



## SAFETY DATA SHEET FERRIC SULPHATE SOLUTION

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

#### 1.1. Product identifier

<b>Product name</b>	FERRIC SULPHATE SOLUTION
<b>Product number</b>	11382
<b>Synonyms; trade names</b>	VO - FLOC 1131, IRON (III) SULPHATE SOLUTION, FERRIC SULPHATE SOLUTION 35%, FERRIC SULPHATE 40% SOLUTION, PIX-113

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

<b>Identified uses</b>	Water Treatment
------------------------	-----------------

#### 1.3. Details of the supplier of the safety data sheet

<b>Supplier</b>	Univar Aquarius House 6 Mid Point Business Park Bradford BD3 7AY +44 1274 267300 sds@univar.com +44 1274 267306
-----------------	--

#### 1.4. Emergency telephone number

<b>Emergency Contact Number (Office Hours)</b>	+44 1274 267346
<b>Emergency Contact Number (Outside Office Hours)</b>	+441865 407333
<b>Sds No.</b>	11382

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification

<b>Physical hazards</b>	Not Classified
<b>Health hazards</b>	Acute Tox. 4 - H302 Skin Corr. 1C - H314 Eye Dam. 1 - H318
<b>Environmental hazards</b>	Not Classified

**Classification (67/548/EEC or 1999/45/EC)** Xn; R22. C; R34

#### 2.2. Label elements

# FERRIC SULPHATE SOLUTION

## Pictogram



## Signal word

Danger

## Hazard statements

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

## Precautionary statements

P260 Do not breathe vapour/spray.

P264 Wash contaminated skin thoroughly after handling.

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

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/doctor.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing.

Rinse skin with water/shower.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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

P321 Specific treatment (see medical advice on this label).

P363 Wash contaminated clothing before reuse.

P405 Store locked up.

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

## Contains

IRON (III) SULPHATE, IRON (II) SULFATE

## 2.3. Other hazards

The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

<b>IRON (III) SULPHATE</b> <span style="float: right;"><b>30-60%</b></span>		
CAS number: 10028-22-5	EC number: 233-072-9	REACH registration number: 01-2119513202-59
<b>Classification</b> Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Dam. 1 - H318	<b>Classification (67/548/EEC or 1999/45/EC)</b> Xn; R22. Xi; R38, R41	
<b>IRON (II) SULFATE</b> <span style="float: right;"><b>1-5%</b></span>		
CAS number: 7720-78-7	EC number: 231-753-5	REACH registration number: 01-2119513203-57
<b>Classification</b> Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319	<b>Classification (67/548/EEC or 1999/45/EC)</b> Xn; R22. Xi; R36/38	

## FERRIC SULPHATE SOLUTION

<b>SULPHURIC ACID ...%</b>	<b>&lt;1%</b>
CAS number: 7664-93-9	EC number: 231-639-5
<b>Classification</b>	<b>Classification (67/548/EEC or 1999/45/EC)</b>
Skin Corr. 1A - H314	C; R35
Eye Dam. 1 - H318	

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

**Composition comments**      The data shown are in accordance with the latest EC Directives.

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

<b>Inhalation</b>	Move affected person to fresh air at once. Rinse nose and mouth with water. Get medical attention.
<b>Ingestion</b>	Move affected person to fresh air and keep warm and at rest in a position comfortable for breathing. Rinse mouth thoroughly with water. Give plenty of water to drink. Get medical attention.
<b>Skin contact</b>	Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention immediately.
<b>Eye contact</b>	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention immediately. Continue to rinse.

#### 4.2. Most important symptoms and effects, both acute and delayed

<b>Inhalation</b>	Upper respiratory irritation.
<b>Ingestion</b>	Chemical burns.
<b>Skin contact</b>	Chemical burns.
<b>Eye contact</b>	Causes burns.

#### 4.3. Indication of any immediate medical attention and special treatment needed

**Notes for the doctor**      No specific recommendations. If in doubt, get medical attention promptly.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

**Suitable extinguishing media**      The product is non-combustible. Use fire-extinguishing media suitable for the surrounding fire.

