

**SAFETY DATA SHEET**  
according to Regulation (EC) No. 1907/2006

## FERRIC CHLORIDE (Solution 39-41 %)

### 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

#### 1.1. Identification of the substance or preparation

Product name : FERRIC CHLORIDE (Solution 39-41 %)  
Chemical Name : Iron trichloride (solution 39-41 %)  
Synonyms : Iron chloride III (solution 39-41 %), Iron perchloride (solution 39-41 %)  
Molecular formula : FeCl<sub>3</sub>  
Molecular Weight : 162.2 g/mol

#### 1.2. Use of the Substance/Preparation

Recommended use : - Flocculating agent

#### 1.3. Company/Undertaking Identification

Address : SOLVAY CHEMICALS INTERNATIONAL SA  
RUE DU PRINCE ALBERT, 44  
B- 1050 BRUXELLES

Telephone : +3225096111

Telefax : +3225096624

#### 1.4. Emergency and contact telephone numbers

Emergency telephone : +44(0)208 762 8322 [CareChem 24] (Europe)  
GB: +44-1925-651277 (Product information)

E-mail address : [sdstracking@solvay.com](mailto:sdstracking@solvay.com)

### 2. HAZARDS IDENTIFICATION

**Appearance** : liquid  
**Colour** : red brown  
**Odour** : slight

- The preparation is classified as dangerous in accordance with Directive 1999/45/EC.
- Harmful if swallowed.
- Causes burns.
- Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- Hazardous decomposition products formed under fire conditions.



### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance name (CAS-No. / EC-No. / Annex-1)	Concentration (W/W)	Classification	R-phrases(s)
<b>Iron trichloride</b> (7705-08-0 / 231-729-4 / Exempt or not available )	<b>39 - 41 %</b>	C Xn	R34 R22 R52/53

### 4. FIRST AID MEASURES

#### 4.1. Inhalation

- In case of accident by inhalation: remove casualty to fresh air and keep at rest.
- Victim to lie down in the recovery position, cover and keep him warm.
- Oxygen or artificial respiration if needed.
- Consult a physician.

#### 4.2. Eye contact

- Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
- In the case of difficulty of opening the lids, administer an analgesic eye wash (oxybuprocaine).
- Consult with an ophthalmologist immediately in all cases.
- Take victim immediately to hospital.

#### 4.3. Skin contact

- Take off contaminated clothing and shoes immediately.
- Wash off immediately with plenty of water.
- Keep warm and in a quiet place.
- Wash contaminated clothing before re-use.
- Call a physician immediately.

#### 4.4. Ingestion

- Call a physician immediately.
- Take victim immediately to hospital.

##### *If victim is conscious:*

- If swallowed, rinse mouth with water (only if the person is conscious).
- Do NOT induce vomiting.
- Do not give anything to drink.

##### *If victim is unconscious but breathing:*

- Artificial respiration and/or oxygen may be necessary.

### 5. FIRE-FIGHTING MEASURES

#### 5.1. Suitable extinguishing media

- Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### 5.2. Extinguishing media which shall not be used for safety reasons

- None.

#### 5.3. Special exposure hazards in a fire

- The product is not flammable.
- Not combustible.
- Heating can release hazardous gases.
- Gives off hydrogen by reaction with metals.

#### 5.4. Special protective equipment for fire-fighters

- In the event of fire, wear self-contained breathing apparatus.



- Fire fighters must wear fire resistant personnel protective equipment.
- Wear chemical resistant oversuit

#### 5.5. Other information

- Cool containers / tanks with water spray.
- Suppress (knock down) gases/vapours/mists with a water spray jet.
- Prevent fire extinguishing water from contaminating surface water or the ground water system.
- After the fire, proceed rapidly with cleaning of surfaces exposed to the fumes in order to limit equipment damage.

## 6. ACCIDENTAL RELEASE MEASURES

### 6.1. Personal precautions

- Isolate the area.
- Approach from upwind.
- Ventilate the area.
- Keep away from incompatible products
- Wear chemical resistant personal protective equipment
- Prevent further leakage or spillage if safe to do so.
- Refer to protective measures listed in sections 7 and 8.

### 6.2. Environmental precautions

- Should not be released into the environment.
- Do not flush into surface water or sanitary sewer system.

