

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

**Product identifier:**

**Product name:** Ferric chloride solution  
**Synonyms, Trade Names:** Iron (III) chloride solution  
**REACH Registration number:** 01-2119497998-05  
**CAS-No.:** 7705-08-0  
**EC No.:** 231-729-4

**Relevant identified uses of the substance or mixture and uses advised against:**

**Identified uses:** Agrochemical uses Treatment of waste water. Intermediate Treatment of drinking water, has received approval by the European Committee for Standardisation. Use of iron salts in biogas production Use in adhesives and sealants Use of selected iron salts in land remediation applications Laboratory agent

**Uses advised against:** No specific uses advised against are identified.

**Company name:** Nexchem Ltd  
Unit 3 Barshaw Park  
Leycroft Road  
Leicester  
LE4 1ET  
Tel: 0116 2311130  
24/7 Emergency Tel: 0800 246 1274  
Email: [sales@nexchem.co.uk](mailto:sales@nexchem.co.uk)

## 2. HAZARDS IDENTIFICATION

**Classification of the substance or mixture:**

**Classification (EC 1272/2008):** Physical and Chemical Hazards Met. Corr. 1 - H290  
Human health Acute Tox. 4 - H302; Skin Irrit. 2 - H315; Eye Dam. 1 - H318  
Environment Not classified.

**Classification (1999/45/EEC):** Xn; R22. Xi; R38, R41.

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

**Label elements:**

**EC No.:** 231-729-4  
**Contains:** Iron (III) chloride  
Label In Accordance With (EC) No. 1272/2008



**Signal Word:**

Danger

**Hazard Statements:**

H290 May be corrosive to metals.  
H302 Harmful if swallowed.  
H315 Causes skin irritation.  
H318 Causes serious eye damage.

**Precautionary Statements:**

P280 Wear protective gloves/protective clothing/eye protection/face protection.  
P302+352 IF ON SKIN: Wash with plenty of soap and water.  
P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P362 Take off contaminated clothing and wash before reuse.

**Supplementary Precautionary Statements:** P301+312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P332+313 If skin irritation occurs: Get medical advice/attention.

P390 Absorb spillage to prevent material damage.

P406 Store in corrosive resistant/... container with a resistant inner liner.

**Other hazards:**

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

**Mixtures:**

<b>HYDROCHLORIC ACID ...%</b>	1-5%		
<b>CAS-No.:</b>	7647-01-0	<b>EC No.:</b>	231-595-7
Classification (EC 1272/2008)	Classification (67/548/EEC)		
Skin Corr. 1B - H314	C;R34		
STOT SE 3 - H335	Xi;R37		

<b>Iron (II) chloride</b>	0.1 - 1.0%		
<b>CAS-No.:</b>		<b>EC No.:</b>	
Classification (EC 1272/2008)	Classification (67/548/EEC)		
Acute Tox. 4 - H302	Xn;R22.		
Eye Dam. 1 - H318	Xi;R41.		

<b>Iron (III) chloride</b>	40-60%		
<b>CAS-No.:</b>	7705-08-0	<b>EC No.:</b>	
Classification (EC 1272/2008)	Classification (67/548/EEC)		
Acute Tox. 4 - H302	Xn;R22.		
Skin Irrit. 2 - H315	Xi;R38,R41.		
Eye Dam. 1 - H318			

## SAFETY DATA SHEET

Issued: 30/07/2014

Ferric chloride solution

Page 3

<b>NICKEL DICHLORIDE</b>	< 100 ppm		
<b>CAS-No.:</b>	7718-54-9	<b>EC No.:</b>	231-743-0

Classification (EC 1272/2008)	Classification (67/548/EEC)
-------------------------------	-----------------------------

