

Date Prepared: 04/09/2015

Reviewed On: 04/09/2015

1 Identification

- **Product Identifier**
- **Product Name:** Ferric Chloride
- **Catalog Number:** 261190
- **Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
- **Application of the substance / the mixture** *In-vitro Diagnostics*
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
BD Diagnostic Systems
7 Loveton Circle
Sparks, MD 21152
Telephone: (410) 771 - 0100 or (800) 638 - 8663
Email Address: Technical_Services@bd.com
- **Information Department:** Technical Service
- **Emergency telephone number:**
In case of a chemical emergency, spill, fire, exposure, or accident, contact BD Diagnostic Systems (410) 771-0100 or (800)-638-8663, or ChemTrec at (800) 424-9300.

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

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

Eye Dam. 1 H318 Causes serious eye damage.



GHS07

Acute Tox. 4 H302 Harmful if swallowed.

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



C; Corrosive

R34: Causes burns.



Xi; Irritant

R37-41: Irritating to respiratory system. Risk of serious damage to eyes.

- **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**

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Date Prepared: 04/09/2015

Reviewed On: 04/09/2015

Product Name: Ferric Chloride

(Contd. of page 1)

· Hazard pictograms

GHS05 GHS07

· Signal word Danger**· Hazard-determining components of labeling:**

ferric chloride

· Hazard statements

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

· Precautionary statements

P260 Do not breathe dusts or mists.

P280 Wear eye protection / face protection.

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a poison center/doctor.

P321 Specific treatment (see on this label).

P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P363 Wash contaminated clothing before reuse.

P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

· NFPA ratings (scale 0-4)Health = 2
Flammability = 0
Reactivity = 1**· HMIS ratings (scale 0-4)**HEALTH 3 Health = 3
FIRE 0 Flammability = 0
REACTIVITY 1 Reactivity = 1**· Other hazards****· Results of PBT and vPvB assessment****· PBT:** Not applicable.**· vPvB:** Not applicable.

US

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Date Prepared: 04/09/2015

Reviewed On: 04/09/2015

Product Name: Ferric Chloride

(Contd. of page 2)

3 Composition/information on ingredients

- **Chemical characterization: Substances**
- **CAS No. Description:**
7705-08-0 ferric chloride
- **Identification number(s):**
- **EC number:** 2317294
- **Chemical characterization: Mixture**
- **Description:** Mixture consisting of the following components.

Dangerous Components:

CAS: 7705-08-0	ferric chloride	Xn R22; Xi R38-41	10.0%
EINECS: 231-729-4			

- **Additional information** Risk phrases refer to section 15.

4 First-aid measures

- **Description of first aid measures**
- **General information** Immediately remove contaminated clothing.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **After skin contact** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact**
Rinse opened eye for 15 minutes under running water. Then consult a doctor.
- **After swallowing**
Drink copious amounts of water and provide fresh air. Immediately call a doctor.
- **Information for doctor** Show this product label or this SDS.
- **Most important symptoms and effects, both acute and delayed**
No further relevant information available.
- **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, ABC multipurpose dry chemical 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** Not required.

(Contd. on page 4)

Safety Data Sheet
 acc. to OSHA HCS

Date Prepared: 04/09/2015

Reviewed On: 04/09/2015

Product Name: Ferric Chloride

(Contd. of page 3)

- **Environmental precautions:** Wipe up with damp sponge or mop.
- **Methods and material for containment and cleaning up:**
Do not flush with water or aqueous cleansing agents
- **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.
- **Information about protection against explosions and fires:** None
- **Conditions for safe storage, including any incompatibilities**
- **Storage**
- **Requirements to be met by storerooms and receptacles:** 15 - 30 °C
- **Information about storage in one common storage facility:**
Store away from oxidizing agents.
Do not store together with alkaline material.
Do not store with sodium, and potassium.
- **Further information about storage conditions:**
Store in cool, dry conditions in well sealed containers.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:**
No further data; see Section 7.
- **Control parameters**

 · **Components with limit values that require monitoring at the workplace:**
7705-08-0 ferric chloride

TLV	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.
Avoid contact with the eyes and skin.

(Contd. on page 5)

Safety Data Sheet
 acc. to OSHA HCS

Date Prepared: 04/09/2015

Reviewed On: 04/09/2015

Product Name: Ferric Chloride

(Contd. of page 4)

- **Breathing equipment:**
In case of brief exposure, use a chemical fume hood or a NIOSH/MSHA-approved respirator.

- **Protection of hands:**



Chemical resistant gloves (i.e. nitrile, or equivalent).

- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing (lab coat).

9 Physical and chemical properties

- **Information on basic physical and chemical properties**

- **General Information**

- **Appearance:**

Form:	Liquid
Color:	Yellow-brown
Odor:	Strong

- **pH-value:** < 2.0

- **Change in condition**

Melting point/Melting range:	Not determined
Boiling point/Boiling range:	Not determined

- **Flash point:** Not applicable

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

- **Density:** Not determined

- **Solubility in / Miscibility with**

Water:	Soluble
---------------	---------

- **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.

- **Possibility of hazardous reactions** Polymerization occurs with mineral acids

- **Conditions to avoid** No further relevant information available.

