

Printing date 07/09/2014

Reviewed on 04/21/2014

1 Identification

- **Product identifier**
- **Trade name:** **Ferric Chloride**
- **Article number:** FERCHL-4
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Meras Engineering, Inc.
601 Van Ness Ave. E3-725
San Francisco, CA 94102
USA
- **Information department:**
SDS Coordinator
(415) 240-4918 or (866) 899-9762
orders@meras.com
- **Emergency telephone number:** ChemTrec (800) 424-9300 (14228)

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Skin Corr. 1C H314 Causes severe skin burns and eye damage.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Corrosive

Causes burns.



Harmful

Harmful if swallowed.

- **Information concerning particular hazards for human and environment:**

The product has to be labeled due to the calculation procedure of international guidelines.

- **Classification system:**

The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.

- **Label elements**

- **Labelling according to EU guidelines:**

The product has been classified and marked in accordance with directives on hazardous materials.

- **Code letter and hazard designation of product:**



Corrosive

- **Hazard-determining components of labeling:**

Ferric Chloride

- **Risk phrases:**

Harmful if swallowed.

Causes burns.

(Contd. on page 2)

USA

Printing date 07/09/2014

Reviewed on 04/21/2014

Trade name: Ferric Chloride

(Contd. of page 1)

· Safety phrases:

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

Wear suitable protective clothing, gloves and eye/face protection.

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

This material and its container must be disposed of as hazardous waste.

· Classification system:
· NFPA ratings (scale 0 - 4)


Health = 2

Fire = 0

Reactivity = 0

· HMIS-ratings (scale 0 - 4)


Health = 2

Fire = 0

Reactivity = 0

· Personal Protection B
· Other hazards
· Results of PBT and vPvB assessment
· PBT: Not applicable.

· vPvB: Not applicable.

3 Composition/information on ingredients

· Chemical characterization: Mixtures
· Description: Mixture of the substances listed below with nonhazardous additions.

· Dangerous components:

7705-08-0	Ferric Chloride	45.0%
-----------	-----------------	-------

4 First-aid measures

· Description of first aid measures
· General information:

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

· After inhalation: In case of unconsciousness place patient stably in side position for transportation.

· After skin contact: Immediately wash with water and soap and rinse thoroughly.

· After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.

· After swallowing:

Immediately call a doctor.

Drink copious amounts of water and provide fresh air. Immediately call a doctor.

· Information for doctor:
· Most important symptoms and effects, both acute and delayed

No further relevant information available.

(Contd. on page 3)

Printing date 07/09/2014

Reviewed on 04/21/2014

Trade name: Ferric Chloride

(Contd. of page 2)

- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
The recommended storage temperature is above 32F, preferably at room temperature (70F)
Store closed containers in a cool, dry, well-ventilated area with acid-resistant floors. Keep out of direct sunlight and away from water, heat and incompatible materials.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

USA

(Contd. on page 4)

Trade name: Ferric Chloride

(Contd. of page 3)

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

7705-08-0 Ferric Chloride

REL	Long-term value: 1 mg/m ³ as Fe
-----	---

TLV	Long-term value: 1 mg/m ³ as Fe
-----	---

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

Printing date 07/09/2014

Reviewed on 04/21/2014

Trade name: Ferric Chloride

(Contd. of page 4)

9 Physical and chemical properties

- Information on basic physical and chemical properties

- General Information

- Appearance:

Form:	Liquid
Color:	Red-brown
Odor:	Mild
Odour threshold:	Not determined.

- pH-value at 20 °C (68 °F): < 1

- Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	107 °C (225 °F)

- Flash point: Not applicable.

- Flammability (solid, gaseous): Not applicable.

- Ignition temperature:

Decomposition temperature: Not determined.

- Auto igniting: Product is not selfigniting.

- Danger of explosion: Product does not present an explosion hazard.

- Explosion limits:

Lower:	Not determined.
Upper:	Not determined.

- Vapor pressure at 20 °C (68 °F): 1 hPa (1 mm Hg)

Density:	Not determined.
Relative density	Not determined.
Vapor density	Not determined.
Evaporation rate	Not determined.

