

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

1.1. Product identifier

Product name	ClearFlo CFS
Synonyms; trade names	Iron (III) sulfate solution
REACH registration number	01-2119513202-59
REACH registration notes	Registered as the pure (dry) substance
CAS number	10028-22-5
EC number	233-072-9

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

Identified uses	Treatment of drinking water, has received approval by the European Committee for Standardisation. Laboratory agent Use of selected iron salts in land remediation applications Treatment of waste water. Use of iron salts in biogas production Use of iron salts as precursors to pigments and other iron compounds Use in adhesives and sealants Catalyst. Fertiliser ingredient
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1.3. Details of the supplier of the safety data sheet

Supplier	GPC Clear Solutions Limited, Unit 57, Riverside Estate, Sir Thomas Longley Road, Medway City Estate, Rochester Kent ME2 4DP T: 01634 326920 F: 01634 570469 E: sales@gpcclearsolutions.co.uk
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1.4. Emergency telephone number

Emergency telephone	01634 326920 (Office hours only)
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SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards	Met. Corr. 1 - H290
Health hazards	Acute Tox. 4 - H302 Eye Dam. 1 - H318 STOT SE 3 - H335
Environmental hazards	Not Classified

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

2.2. Label elements

EC number	233-072-9
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ClearFlo CFS

Pictogram



Signal word

Danger

Hazard statements

H290 May be corrosive to metals.
 H302 Harmful if swallowed.
 H318 Causes serious eye damage.
 H335 May cause respiratory irritation.

Precautionary statements

P234 Keep only in original container.
 P261 Avoid breathing vapour/ spray.
 P264 Wash contaminated skin thoroughly after handling.
 P270 Do not eat, drink or smoke when using this product.
 P271 Use only outdoors or in a well-ventilated area.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P301+P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
 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.
 P310 Immediately call a POISON CENTER/ doctor.
 P330 Rinse mouth.
 P390 Absorb spillage to prevent material damage.
 P403+P233 Store in a well-ventilated place. Keep container tightly closed.
 P405 Store locked up.
 P406 Store in corrosive resistant container with a resistant inner liner.
 P501 Dispose of contents/ container in accordance with national regulations.

Contains

Ferric sulfate

Supplementary precautionary statements

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
 P301+P312 IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
 P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P310 Immediately call a POISON CENTER/ doctor.
 P406 Store in corrosive resistant/... container with a resistant inner liner.

2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Ferric sulfate	30-60%
CAS number: 10028-22-5	EC number: 233-072-9
	REACH registration number: 01-2119513202-59
Classification Met. Corr. 1 - H290 Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Dam. 1 - H318	Classification (67/548/EEC or 1999/45/EC) Xn;R22. Xi;R38,R41.

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

SECTION 4: First aid measures

4.1. Description of first aid measures

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Inhalation	Move affected person to fresh air at once. Get medical attention. Check for lung congestion if NOx present.
Ingestion	DO NOT induce vomiting. Get medical attention immediately. Rinse mouth thoroughly with water. Give plenty of water to drink. If confined to the mouth, rinse mouth thoroughly and ensure water is not swallowed. If swallowed, drink plenty of water.
Skin contact	Remove contaminated clothing and rinse skin thoroughly with water. Get medical attention if any discomfort continues.
Eye contact	Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention. Show this Safety Data Sheet to the medical personnel.

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

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

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media The product is non-combustible. However NOx will support combustion. Use fire-extinguishing media suitable for the surrounding fire. Dry chemicals. Water spray. Carbon dioxide (CO2).

5.2. Special hazards arising from the substance or mixture

Hazardous combustion products Oxides of: Sulphur. Residual dissolved NOx

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

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 Small Spillages: Flush away spillage with plenty of water. Large Spillages: Contain, neutralise with lime or soda ash, and dispose of in accordance with local regulations.

6.4. Reference to other sections

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Wear appropriate protective clothing. Avoid contact with skin and eyes. Avoid the formation of mists. If brown NOx gasses observed, do not breathe fumes. Do not wear contact lenses when handling this material.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Avoid contact with oxidising agents. Ensure adequate ventilation to avoid build up of NOx gasses. Storage tanks and day tanks must be vented to the outside atmosphere, using suitable piping. Store away from the following materials: Store in vessels suitable for substances of low pH. Store away from the following materials: Alkalis. Avoid contact with metals (except 316 and 304 stainless steel).

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7.3. Specific end use(s)

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

Ferric sulfate

Long-term exposure limit (8-hour TWA): 1 mg/m³

Short-term exposure limit (15-minute): 2 mg/m³

Ingredient comments

Nitrogen oxides STEL (15min) 5ppm (nitrogen dioxide - OSHA limit). Immediately dangerous for life or health 20ppm (nitrogen dioxide - NIOSH); 8hr TWA 25ppm (nitric oxide - OSHA limit), Immediately dangerous for life or health 100ppm (nitric oxide - NIOSH)

Ferric sulfate (CAS: 10028-22-5)

Ingredient comments

sulphuric acid TWA 0.05mg/m³

8.2. Exposure controls

Eye/face protection

The following protection should be worn: Chemical splash goggles or face shield.

Hand protection

It is recommended that gloves are made of the following material: Polyvinyl chloride (PVC). Rubber (natural, latex).

Other skin and body protection

Plastic apron, sleeves, boots - if handling large quantities, full body suit.

Respiratory protection

If mists are formed, a respirator must be worn. If brown NO_x gasses are observed in a confined space, use self - contained breathing apparatus. If outside, move to upwind position.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance

Liquid.