Acute Tox. 3 - H301	Carc. Cat. 1;R49
---------------------	------------------

Acute Tox. 3 - H331	Muta. Cat. 3;R68
---------------------	------------------

Skin Irrit. 2 - H315	Repr. Cat. 2;R61
----------------------	------------------

Resp. Sens. 1 - H334	T;R23/25,R48/23
----------------------	-----------------

Skin Sens. 1 - H317	Xi;R38
---------------------	--------

Muta. 2 - H341	R42/43
----------------	--------

Carc. 1A - H350i	N;R50/53
------------------	----------

Repr. 1B - H360D

STOT RE 1 - H372

Aquatic Acute 1 - H400

Aquatic Chronic 1 - H410

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

**REACH Registration number:** 01-2119497998-05

**CAS-No.:** 7705-08-0

**EC No.:** 231-729-4

### 4. FIRST AID MEASURES

#### Description of first aid measures:

**Inhalation:** Remove victim immediately from source of exposure.

**Ingestion:** Rinse mouth thoroughly. Get medical attention. Show this safety data sheet

**Skin contact:** Remove contaminated clothing immediately and wash skin with soap and water.

**Eye contact:** Rinse with water. Contact physician if discomfort continues.

#### Most important symptoms and effects, both acute and delayed:

**General information:** Symptoms of over exposure may include nausea, abdominal pain and dizziness. No long term effects from over exposure.

**Indication of any immediate medical attention and special treatment needed:** In case of ingestion, induced vomiting is not considered necessary.

### 5. FIRE-FIGHTING MEASURES

**Extinguishing media:** Use fire-extinguishing media appropriate for surrounding materials. Carbon dioxide or dry powder. Water spray. Larger fires: Alcohol resistant foam. Do not use water jet as an extinguisher, as this will spread the fire.

**Unsuitable extinguishing media:** Water jet.

#### Special hazards arising from the substance or mixture:

**Hazardous combustion products:** May give off toxic fumes in a fire.

**Advice for firefighters:**

[cont...]

## SAFETY DATA SHEET

Issued: 30/07/2014

Ferric chloride solution

Page 4

**Protective equipment for fire-fighters:** Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

### 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures:** Avoid inhalation of spray mist and contact with skin and eyes. Provide adequate ventilation.

**Environmental precautions:** Do not allow to enter drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be IMMEDIATELY alerted to the Environmental Agency or other appropriate regulatory body.

**Methods and material for containment and cleaning up:** Collect in containers and seal securely. Avoid generation and spreading of dust. Dampen spillage with water. Containers with collected spillage must be properly labelled with correct contents and hazard symbol. Dispose of via a licensed hazardous waste contractor. Wash contaminated area with water.

**Reference to other sections:** For personal protection, see section 8. For waste disposal, see section 13.

### 7. HANDLING AND STORAGE

**Precautions for safe handling:** Avoid forming spray/aerosol mists. Provide good ventilation.

**Conditions for safe storage, including any incompatibilities:** Store in vessels suitable for substances of low pH (plastic vessels, or rubber-lined tanks). Store away from: Alkalies.

**Storage Class:** Corrosive storage.

**Specific end use(s):** Specific Exposure Scenarios (not including those listed in section 1) should be discussed with the manufacturer

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### Control parameters

Name	STD	TWA - 8 Hrs		STEL - 15 Min		Notes
HYDROCHLORIC ACID ...%	WEL	1 ppm	2 mg/m <sup>3</sup>	5 ppm	8 mg/m <sup>3</sup>	
Iron (II) chloride	WEL		1 mg/m <sup>3</sup>		2 mg/m <sup>3</sup>	
Iron (III) chloride	WEL	0.15 ppm	1 mg/m <sup>3</sup>	0.3 ppm	2 mg/m <sup>3</sup>	
NICKEL DICHLORIDE	WEL		0.1 mg/m <sup>3</sup>			

WEL = Workplace Exposure Limit.

#### DNEL

Dermal	Short Term	Systemic Effects	40	mg/kg/day
Inhalation.	Short Term	Systemic Effects	104	mg/m <sup>3</sup>
Dermal	Short Term	Local Effects	1	mg/cm <sup>2</sup>
Inhalation.	Short Term	Local Effects	104	mg/m <sup>3</sup>
Dermal	Long Term	Systemic Effects	1.67	mg/kg/day

[cont...]