- Solubility in / Miscibility with

Water: Fully miscible.

- Partition coefficient (n-octanol/water): Not determined.

- Viscosity:

Dynamic:	Not determined.
Kinematic:	Not determined.

- Solvent content:

Organic solvents: 0.0 %

Solids content: 45.0 %

- Other information: No further relevant information available.

10 Stability and reactivity

- Reactivity

- Chemical stability

- Thermal decomposition / conditions to be avoided:

No decomposition if used according to specifications.

(Contd. on page 6)

Printing date 07/09/2014

Reviewed on 04/21/2014

Trade name: Ferric Chloride

(Contd. of page 5)

- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

7705-08-0 Ferric Chloride

Oral	LD50	1872 mg/kg (rat)
------	------	------------------

- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
 The product shows the following dangers according to internally approved calculation methods for preparations:
 Harmful
 Corrosive
 Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

7647-01-0	Hydrochloric Acid	3
-----------	-------------------	---

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
 Water hazard class 1 (Self-assessment): slightly hazardous for water
 Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
 Must not reach bodies of water or drainage ditch undiluted or unneutralized.
 Rinse off of bigger amounts into drains or the aquatic environment may lead to decreased pH-values. A low pH-value harms aquatic organisms. In the dilution of the use-level the pH-value is considerably increased, so that after the use of the product the aqueous waste, emptied into drains, is only low water-dangerous.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.

(Contd. on page 7)

USA

Printing date 07/09/2014

Reviewed on 04/21/2014

Trade name: Ferric Chloride



(Contd. of page 6)

- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

- | | |
|---------------------------------------|---|
| · UN-Number | |
| · DOT, IMDG, IATA | UN2582 |
| · UN proper shipping name | |
| · DOT | Ferric chloride, solution |
| · IMDG, IATA | FERRIC CHLORIDE SOLUTION |
| · Transport hazard class(es) | |
| · DOT | |
| |  |
| · Class | 8 Corrosive substances. |
| · Label | 8 |
| · IMDG, IATA | |
| |  |
| · Class | 8 Corrosive substances. |
| · Label | 8 |
| · Packing group | |
| · DOT | II |
| · IMDG, IATA | III |
| · Environmental hazards: | |
| · Marine pollutant: | No |
| · Special precautions for user | Warning: Corrosive substances |
| · Danger code (Kemler): | 80 |
| · EMS Number: | F-A,S-B |
| · Segregation groups | Acids |

(Contd. on page 8)

USA

Printing date 07/09/2014

Reviewed on 04/21/2014

Trade name: Ferric Chloride

(Contd. of page 7)

- **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.
- **UN "Model Regulation":** UN2582, Ferric chloride, solution, 8, II

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**

- **Section 355 (extremely hazardous substances):**

7647-01-0	Hydrochloric Acid
-----------	-------------------

- **Section 313 (Specific toxic chemical listings):**

7647-01-0	Hydrochloric Acid
-----------	-------------------

- **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

- **Proposition 65**

- **Chemicals known to cause cancer:**

None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

- **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

- **Carcinogenic categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

- **TLV (Threshold Limit Value established by ACGIH)**

7647-01-0	Hydrochloric Acid	A4
-----------	-------------------	----

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

- **Product related hazard informations:**

The product has been classified and marked in accordance with directives on hazardous materials.

- **Hazard symbols:**



Corrosive

- **Hazard-determining components of labeling:**

Ferric Chloride

(Contd. on page 9)

Printing date 07/09/2014

Reviewed on 04/21/2014

Trade name: Ferric Chloride

(Contd. of page 8)

· Risk phrases:

Harmful if swallowed.
Causes burns.

· Safety phrases:

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Wear suitable protective clothing, gloves and eye/face protection.
In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
This material and its container must be disposed of as hazardous waste.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.**16 Other information**

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Department issuing MSDS: Environment protection department.**· Contact:**

SDS Coordinator
Meras Engineering, Inc.
(415) 240-4918 or (866) 899-9762
orders@meras.com

· Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent

USA