Colour

Brown.

pH

pH (concentrated solution): 0.5 - 1.0

Melting point

< -20°C

Initial boiling point and range

~120°C @

Vapour density

1.04 (nitric oxide) & 1.58 (nitrogen dioxide)

Relative density

1.45 - 1.65 @ 20°C

Solubility(ies)

(Of nitric oxide) 46ml/l at 20°C (62g/ton of water)

Viscosity

45 cP @ 20°C 90 cps at 5°C

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity

N.B. Product produced by oxidation of ferrous sulfate with nitric acid. Some small quantities of residual nitrogen oxides may be given off (clearly visible reddish brown, and acrid odour) O: Oxidising, T+: very toxic, C: corrosive. Not believed to be carcinogenic or mutagenic.

10.2. Chemical stability

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Stability Do not store near sources of heat 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.

10.3. Possibility of hazardous reactions

10.4. Conditions to avoid

Conditions to avoid Dilution to < ~ 1% results in ferric hydroxide formation In contact with some metals can generate hydrogen gas, which can form explosive mixtures with air.

10.5. Incompatible materials

Materials to avoid Powdered metal. Solid metals (except stainless steel).

10.6. Hazardous decomposition products

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity - oral

ATE oral (mg/kg) 925.93

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 2,000.0

Species Rabbit

General information Product may give off small amounts of nitrogen oxides: low levels in the air can irritate the eyes, nose throat and lungs. Coughing, nausea, shortness of breath and tiredness may result. Higher levels of NOx can cause rapid burning, spasms, swelling of tissue in the respiratory tract, build up of fluids in the lung, and even death.

Inhalation Dust in high concentrations may irritate the respiratory system.

Ingestion May cause chemical burns in mouth, oesophagus and stomach. May cause liver and/or renal damage. Diarrhoea. Fibrosis of the pancreas. Irregular heartbeat, vomiting blood. Possibly fatal in large quantities.

Skin contact Irritating to skin. Prolonged and frequent contact may cause redness and irritation. Can cause burns by repeated / prolonged exposure

Eye contact Irritating to eyes. A single exposure may cause the following adverse effects: Corneal damage.

SECTION 12: Ecological Information

Ecotoxicity No data on possible environmental effects have been found. Due to its acidic nature, spillage of ferric sulfate solution may cause localised damage to plants. If diluted and neutralised no lasting effects will occur.

12.1. Toxicity

Acute toxicity - fish LC50, 96 hours: > 28 mg/l, *Onchorhynchus mykiss* (Rainbow trout)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 11 mg/l, Freshwater invertebrates

Chronic toxicity - aquatic invertebrates EC₅₀, 21 days: 4.5 mg/l, Freshwater invertebrates

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12.2. Persistence and degradability

12.3. Bioaccumulative potential

12.4. Mobility in soil

12.5. Results of PBT and vPvB assessment

12.6. Other adverse effects

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal methods Small amounts can be neutralised with lime or caustic soda, and washed away with copious amounts of water. Discharge of small quantities to the sewer with plenty of water may be permitted. The requirements of the local water authority must be complied with if contaminated water is flushed directly to the sewer. Larger quantities should be treated in a suitable plant or disposed of via a licensed waste disposal contractor. Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Do not dispose directly into rivers or drains

SECTION 14: Transport information

14.1. UN number

UN No. (ADR/RID) 1760

UN No. (IMDG) 1760

UN No. (ICAO) 1760

14.2. UN proper shipping name

Proper shipping name (ADR/RID) CORROSIVE LIQUID, N.O.S.

Proper shipping name (IMDG) CORROSIVE LIQUID, N.O.S.

Proper shipping name (ICAO) CORROSIVE LIQUID, N.O.S.

Proper shipping name (ADN) CORROSIVE LIQUID, N.O.S.

14.3. Transport hazard class(es)

ADR/RID class 8

ADR/RID label 8

IMDG class 8

ICAO class/division 8

Transport labels



14.4. Packing group

ADR/RID packing group III

IMDG packing group III

ICAO packing group III

14.5. Environmental hazards

14.6. Special precautions for user

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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 MARPOL and the IBC Code

SECTION 15: Regulatory information

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

National regulations	The Control of Substances Hazardous to Health Regulations 2002 (SI 2002 No. 2677) (as amended).
EU legislation	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).
Guidance	Workplace Exposure Limits EH40.

15.2. Chemical safety assessment

A chemical safety assessment has been carried out.

SECTION 16: Other information

General information	Ferric sulfate solution is used as a chemical for the treatment of drinking water, as approved by the European Committee for Standardisation under EN 890:2004. The transport and regulatory information given are in accordance with EN 890:2004, with R22 added. However, that document indicates ferric sulfate falls under packing group 1, as a "Substance presenting high danger". ICL believes that this classification is not justified for ferric sulfate, which only represents a low danger. 11.0% and 12.5% grades are assigned to Packing Group III, but the 8.5% grade is assigned to Packing Group II, because of the added sulfuric acid content. 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.
Revision comments	This is the first issue using the GHS Pro software package.
Issued by	GPC Clear Solutions Limited
Revision date	30/08/2017
Revision	19
Supersedes date	13/08/2015
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	H290 May be corrosive to metals. H302 Harmful if swallowed. H315 Causes skin irritation. H318 Causes serious eye damage. H335 May cause respiratory irritation.

ClearFlo CFS

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.