## SAFETY DATA SHEET

Issued: 30/07/2014

Ferric chloride solution

Page 5

Inhalation.	Long Term	Systemic Effects	4.3	mg/m3
Dermal	Long Term	Local Effects	1	mg/cm2
Inhalation.	Long Term	Local Effects	26	mg/m3

### PNEC

Freshwater	0.001	mg/l
STP	1	mg/l

### Iron (III) chloride (CAS: 7705-08-0)

Ingredient Comments

WEL = Workplace Exposure Limits

### Exposure controls:

<b>Respiratory equipment:</b>	If mists are formed, a respirator must be worn. In case of inadequate ventilation or risk of inhalation of dust, use suitable respiratory equipment with particle filter (type P2).
<b>Hand protection:</b>	Use protective gloves. Use protective gloves made of: Neoprene. Glove manufacturers' specifications should always be checked first.
<b>Eye protection:</b>	Wear approved safety goggles.
<b>Other Protection:</b>	Wear protective work clothing.
<b>Hygiene measures:</b>	When using do not eat, drink or smoke. Promptly remove any clothing that becomes contaminated. Wash hands at the end of each work shift and before eating, smoking and using the toilet. Keep away from foodstuffs, beverages and feed.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<b>Appearance:</b>	Liquid
<b>Colour:</b>	Yellow.
<b>Odour:</b>	Slight odour. Ester.
<b>Solubility:</b>	Soluble in water.
<b>Initial boiling point and boiling range (°C):</b>	>150°C
<b>Melting point (°C):</b>	< -20°C
<b>Bulk Density:</b>	1.43 kg/m3
<b>Vapour pressure:</b>	8 Pa 25°C
<b>Evaporation rate:</b>	Lower than water
<b>pH-Value, Conc. Solution:</b>	~ 1.0
<b>Viscosity:</b>	About 10 mPas 20
<b>Solubility Value (G/100G H2O@20°C):</b>	158 @ 20°C
<b>Decomposition temperature (°C):</b>	>240°C
<b>Odour Threshold, Lower:</b>	Not known.
<b>Odour Threshold, Upper:</b>	Not known.
<b>Auto Ignition Temperature (°C):</b>	>240°C
<b>Partition Coefficient:</b>	log Kow
<b>(N-Octanol/Water):</b>	1.9

**Explosive under influence of flame.:** Not considered to be explosive.

Will not support combustion

Not considered to be oxidising

[cont...]

**Other information:** Mol. Weight 162.21

## 10. STABILITY AND REACTIVITY

**Reactivity:** No specific reactivity hazards associated with this product.

**Chemical stability:** Stable under normal temperature conditions and recommended use. If diluted to <~1% in water, ferric hydroxide is formed and flocculates out. In the event of release to the aquatic environment, this process counteracts the potential hazards of the substance, and does not add significantly to the ubiquitous iron in the environment.

**Possibility of hazardous reactions:** There are no hazardous reactions if handled and stored according to prescribed conditions.

**Hazardous Polymerisation:** Will not polymerise.

**Conditions to avoid:** Avoid excessive heat for prolonged periods of time.

**Incompatible materials:**

**Materials To Avoid:** Strong oxidising substances.

**Hazardous decomposition products:** None under normal conditions.

## 11. TOXICOLOGICAL INFORMATION

**Information on toxicological effects:**

**Acute toxicity:** Acute Toxicity (Oral LD50)  
300 mg/kg Rat  
ATE (Dermal)  
2000 mg/kg

**Skin Corrosion/Irritation:** Irritating.

**Serious eye damage/irritation:** Moderately Irritating.

**Respiratory or skin sensitisation:** Not sensitising to skin

**Germ cell mutagenicity:** Negative.

**Carcinogenicity:** This substance has no evidence of carcinogenic properties.

**Reproductive Toxicity:** Does not contain any substances known to be toxic to reproduction.

**Specific target organ toxicity - single exposure:** Not classified as a specific target organ toxicant after a single exposure.