### 6.3. Methods for cleaning up

- Dam up.
- Soak up with inert absorbent material.
- Prevent product from entering drains.
- Keep in properly labelled containers.
- Keep in suitable, closed containers for disposal.
- Treat recovered material as described in the section "Disposal considerations".

## 7. HANDLING AND STORAGE

### 7.1. Handling

- Use only in well-ventilated areas.
- Use only equipment and materials which are compatible with the product.
- Preferably transfer by pump or gravity.
- Keep away from incompatible products
- To avoid thermal decomposition, do not overheat.

### 7.2. Storage

- Keep container tightly closed.
- Keep in a cool, well-ventilated place.
- Keep away from heat.
- Keep away from Incompatible products.
- Keep in a banded area.
- Information about special precautions needed for bulk handling is available on request.

### 7.3. Specific use(s)

- For further information, please contact: Supplier

### 7.4. Other information

- Provide tight electrical equipment well protected against corrosion.
- Refer to protective measures listed in sections 7 and 8.



## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Exposure Limit Values

#### Iron trichloride

- UK. EH40 Workplace Exposure Limits (WELs) 2005  
time weighted average = 1 mg/m<sup>3</sup>  
Remarks: as Fe
- UK. EH40 Workplace Exposure Limits (WELs) 2005  
Short term exposure limit = 2 mg/m<sup>3</sup>  
Remarks: as Fe
- US. ACGIH Threshold Limit Values 01 2006  
time weighted average = 1 mg/m<sup>3</sup>  
Remarks: as Fe

### 8.2. Exposure controls

- Provide local ventilation appropriate to the product decomposition risk (see section 10).
- Apply technical measures to comply with the occupational exposure limits.
- Refer to protective measures listed in sections 7 and 8.

#### 8.2.1. Occupational exposure controls

##### 8.2.1.1. Respiratory protection

- In case of decomposition (see section 10), face mask with combined type B-P2 cartridge.
- Use only respiratory protection that conforms to international/ national standards.
- Self-contained breathing apparatus in medium confinement/insufficient oxygen/in case of large uncontrolled emissions/in all circumstances when the mask and cartridge do not give adequate protection.

##### 8.2.1.2. Hand protection

- Take note of the information given by the producer concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).
- Protective gloves - impervious chemical resistant:
- Suitable material : PVC

##### 8.2.1.3. Eye protection

- Chemical resistant goggles must be worn.

##### 8.2.1.4. Skin and body protection

- Wear suitable protective clothing.
- If splashes are likely to occur, wear:
- Apron
- Boots
- PVC

##### 8.2.1.5. Hygiene measures

- Use only in an area equipped with a safety shower.
- Eye wash bottle with pure water
- When using do not eat, drink or smoke.
- Handle in accordance with good industrial hygiene and safety practice.

#### 8.2.2. Environmental exposure controls

- Dispose of rinse water in accordance with local and national regulations.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. General Information (appearance, odour)

Appearance	: liquid
Colour	: red brown



**Odour** : slight

## 9.2. Important health safety and environmental information

**pH** : 1 - 1.4

**Boiling point/boiling range** : ca. 120 °C

**Flash point** : *Remarks: The product is not flammable.*

**Flammability** : *Remarks: The product is not flammable.*

**Explosive properties** : *Explosion danger.*  
*Remarks: Not explosive*

**Oxidizing properties** : *Remarks: Non oxidizer*

**Vapour pressure** : 17 hPa  
*Temperature: 20 °C*

**Relative density / Density** : 1.40 - 1.43

**Solubility** : Water  
: completely miscible  
*Remarks: Reacts violently with water.*

**Partition coefficient: n-octanol/water** : *Remarks: not applicable*

**Viscosity** : ca. 10 mPa.s  
*Temperature: 20 °C*

## 9.3. Other data

**Freezing point:** : -12 °C

# 10. STABILITY AND REACTIVITY

## 10.1. Stability

- Stable under recommended storage conditions.
- Corrosive in contact with metals
- Gives off hydrogen by reaction with metals.
- Risk of violent reaction.
- Risk of explosion.
- Decomposes by reaction with alkaline solutions.
- Exothermic reaction

## 10.2. Conditions to avoid

- To avoid thermal decomposition, do not overheat.
- freezing

## 10.3. Materials to avoid

- Metals, Oxidizing agents, Strong bases

## 10.4. Hazardous decomposition products

- hydrochloric acid: Hydrogen, Chlorine



## 11. TOXICOLOGICAL INFORMATION

### 11.1 Toxicological data

#### **Acute oral toxicity**

- LD50, rat, 2,900 mg/kg

#### **Skin irritation**

- rabbit, No skin irritation

#### **Eye irritation**

- rabbit, Risk of serious damage to eyes.