#### 5.2. Special hazards arising from the substance or mixture

**Specific hazards**      Toxic gases or vapours. Oxides of the following substances: Sulphur.

#### 5.3. Advice for firefighters

**Special protective equipment for firefighters**      Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

**Personal precautions**      Avoid inhalation of vapours and contact with skin and eyes. Provide adequate ventilation. Wear protective clothing as described in Section 8 of this safety data sheet. Follow precautions for safe handling described in this safety data sheet.

## FERRIC SULPHATE SOLUTION

### 6.2. Environmental precautions

**Environmental precautions** Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

### 6.3. Methods and material for containment and cleaning up

**Methods for cleaning up** Absorb spillage with inert, damp, non-combustible material. Flush contaminated area with plenty of water. Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.

### 6.4. Reference to other sections

**Reference to other sections** Wear protective clothing as described in Section 8 of this safety data sheet.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

**Usage precautions** Avoid spilling. Avoid contact with skin and eyes. Avoid inhalation of vapours and spray/mists. Provide adequate ventilation.

### 7.2. Conditions for safe storage, including any incompatibilities

**Storage precautions** Store in tightly-closed, original container in a dry, cool and well-ventilated place. Unsuitable container materials: Common metals. Store at temperatures above °C/°F.

**Storage class** Corrosive storage.

### 7.3. Specific end use(s)

**Specific end use(s)** The identified uses for this product are detailed in Section 1.2.

## SECTION 8: Exposure Controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limits

#### SULPHURIC ACID ...%

Long-term exposure limit (8-hour TWA): WEL 0.05 mg/m<sup>3</sup> mist (thoracic fraction)

WEL = Workplace Exposure Limit

**Ingredient comments** No exposure limits known for ingredient(s).

#### IRON (III) SULPHATE (CAS: 10028-22-5)

**Ingredient comments** No exposure limits known for ingredient(s).

#### IRON (II) SULFATE (CAS: 7720-78-7)

**Ingredient comments** No exposure limits known for ingredient(s).

**PNEC**  
- Sediment (Freshwater); 49.5 mg/kg  
- Soil; 55000 mg/kg

### 8.2. Exposure controls

#### Protective equipment



## FERRIC SULPHATE SOLUTION

<b>Appropriate engineering controls</b>	Provide adequate ventilation.
<b>Eye/face protection</b>	Wear tight-fitting, chemical splash goggles or face shield.
<b>Hand protection</b>	Wear protective gloves. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. SPECIFIC RECOMMENDATIONS. Rubber (natural, latex). Neoprene. Polyvinyl chloride (PVC).
<b>Other skin and body protection</b>	Wear rubber apron. Wear rubber footwear. Wear appropriate clothing to prevent any possibility of skin contact.
<b>Hygiene measures</b>	Provide eyewash station. Wash hands at the end of each work shift and before eating, smoking and using the toilet.
<b>Respiratory protection</b>	If ventilation is inadequate, suitable respiratory protection must be worn.

### SECTION 9: Physical and Chemical Properties

#### 9.1. Information on basic physical and chemical properties

<b>Appearance</b>	Liquid.
<b>Colour</b>	Brown.
<b>Odour</b>	Characteristic.
<b>pH</b>	pH (concentrated solution): < 1
<b>Initial boiling point and range</b>	100 - 105°C @
<b>Bulk density</b>	1480 - 1610 kg/m <sup>3</sup>
<b>Solubility(ies)</b>	Completely soluble in water.
<b>Partition coefficient</b>	: < 3
<b>Viscosity</b>	30 mPa s @ 20°C

#### 9.2. Other information

<b>Other information</b>	Not available.
--------------------------	----------------

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

<b>Reactivity</b>	The following materials may react with the product: Metals The following materials may react violently with the product: Reactions with the following materials may generate heat: Alkalis.
-------------------	---

#### 10.2. Chemical stability

<b>Stability</b>	Stable at normal ambient temperatures and when used as recommended.
------------------	---

#### 10.3. Possibility of hazardous reactions

<b>Possibility of hazardous reactions</b>	Reactions with the following materials may generate heat: Metals
---	--

