skin irritation  
May cause an allergic skin reaction  
Causes serious eye damage  
May cause respiratory irritation  
May cause damage to organs through prolonged or repeated exposure



**Precautionary Statements**

**Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 Wear protective gloves/protective clothing/eye protection/face protection  
 Contaminated work clothing should not be allowed out of the workplace  
 Do not breathe dust/fume/gas/mist/vapors/spray  
 Use only outdoors or in a well-ventilated area

**Response**

Get medical attention/advice if you feel unwell

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 Call a POISON CENTER or doctor/physician if you feel unwell

**Skin**

IF ON SKIN: Wash with plenty of soap and water  
 Take off contaminated clothing and wash before reuse  
 If skin irritation or rash occurs: Get medical advice/attention

**Eyes**

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

**Ingestion**

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

**Storage**

Store in a well-ventilated place. Keep container tightly closed  
 Store locked up

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

None identified

**3. Composition / information on ingredients**

| Component                       | CAS-No     | Weight % |
|---------------------------------|------------|----------|
| Iron (III) chloride hexahydrate | 10025-77-1 | >95      |
| Iron(III) chloride              | 7705-08-0  | -        |

**4. First-aid measures**

|                       |  |
|-----------------------|--|
| <b>General Advice</b> | Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.  |
| <b>Eye Contact</b>    | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.                                |
| <b>Skin Contact</b>   | Wash off immediately with plenty of water for at least 15 minutes. Obtain medical attention. Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. |
| <b>Inhalation</b>     | Move to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth   |

resuscitation if victim ingested or inhaled the substance; induce artificial respiration with a respiratory medical device. Get medical attention immediately if symptoms occur. If not breathing, give artificial respiration. Call a physician or Poison Control Center immediately.

**Ingestion** Do not induce vomiting. Call a physician or Poison Control Center immediately. Immediate medical attention is required. Remove from exposure, lie down. Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person.

**Most important symptoms/effects** Causes eye burns. May cause allergic skin reaction. . Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

**Notes to Physician** Treat symptomatically

### 5. Fire-fighting measures

**Unsuitable Extinguishing Media** No information available

**Flash Point** Not applicable  
**Method -** No information available

**Autoignition Temperature** Not applicable

**Explosion Limits**  
**Upper** No data available  
**Lower** No data available

**Sensitivity to Mechanical Impact** No information available  
**Sensitivity to Static Discharge** No information available

**Specific Hazards Arising from the Chemical**

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. May ignite combustibles (wood paper, oil, clothing, etc.). Thermal decomposition can lead to release of irritating gases and vapors. In the event of fire and/or explosion do not breathe fumes.

**Hazardous Combustion Products**

Hydrogen chloride gas Chlorine Metal oxides Thermal decomposition can lead to release of irritating gases and vapors

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

**NFPA**

|               |                     |                    |                         |
|---------------|---------------------|--------------------|-------------------------|
| <b>Health</b> | <b>Flammability</b> | <b>Instability</b> | <b>Physical hazards</b> |
| 3             | 0                   | 1                  | N/A                     |

### 6. Accidental release measures

**Personal Precautions** Use personal protective equipment. Avoid dust formation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**Environmental Precautions** Should not be released into the environment. See Section 12 for additional ecological information. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not allow material to contaminate ground water system.

**Methods for Containment and Clean Up** Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation.

### 7. Handling and storage

**Handling** Wear personal protective equipment. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Do not breathe dust. Do not ingest. Do not taste or swallow. This material should be handled at the biosafety level 2 (BSL2) as required by OSHA Bloodborne Pathogen Rule (29 CFR 1910.1030.7).

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly

labeled containers. Keep away from water.

## 8. Exposure controls / personal protection

### Exposure Guidelines

| Component                       | ACGIH TLV                | OSHA PEL                           | NIOSH IDLH               |
|---------------------------------|--------------------------|------------------------------------|--------------------------|
| Iron (III) chloride hexahydrate | TWA: 1 mg/m <sup>3</sup> | (Vacated) TWA: 1 mg/m <sup>3</sup> | TWA: 1 mg/m <sup>3</sup> |
| Iron(III) chloride              | TWA: 1 mg/m <sup>3</sup> | (Vacated) TWA: 1 mg/m <sup>3</sup> | TWA: 1 mg/m <sup>3</sup> |

| Component                       | Quebec                     | Mexico OEL (TWA)                                      | Ontario TWA/EV           |
|---------------------------------|----------------------------|---|--------------------------|
| Iron (III) chloride hexahydrate | TWA: 1.0 mg/m <sup>3</sup> | TWA: 1 mg/m <sup>3</sup><br>STEL: 2 mg/m <sup>3</sup> | TWA: 1 mg/m <sup>3</sup> |
| Iron(III) chloride              | TWA: 1.0 mg/m <sup>3</sup> | TWA: 1 mg/m <sup>3</sup><br>STEL: 2 mg/m <sup>3</sup> | TWA: 1 mg/m <sup>3</sup> |

*Legend*

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

### Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location.