#### **Chronic toxicity**

- Prolonged exposure, rat, Target Organs: gastro-intestinal system, hematology system, Liver, NOEL: 10 mg/l

#### **Possible hazards (summary)**

- Corrosive effect linked to acid properties of the product
- Animal testing did not show any mutagenic effects.

### 11.2. Health effects

#### **Main effects**

- The product causes burns of eyes, skin and mucous membranes.
- The seriousness of the lesions and the prognosis of intoxication depend directly on the concentration and duration of exposure.
- Liver injury may occur.
- Chronic exposure to the product can induce iron accumulation in tissues characterized by red-brown deposits.

#### **Inhalation**

- Severe respiratory irritant
- Irritating to mucous membranes
- Inhalation may provoke the following symptoms:
  - Breathing difficulties
  - Cough
  - chemical pneumonitis
  - pulmonary oedema
- Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
- Repeated or prolonged exposure: Risk of sore throat, nose bleeds, chronic bronchitis.

#### **Eye contact**

- Severe eye irritation
- Redness
- Lachrymation
- Swelling of tissue
- Risk of serious damage to eyes.
- May cause permanent eye injury.

#### **Skin contact**

- Severe skin irritation
- Redness
- Swelling of tissue
- Causes burns.
- Repeated or prolonged skin contact may cause skin irritation and/or dermatitis and sensitization of susceptible persons.

#### **Ingestion**

- If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the oesophagus and the stomach.
- Risk of shock.
- Risk of throat (o)edema and suffocation.
- Risk of chemical pneumonitis and pulmonary (o)edema.



- Symptoms: Salivation, Nausea, Bloody vomiting, Abdominal pain, Diarrhoea, Severe shortness of breath.
- (in case of higher concentration): Risk of convulsions, loss of consciousness, deep coma and cardiopulmonary arrest..

## 12. ECOLOGICAL INFORMATION

### 12.1. Ecotoxicity effects

#### *Acute toxicity*

- Fishes, *Gambusia affinis*, LC50, 96 h, 75.6 mg/l
- (Anhydrous form)
- Crustaceans, *Daphnia magna*, EC50, 48 h, 27.9 mg/l

#### *Chronic toxicity*

- Fishes, *Gasterosteus aculeatus*, LC100, 10 Days, 2.9 mg/l
- (Anhydrous form)
- Crustaceans, *Daphnia magna*, EC50, Reproduction Test, 21 Days, 15.1 mg/l
- Algae, *Chlorella vulgaris*, NOEC, growth, 120 Days, 2.7 mg/l

### 12.2. Mobility

- Water, Soil  
Remarks: considerable solubility and mobility
- Soil/sediments  
Remarks: adsorption on mineral and organic soil constituents

### 12.3. Persistence and degradability

#### *Abiotic degradation*

- Water  
Result: significant hydrolysis
- Water, Soil  
Result: complexation/precipitation of inorganic and organic materials

#### *Biodegradation*

- Remarks: The methods for determining the biological degradability are not applicable to inorganic substances.

### 12.4. Bioaccumulative potential

- Bioaccumulative potential: log Pow  
Result: not applicable
- Molluscs, *Mytilus edulis*, Bioconcentration factor (BCF) 2.75 - 9.62, 42 d

### 12.5. Other adverse effects

- no data available

### 12.6. Possible hazards (summary)

- Harmful to aquatic organisms.
- Fe II/Fe III ionic pair is responsible for heavy metals (traces) attenuation by complexation/precipitation processes depending on pH.
- Product fate is highly dependent on environmental conditions: pH, temperature, redox potential, mineral and organic content of the medium,...