- **Incompatible materials:** Incompatibles materials: Strong Bases and oxidizers

- **Hazardous decomposition products:**

Chlorine (Cl)

(Contd. on page 6)

Safety Data Sheet
 acc. to OSHA HCS

Date Prepared: 04/09/2015

Reviewed On: 04/09/2015

Product Name: Ferric Chloride

 Carbon monoxide (CO) and carbon dioxide (CO₂)

(Contd. of page 5)

11 Toxicological information

- **Information on toxicological effects**

- **Acute toxicity:**

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

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.

Strong irritant with the danger of severe eye injury.

- **Sensitization:** No sensitizing effects known.

- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Corrosive (causes skin burns)

Irritant

Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

This product or product container contains dry natural rubber latex.

- **Carcinogenic categories**

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

None of the ingredients is listed.

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

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

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.

- **Ecotoxicological effects:**

- **Other information:**

The ecological effects have not been thoroughly investigated, but currently none have been identified.

(Contd. on page 7)

Safety Data Sheet
 acc. to OSHA HCS

Date Prepared: 04/09/2015

Reviewed On: 04/09/2015

Product Name: Ferric Chloride

(Contd. of page 6)

- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation**
 Dispose of material in accordance with federal (40 CFR 261.3), state and local requirements.
 RCRA hazardous waste - RCRA # D002 (corrosive).
 Must not be disposed of with solid waste.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to state and federal regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

 · **UN-Number**

· DOT	UN2582
· ADR, IMDG, IATA	2582

 · **UN proper shipping name**

· DOT, IMDG, IATA	FERRIC CHLORIDE SOLUTION
· ADR	FERRIC CHLORIDE SOLUTION 2582 FERRIC CHLORIDE SOLUTION

 · **Transport hazard class(es)**

 · **DOT**


· Class	8 Corrosive substances
----------------	------------------------

· Label	8
----------------	---

 · **ADR**


· Class	8 (C1) Corrosive substances
----------------	-----------------------------

(Contd. on page 8)

Safety Data Sheet
 acc. to OSHA HCS


Date Prepared: 04/09/2015

Reviewed On: 04/09/2015

Product Name: Ferric Chloride

(Contd. of page 7)

· Label	8

· IMDG, IATA	
	
· Class	8 Corrosive substances
· Label	8

· Packing group	
· DOT, ADR, IMDG, IATA	III

· Environmental hazards:	
· Marine pollutant:	No

· Special precautions for user	Warning: Corrosive substances
· EMS Number:	F-A,S-B

· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.

· Transport/Additional information:	
· DOT	
· Remarks:	This package conforms to 49 CFR 173.4 This product can be transported using the "small quantity" exception. This package conforms to 49 CFR 173.4 for domestic highway or rail transport only. The Hazard Class, Identification number, and Packing group listed above is for informational purposes only.

· IMDG	
· Remarks:	Limited quantity

· IATA	
· Remarks:	This product can be transported using the exception: Dangerous Goods in Excepted Quantities. The Hazard class, Identification number, and Packing group listed above is for informational purposes only.

· UN "Model Regulation":	UN2582, FERRIC CHLORIDE SOLUTION, 8, III

US

(Contd. on page 9)

Safety Data Sheet
 acc. to OSHA HCS

Date Prepared: 04/09/2015

Reviewed On: 04/09/2015

Product Name: Ferric Chloride

(Contd. of page 8)

15 Regulatory information

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

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

None of the ingredients is listed.

- **SARA Section 313 (specific toxic chemical listings)**

None of the ingredients is listed.

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

7732-18-5	water
-----------	-------

7705-08-0	ferric chloride
-----------	-----------------

- **California Proposition 65 - Chemicals known to cause cancer**

None of the ingredients is listed.

- **California Proposition 65 - Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

- **California Proposition 65 - Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

- **California Proposition 65 - Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

- **Carcinogenic categories**

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

None of the ingredients is listed.

- **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS05 GHS07

- **Signal word** Danger

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

ferric chloride

- **Hazard statements**

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

- **Precautionary statements**

P260 Do not breathe dusts or mists.

P280 Wear eye protection / face protection.

P264 Wash thoroughly after handling.

(Contd. on page 10)

Safety Data Sheet
acc. to OSHA HCS

Date Prepared: 04/09/2015

Reviewed On: 04/09/2015

Product Name: Ferric Chloride

(Contd. of page 9)

- P270 Do not eat, drink or smoke when using this product.
P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a poison center/doctor.
P321 Specific treatment (see on this label).
P304+P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P363 Wash contaminated clothing before reuse.
P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
P405 Store locked up.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **National regulations**
- **Additional classification according to Decree on Hazardous Materials:**
RCRA: This product contains ferric chloride, which has Reportable Quantity (RQ) of 1000 lbs.
SARA 311/312: Maybe subject to reporting.
313: Not subject to reporting.
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

To the best of our knowledge, the information contained herein is accurate. However, neither Becton, Dickinson and Company or any of its subsidiaries assumes any liabilities whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we can not guarantee that these are the only hazards that exist.

- **Contact:** Technical Service Representative
- **Date of preparation / last revision** 04/09/2015 / -
- **Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organisation
ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)
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

(Contd. on page 11)



Safety Data Sheet
acc. to OSHA HCS

Date Prepared: 04/09/2015

Reviewed On: 04/09/2015

Product Name: Ferric Chloride

LD50: Lethal dose, 50 percent

Acute Tox. 4: Acute toxicity, Hazard Category 4

Skin Corr. 1A: Skin corrosion/irritation, Hazard Category 1A

Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1

(Contd. of page 10)

US