### Personal Protective Equipment

#### Eye/face Protection

Tightly fitting safety goggles. Face-shield.

#### Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure. impervious clothing. Chemical resistant apron. Boots. Impervious gloves.

#### Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

#### Hygiene Measures

Keep away from food, drink and animal feeding stuffs. When using, do not eat, drink or smoke. Contaminated work clothing should not be allowed out of the workplace. Provide regular cleaning of equipment, work area and clothing. Avoid contact with skin, eyes and clothing. For environmental protection remove and wash all contaminated protective equipment before re-use. Wear suitable gloves and eye/face protection.

## 9. Physical and chemical properties

|   |                             |
|---|-----------------------------|
| <b>Physical State</b>                         | Solid                       |
| <b>Appearance</b>                             | Dark yellow                 |
| <b>Odor</b>                                   | No information available    |
| <b>Odor Threshold</b>                         | No information available    |
| <b>pH</b>                                     | 2 - 0.1M in water           |
| <b>Melting Point/Range</b>                    | 37 °C / 98.6 °F             |
| <b>Boiling Point/Range</b>                    | 280 - 285 °C / 536 - 545 °F |
| <b>Flash Point</b>                            | Not applicable              |
| <b>Evaporation Rate</b>                       | Not applicable              |
| <b>Flammability (solid,gas)</b>               | No information available    |
| <b>Flammability or explosive limits</b>       |                             |
| Upper   | No data available           |
| Lower   | No data available           |
| <b>Vapor Pressure</b>                         | negligible                  |
| <b>Vapor Density</b>                          | Not applicable              |
| <b>Relative Density</b>                       | 1.82 (H <sub>2</sub> O=1)   |
| <b>Solubility</b>                             | Soluble in water            |
| <b>Partition coefficient; n-octanol/water</b> | No data available           |

|                           |   |
|---------------------------|---|
| Autoignition Temperature  | Not applicable                          |
| Decomposition Temperature | No information available                |
| Viscosity                 | Not applicable                          |
| Molecular Formula         | Cl <sub>3</sub> Fe . 6 H <sub>2</sub> O |
| Molecular Weight          | 270.29                                  |

## 10. Stability and reactivity

|   |   |
|---|---|
| <b>Reactive Hazard</b>                  | None known, based on information available  |
| <b>Stability</b>                        | Hygroscopic.  |
| <b>Conditions to Avoid</b>              | Avoid dust formation. Incompatible products. Excess heat. Exposure to air or moisture over prolonged periods.           |
| <b>Incompatible Materials</b>           | Strong oxidizing agents, Metals, Strong bases   |
| <b>Hazardous Decomposition Products</b> | Hydrogen chloride gas, Chlorine, Metal oxides, Thermal decomposition can lead to release of irritating gases and vapors |
| <b>Hazardous Polymerization</b>         | Hazardous polymerization does not occur.  |
| <b>Hazardous Reactions</b>              | None under normal processing.   |

## 11. Toxicological information

**Acute Toxicity**

**Product Information  
Component Information**

| Component                       | LD50 Oral                              | LD50 Dermal | LC50 Inhalation |
|---------------------------------|--|-------------|-----------------|
| Iron (III) chloride hexahydrate | 900 mg/kg ( Rat )                      | Not listed  | Not listed      |
| Iron(III) chloride              | 450 mg/kg ( Rat )<br>316 mg/kg ( Rat ) | Not listed  | Not listed      |

**Toxicologically Synergistic Products** No information available

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

|                        |  |
|------------------------|--|
| <b>Irritation</b>      | Causes eye burns, Irritating to skin, May cause irritation of respiratory tract          |
| <b>Sensitization</b>   | No information available   |
| <b>Carcinogenicity</b> | The table below indicates whether each agency has listed any ingredient as a carcinogen. |

| Component                       | CAS-No     | IARC       | NTP        | ACGIH      | OSHA       | Mexico     |
|---------------------------------|------------|------------|------------|------------|------------|------------|
| Iron (III) chloride hexahydrate | 10025-77-1 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Iron(III) chloride              | 7705-08-0  | Not listed | Not listed | Not listed | Not listed | Not listed |

|                                 |                           |
|---------------------------------|---------------------------|
| <b>Mutagenic Effects</b>        | No information available  |
| <b>Reproductive Effects</b>     | No information available. |
| <b>Developmental Effects</b>    | No information available. |
| <b>Teratogenicity</b>           | No information available. |
| <b>STOT - single exposure</b>   | Respiratory system        |
| <b>STOT - repeated exposure</b> | Kidney Liver Blood        |
| <b>Aspiration hazard</b>        | No information available  |