**Specific target organ toxicity - repeated exposure:** STOT - Repeated exposure

Dose Level: 500 mg/kg Oral Rat

**Target Organs:** Liver  
Reversible transient effects

**Aspiration hazard:** No risk of aspiration

**Toxicokinetics:** Slowly absorbed by ingestion. Poorly absorbed through the skin. Will not accumulate in the body. Metabolism is expected with no known hazardous metabolites.

**12. ECOLOGICAL INFORMATION****Toxicity:**

**Acute Toxicity – Fish:** LC50 6.8 mg/l Onchorhynchus mykiss (Rainbow trout)

**Acute Toxicity - Aquatic Invertebrates:** EC50 0.98 mg/l Daphnia magna

**Acute Toxicity - Aquatic Plants:** IC50 2.8 mg/l Freshwater algae

**Acute Toxicity – Microorganisms:** NOEC >1000 mg/l

**Persistence and degradability:**

**Degradability:** The product is biodegradable. 55% over 28 days, with no plateaux reached

**Bioaccumulative potential:** Will not bio-accumulate.

Partition coefficient

log Kow 1.9

**Mobility in soil:**

**Mobility:** The product has poor water-solubility. Mobility is expected to be low.

**Results of PBT and vPvB assessment:** The PBT and vPvB criteria in Annex XIII of the REACH Regulation do not apply.

**Other adverse effects:** Not available.

**13. DISPOSAL CONSIDERATIONS**

**General information:** Must be disposed of as hazardous chemical waste. Do not allow product to reach the sewage system.

**Waste treatment methods:**

**14. TRANSPORT INFORMATION**

**UN number:** UN No. (ADR/RID/ADN) 2582

UN No. (IMDG) 2582

UN No. (ICAO) 2582

**UN proper shipping name:** Proper Shipping Name FERRIC CHLORIDE SOLUTION

Proper Shipping Name FERRIC CHLORIDE, SOLUTION

**Transport hazard class(es):**

**ADR/RID/ADN Class:** 8

**ADR/RID/ADN Class:** Class 8: Corrosive substances.

**ADR Label No.:** 8

**IMDG Class:** 8

**ICAO Class/Division:** 8

## Transport Labels:



## Packing group:

ADR/RID/ADN Packing group: III

IMDG Packing group: III

ICAO Packing group: III

## Environmental hazards:

## Special precautions for user:

EMS: F-A, S-B

Emergency Action Code: 2X

Hazard No. (ADR): 80

Tunnel Restriction Code : (E)

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:

## 15. REGULATORY INFORMATION

## Safety, health and environmental regulations/legislation specific for the substance or mixture:

**EU Legislation:** This product has been approved as a chemical used for the treatment of drinking water, under the appropriate BS EN Standard (see Sales Specification), and so it is also approved by the British Drinking Water Inspectorate.

**Chemical Safety Assessment:** A chemical safety assessment has been carried out.

**Note:** The regulatory information given above only indicates the principal regulations specifically Applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

## 16. OTHER INFORMATION

**General information:** Some sedimentation can occur in this product. Even after filtering, slow sedimentation will occur. To avoid problems caused by this sedimentation, storage tanks should be cleaned every 1 to 2 years.

**Legal disclaimer:** The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.

**Risk Phrases In Full:**

R34 Causes burns.  
R22 Harmful if swallowed.  
R37 Irritating to respiratory system.  
R38 Irritating to skin.  
R49 May cause cancer by inhalation.  
R61 May cause harm to the unborn child.  
R42/43 May cause sensitisation by inhalation and skin contact.  
R68 Possible risk of irreversible effects.  
R41 Risk of serious damage to eyes.  
R23/25 Toxic by inhalation and if swallowed.  
R48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.  
R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Hazard Statements In Full:**

H290 May be corrosive to metals.  
H301 Toxic if swallowed.  
H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H331 Toxic if inhaled.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H335 May cause respiratory irritation.  
H341 Suspected of causing genetic defects.  
H350i May cause cancer by inhalation.  
H360D May damage the unborn child.  
H372 Causes damage to organs <<Organs>> through prolonged or repeated exposure.  
H400 Very toxic to aquatic life.  
H410 Very toxic to aquatic life with long lasting effects.