## 13. DISPOSAL CONSIDERATIONS

### 13.1. Waste from residues / unused products

- In accordance with local and national regulations.
- For unused and uncontaminated product, the preferred options include sending to a licensed, permitted: recycler, reclaimer, incinerator or other thermal destruction device or industrial landfill.
- or



- Dilute with plenty of water.
- Solutions with low pH-value must be neutralized before discharge.
- Neutralize with chalk, alkali solution or ammonia.
- Filtrate the product and send the cake to a landfill for industrial waste.
- After neutralization, the filtrate can be discharged in the sewer.

### 13.2. Packaging treatment

- Empty containers.
- Clean container with water.
- Dispose of as unused product.
- or
- Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities.
- The empty and clean containers are to be reused in conformity with regulations.

## 14. TRANSPORT INFORMATION

**UN-Number** **2582**

### IATA-DGR

Class 8  
 Packing group III  
 ICAO-Labels CORROSIVE

Proper shipping name: FERRIC CHLORIDE SOLUTION

### IMDG

Class 8  
 Packing group III  
 IMDG-Labels Corrosive  
 HI/UN No. 2582  
 EmS: F-A, S-B

Proper shipping name: FERRIC CHLORIDE SOLUTION

### ADR

Class 8  
 Packing group III  
 ADR/RID-Labels 8  
 HI/UN No. 80/2582

Proper shipping name: FERRIC CHLORIDE SOLUTION

### RID

Class 8  
 Packing group III  
 ADR/RID-Labels 8  
 HI/UN No. 80/2582

Proper shipping name: FERRIC CHLORIDE SOLUTION

## 15. REGULATORY INFORMATION

### 15.1. EC Label

- Hazardous components which must be listed on the label: Iron trichloride
- The product is classified and labelled in accordance with Directive 1999/45/EC.

Symbol(s)	C	Corrosive
R-phrases(s)	R22	Harmful if swallowed.



	R34	Causes burns.
	R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-phrases(s)	S26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
	S28	After contact with skin, wash immediately with plenty of soap and water.
	S36/37/39	Wear suitable protective clothing, gloves and eye/face protection.
	S45	In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
	S61	Avoid release to the environment. Refer to special instructions/ Safety data sheets.

### 15.2. Inventory Information

<b>Toxic Substance Control Act list (TSCA)</b>	: -	In compliance with inventory.
<b>Australian Inventory of Chemical Substances (AICS)</b>	: -	In compliance with inventory.
<b>Canadian Domestic Substances List (DSL)</b>	: -	In compliance with inventory.
<b>Inventory of Existing Chemical Substances (China) (IECS)</b>	: -	In compliance with inventory.
<b>EU list of existing chemical substances (EINECS)</b>	: -	In compliance with inventory.
<b>Japanese Existing and New Chemical Substances (MITI List) (ENCS)</b>	: -	In compliance with inventory.
<b>Korean Existing Chemicals List (ECL)</b>	: -	In compliance with inventory.
<b>Philippine Inventory of Chemicals and Chemical Substances (PICCS)</b>	: -	In compliance with inventory.
<b>New Zealand Inventory of Chemicals (NZIOC)</b>	: -	In compliance with inventory.

### 15.3. Other regulations

- European Waste Catalogue, Decision (2000/532/EC), Hazardous waste, Waste codes should be assigned by the user based on the application for which the product was used.
- 06 01 99

## 16. OTHER INFORMATION

### 16.1. Administrative information

- Update  
This data sheet contains changes from the previous version in section(s): 1.4, 15.2
- Distribute new edition to clients

### 16.2. Text of R phrases mentioned in Section 3

- R22: Harmful if swallowed.
- R34: Causes burns.
- R52/53: Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.



This SDS is only intended for the indicated country to which it is applicable. The European SDS format compliant with the applicable European legislation is not intended for use nor distribution in countries outside the European Union with the exception of Norway and Switzerland. Safety datasheets applicable in other countries/regions are available upon request.

The information given corresponds to the current state of our knowledge and experience of the product, and is not exhaustive. This applies to product which conforms to the specification, unless otherwise stated. In this case of combinations and mixtures one must make sure that no new dangers can arise. In any case, the user is not exempt from observing all legal, administrative and regulatory procedures relating to the product, personal hygiene, and protection of human welfare and the environment.

