SAFETY DATA SHEET
FERROUS CHLORIDE <30% IN AQUEOUS SOLUTION

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

1.1. Product identifier

Chemical type:	Substance - mixture
Name:	Ferrous Chloride <30% (w/w%) in aqueous solution
Trade name:	Ferrous Chloride
CAS No.:	7758-94-3
Formula:	FeCl2

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

1.2.1. Relevant identified uses

Function or use category: Water and sewage treatment, phosphate removal, hydrogen sulphide control, dye-house colour removal, chromium VI reduction, trace metal scavenging, eliminating sulphide-based odours, colouring concrete and moss control on grassland.

1.2.2. Uses advised against

Must only be used for the listed categories in 1.2.1 (above). If unsure of product suitability, please contact the supplier (details in 1.3. below).

1.3. Details of the supplier of the safety data sheet

Company name: SERVO SOLUTIONS LIMITED
Pensnett Road
Dudley
West Midlands
DY1 2HA
Tel: 01384 471371
Email: orders@servosol.co.uk

1.4. Emergency telephone number: 01865 407333

2. HAZARDS IDENTIFICATION

2.1. Classified dangerous in accordance to the criteria of Regulation (EC) No 1272/2008.

May be corrosive to metals.	Category 1	H290
Harmful if swallowed.	Category 4	H302
Irritating to skin.	Category 2	H315
Risk of serious damage to eyes.	Category 1	H318

2.2. Classified dangerous in accordance with the criteria of Directives 67/548/EEC and 1999/45/EC.

Harmful if swallowed.	Xn;R22
Risk of serious damage to eyes.	Xi;R41

2.3. Label Elements

GHS05

C – Corrosive Revision No:1

Danger

3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1. Substances: Not applicable.

3.2. Mixtures

REACH Registration No. iron dichloride (01-2119498060-41)
CAS No. 7758-94-3
EC No. 231-843-4
Full text of R-, H- and EUH-phrases: see section 16.
Substance with a Community workplace exposure limit.
Enumerated in Annex VI of Regulation 1272/2008 but the classification has been adapted after evaluation of available test data.

4. FIRST AID MEASURES (SYMPTOMS)

4.1. Description of first aid measures.

First-aid measures after inhalation: Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service. Acute symptoms after inhalation – no effects known.

First-aid measures after skin contact: Wash immediately with lots of water. Consult a doctor/medical service. If burned surface > 10%: take victim to hospital. Acute symptoms after skin contact – no effects known.

First-aid measures after eye contact: Rinse immediately with plenty of water for 15 minutes. Do not apply neutralizing agents. Take victim to an ophthalmologist. Acute symptoms after eye contact – irritation of the eye tissue. Inflammation/damage of the eye tissue.

First-aid measures after ingestion: Rinse mouth with water.

Immediately after ingestion: Give lots of water to drink. Do not induce vomiting. Consult a doctor/medical service if you feel unwell.

After absorption of high quantities: Nausea. Vomiting. Abdominal pain. Cardiac and blood circulation effects. Enlargement/affection of the liver. Affection of the renal tissue. Consult a doctor/medical service if you feel unwell.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media
Adapt extinguishing media to the environment. No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture
On burning: Release of toxic and corrosive gases/vapours (chlorine, hydrogen chloride).

5.3. Advice for fire fighters
Cool tanks/drums with water spray/remove them into safety.
Dilute toxic gases with water spray.

5.4 Special protective equipment for fire-fighters:
- Gloves
- Face-shield
- Protective clothing
- Heat/fire exposure: compressed air/oxygen apparatus

6. ACCIDENTAL RELEASE MEASURES
The information in this section is applicable on all mentioned identified uses of this SDS.

6.1. Personal precautions, protective equipment and emergency procedures
See heading 8.2.

6.2. For emergency responders
See heading 8.2.

6.3. Environmental precautions
Contain released substance, pump into suitable containers. Plug the leak, cut off the supply. See heading 13.