#### 10.4. Conditions to avoid

<b>Conditions to avoid</b>	Avoid excessive heat for prolonged periods of time.
----------------------------	---

#### 10.5. Incompatible materials

<b>Materials to avoid</b>	Strong oxidising agents. Aluminium. Copper. Alkalis.
---------------------------	--

#### 10.6. Hazardous decomposition products

## FERRIC SULPHATE SOLUTION

**Hazardous decomposition products** Sulphurous gases (SO<sub>x</sub>).

### SECTION 11: Toxicological information

#### 11.1. Information on toxicological effects

##### Acute toxicity - oral

ATE oral (mg/kg) 909.42

**Inhalation** Upper respiratory irritation. May cause damage to mucous membranes in nose, throat, lungs and bronchial system.

**Ingestion** Causes burns. Swallowing concentrated chemical may cause severe internal injury.

**Skin contact** Causes burns. Prolonged and frequent contact may cause redness and irritation.

**Eye contact** Causes burns. May cause chemical eye burns. May cause blurred vision and serious eye damage.

#### Toxicological information on ingredients.

#### IRON (III) SULPHATE

##### Acute toxicity - oral

Acute toxicity oral (LD<sub>50</sub> mg/kg) 300.0

Species Rat

##### Acute toxicity - dermal

Acute toxicity dermal (LD<sub>50</sub> mg/kg) 2,000.0

Species Rat

##### Skin corrosion/irritation

Animal data OECD 404 Not irritating.

##### Serious eye damage/irritation

Serious eye damage/irritation Causes serious eye damage.

**Inhalation** Upper respiratory irritation.

**Ingestion** May cause discomfort if swallowed. Causes burns.

**Skin contact** Irritating to skin.

**Eye contact** Risk of serious damage to eyes.

#### IRON (II) SULFATE

##### Acute toxicity - oral

ATE oral (mg/kg) 500.0

##### Acute toxicity - dermal

## FERRIC SULPHATE SOLUTION

**Acute toxicity dermal (LD<sub>50</sub>)** 2,000.0 mg/kg)

<b>Inhalation</b>	May cause respiratory system irritation.
<b>Ingestion</b>	Harmful if swallowed. Gastrointestinal symptoms, including upset stomach.
<b>Skin contact</b>	Irritating to skin.
<b>Eye contact</b>	Irritating to eyes. Symptoms following overexposure may include the following: Redness. Pain.
<b>Target organs</b>	Eyes Skin Gastro-intestinal tract Heart & cardiovascular system

### MANGANESE SULPHATE

<b>Inhalation</b>	Harmful by inhalation.
<b>Ingestion</b>	Harmful: danger of serious damage to health by prolonged exposure if swallowed.
<b>Skin contact</b>	Irritating to skin.
<b>Eye contact</b>	Irritating to eyes.

## SECTION 12: Ecological Information

**Ecotoxicity** The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment. The product may affect the acidity (pH) of water which may have hazardous effects on aquatic organisms.

### Ecological information on ingredients.

#### IRON (III) SULPHATE

**Ecotoxicity** The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment.

#### IRON (II) SULFATE

**Ecotoxicity** The product components are not classified as environmentally hazardous. However, large or frequent spills may have hazardous effects on the environment.

### MANGANESE SULPHATE

**Ecotoxicity** The product contains substances which are toxic to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.

### 12.1. Toxicity

**Toxicity** Not considered toxic to fish.

### Ecological information on ingredients.

#### IRON (III) SULPHATE

**Acute toxicity - fish** LC50, 96 hours, 96 hours: > 100 mg/l, Onchorhynchus mykiss (Rainbow trout)

## FERRIC SULPHATE SOLUTION

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 48 hours, 48 hours: 82.8 mg/l, Daphnia magna

### IRON (II) SULFATE

**Toxicity** Not considered toxic to fish.

#### 12.2. Persistence and degradability

**Persistence and degradability** The product contains mainly inorganic substances which are not biodegradable. The other substances in the product are not expected to be readily biodegradable.