**Symptoms / effects, both acute and delayed** Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

**Endocrine Disruptor Information** No information available

**Other Adverse Effects** The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

## 12. Ecological information

**Ecotoxicity**

Do not empty into drains. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

| Component                       | Freshwater Algae | Freshwater Fish   | Microtox   | Water Flea                                    |
|---------------------------------|------------------|---|------------|---|
| Iron (III) chloride hexahydrate | Not listed       | 22 mg/l 96H (anh subst)   | Not listed | 9.6 mg/l 48H (anh subst)                      |
| Iron(III) chloride              | Not listed       | 75.6 mg/L LC50 96 h 20.95 -<br>22.56 mg/L LC50 96 h 20.26<br>mg/L LC50 96 h | Not listed | 9.6 mg/L EC50 = 48 h 27.9<br>mg/L EC50 = 48 h |

**Persistence and Degradability** May persist based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** . Will likely be mobile in the environment due to its water solubility.

| Component                       | log Pow |
|---------------------------------|---------|
| Iron (III) chloride hexahydrate | 4       |
| Iron(III) chloride              | -4      |

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

**DOT**

**UN-No** UN3260  
**Proper Shipping Name** CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.  
**Proper technical name** Iron (III) chloride hexahydrate  
**Hazard Class** 8  
**Packing Group** III

**TDG**

**UN-No** UN3260  
**Proper Shipping Name** CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.  
**Hazard Class** 8  
**Packing Group** III

**IATA**

**UN-No** UN3260  
**Proper Shipping Name** CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.  
**Hazard Class** 8  
**Packing Group** III

**IMDG/IMO**

**UN-No** UN3260  
**Proper Shipping Name** CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.  
**Hazard Class** 8  
**Packing Group** III

## 15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

**International Inventories**

| Component                       | TSCA | DSL | NDSL | EINECS    | ELINCS | NLP | PICCS | ENCS | AICS | IECSC | KECL |
|---------------------------------|------|-----|------|-----------|--------|-----|-------|------|------|-------|------|
| Iron (III) chloride hexahydrate | -    | -   | -    | -         | -      |     | X     | -    | X    | X     | -    |
| Iron(III) chloride              | X    | X   | -    | 231-729-4 | -      |     | X     | X    | X    | X     | X    |

**Legend:**

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

**U.S. Federal Regulations**

TSCA 12(b) Not applicable

SARA 313 Not applicable

**SARA 311/312 Hazardous Categorization**

|                                   |     |
|-----------------------------------|-----|
| Acute Health Hazard               | Yes |
| Chronic Health Hazard             | Yes |
| Fire Hazard                       | No  |
| Sudden Release of Pressure Hazard | No  |
| Reactive Hazard                   | No  |

**Clean Water Act**

| Component          | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|--------------------|----------------------------|-----------------------------|------------------------|---------------------------|
| Iron(III) chloride | X                          | 1000 lb                     | -                      | -                         |

Clean Air Act Not applicable

OSHA Occupational Safety and Health Administration  
Not applicable

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Component          | Hazardous Substances RQs | CERCLA EHS RQs |
|--------------------|--------------------------|----------------|
| Iron(III) chloride | 1000 lb                  | -              |

California Proposition 65 This product does not contain any Proposition 65 chemicals

**State Right-to-Know**

| Component                       | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|---------------------------------|---------------|------------|--------------|----------|--------------|
| Iron (III) chloride hexahydrate | -             | -          | X            | -        | X            |
| Iron(III) chloride              | X             | X          | X            | -        | X            |

**U.S. Department of Transportation**

Reportable Quantity (RQ): Y  
DOT Marine Pollutant N

DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

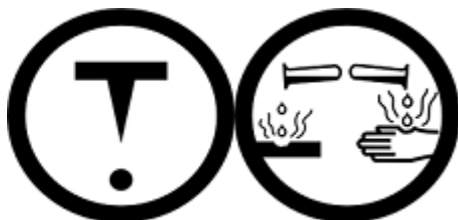
**Other International Regulations**

**Mexico - Grade** No information available

**Canada**

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

**WHMIS Hazard Class** E Corrosive material  
D2B Toxic materials



**16. Other information**

**Prepared By** Regulatory Affairs  
Thermo Fisher Scientific  
Email: EMSDS.RA@thermofisher.com

**Creation Date** 08-Feb-2010

**Revision Date** 30-Jan-2015

**Print Date** 30-Jan-2015

**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

**Disclaimer**

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**End of SDS**