#### Ecological information on ingredients.

### IRON (III) SULPHATE

**Persistence and degradability** There are no data on the degradability of this product.

### IRON (II) SULFATE

**Persistence and degradability** The product is not expected to be biodegradable.

#### 12.3. Bioaccumulative potential

**Bioaccumulative potential** The product is not bioaccumulating.

**Partition coefficient** : < 3

#### Ecological information on ingredients.

### IRON (III) SULPHATE

**Bioaccumulative potential** No data available on bioaccumulation.

### IRON (II) SULFATE

**Bioaccumulative potential** No data available on bioaccumulation.

#### 12.4. Mobility in soil

**Mobility** The product is soluble in water.

#### Ecological information on ingredients.

### IRON (III) SULPHATE

**Mobility** The product is soluble in water.

### IRON (II) SULFATE

**Mobility** The product is soluble in water.

### MANGANESE SULPHATE

**Mobility** The product is soluble in water.

#### 12.5. Results of PBT and vPvB assessment

## FERRIC SULPHATE SOLUTION

**Results of PBT and vPvB assessment** This substance is not classified as PBT or vPvB according to current EU criteria.

### Ecological information on ingredients.

#### IRON (III) SULPHATE

**Results of PBT and vPvB assessment** This substance is not classified as PBT or vPvB according to current EU criteria.

#### IRON (II) SULFATE

**Results of PBT and vPvB assessment** This product does not contain any substances classified as PBT or vPvB.

### 12.6. Other adverse effects

**Other adverse effects** Not available.

### Ecological information on ingredients.

#### IRON (III) SULPHATE

**Other adverse effects** No information required.

#### IRON (II) SULFATE

**Other adverse effects** Not determined.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

**General information** Do not puncture or incinerate, even when empty. Waste is classified as hazardous waste. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

**Disposal methods** Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

## SECTION 14: Transport information

**General** Wear protective clothing as described in Section 8 of this safety data sheet.

### 14.1. UN number

**UN No. (ADR/RID)** 3264

**UN No. (IMDG)** 3264

**UN No. (ICAO)** 3264

### 14.2. UN proper shipping name

**Proper shipping name (ADR/RID)** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.(FERRIC SULPHATE)

**Proper shipping name (IMDG)** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.(FERRIC SULPHATE)

**Proper shipping name (ICAO)** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.(FERRIC SULPHATE)

**Proper shipping name (ADN)** CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.(FERRIC SULPHATE)

## FERRIC SULPHATE SOLUTION

### 14.3. Transport hazard class(es)

ADR/RID class 8

ADR/RID subsidiary risk

ADR/RID label 8

IMDG class 8

IMDG subsidiary risk

ICAO class/division 8

ICAO subsidiary risk

Transport labels



### 14.4. Packing group

ADR/RID packing group III

IMDG packing group III

ICAO packing group III

### 14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

### 14.6. Special precautions for user

EmS F-A, S-B

Emergency Action Code 2X

Hazard Identification Number (ADR/RID) 80

Tunnel restriction code (E)

### 14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code No information required.

## SECTION 15: Regulatory information

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

**National regulations** The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No. 716).

**EU legislation** Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).  
Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended).

## FERRIC SULPHATE SOLUTION

**Guidance**

CHIP for everyone HSG228.  
Safety Data Sheets for Substances and Preparations.  
Approved Classification and Labelling Guide (Sixth edition) L131.

**15.2. Chemical safety assessment**

No chemical safety assessment has been carried out.

**SECTION 16: Other information**

**Revision comments** NOTE: Lines within the margin indicate significant changes from the previous revision.

**Revision date** 03/06/2015

**Revision** 04

**Supersedes date** 15/02/2015

**SDS number** 11382

**SDS status** Approved.

**Signature** Jitendra Panchal

**Risk phrases in full**  
R22 Harmful if swallowed.  
R34 Causes burns.  
R38 Irritating to skin.  
R41 Risk of serious damage to eyes.

**Hazard statements in full**  
H302 Harmful if swallowed.  
H314 Causes severe skin burns and eye damage.  
H315 Causes skin irritation.  
H318 Causes serious eye damage.  
H319 Causes serious eye irritation.

**TURKISH SIGNATURE**