6.4. Methods and material for containment and cleaning up

- Take up liquid spill into absorbent material, e.g. lime
- Scoop absorbed substance into closing containers
- Clean contaminated surfaces with an excess of water
- Wash clothing and equipment after handling

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Keep away from naked flames/heat.
Observe strict hygiene.
Keep container tightly closed.
Use corrosion proof equipment.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1. Safe storage requirements:

Store in a dark area.
Keep container in a well-ventilated place.
Keep locked up.
Store at ambient temperature.

7.2.2. Keep away from:

(strong) acids; (strong) bases; metals; oxidizing agents.

7.2.3. Suitable packaging material:

synthetic material; polyethylene; glass.

7.2.4. Non suitable packaging material:

Metal; steel; aluminium; copper; tin; nickel.

7.3. Specific end use(s)

No information available from manufacturer/supplier.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1. Control parameters

8.1.1. Netherlands (Indicative exposure limit)

IJzer(III)zouten, in water oplosbaar (als Fe); Time-weighted average exposure limit 8 h 0.1 mg/m³

8.1.2. Belgium (Indicative exposure limit)
IJzerzouten (oplosbaar)(als Fe); Time-weighted average exposure limit 8 h 1 mg/m³

8.1.3. USA (TLV)
Iron salts, soluble, as Fe; Time-weighted average exposure limit 8 h 1(Fe) mg/m³

8.1.4. UK (Limit Value)
Iron salts (as Fe); Short time value 2(Fe) mg/m³;
Time-weighted average exposure limit 8 h 1(Fe) mg/m³

8.1.5 Sampling methods:

Ferrous Chloride	Test-OSHA;	Number- CSI.
Iron	Test-OSHA;	Number-ID 121; Sampling method filter.

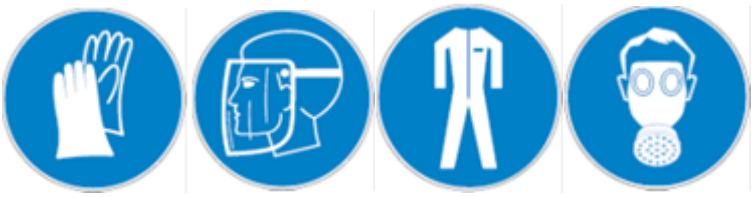
8.2. Exposure controls

8.2.1 Occupational exposure controls:
Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

Personal protective equipment:

- Respiratory protection: High gas/vapour concentration: gas mask with filter type E
- Hand protection: Gloves- butyl rubber- chloroprene rubber
- Eye protection: Face shield
- Skin protection: Corrosion proof clothing

8.2.2 Environmental exposure controls:
See headings 6.3 and 13



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state:	Liquid
Molecular mass:	127
Colour:	Green-black
Odour:	Irritating/pungent odour
Odour threshold:	No data available
pH:	<1
Solution concentration:	<30 %
Melting point:	-20 °C
Solidification point:	No data available
Boiling point:	>110 °C
Flash point:	No data available
Flammability (solid, gas):	No data available
Explosive limits:	No data available
Vapour pressure:	No data available
Relative vapour density at 20°C:	No data available
Relative density:	1.25 +/- 0.030
Solubility:	Water: completely
Log Pow:	No data available
Self-ignition temperature:	No data available
Decomposition temperature:	No data available
Viscosity:	No data available
Solubility in solvents:	Soluble in ethanol
	Soluble in ether
	Soluble in acetone
	Soluble in methanol
	Soluble in toluene
	Soluble in glycerol
	Soluble in pyridine

10. STABILITY AND REACTIVITY

10.1. Reactivity

Avoid heat sources – decomposition hazard.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions
Reacts violently with (some) bases: release of heat.

10.4. Conditions to avoid
Contact with: (strong) acids; (strong) bases; oxidizing agents.

10.5. Incompatible materials
Metal; steel; aluminium; copper; tin; nickel.

10.6. Hazardous decomposition products
Reacts with (some) metals: release of highly flammable gases/vapours (hydrogen).
On burning: release of toxic and corrosive gases/vapours (chlorine, hydrogen chloride).

11. TOXICOLOGICAL INFORMATION

11.1. Acute toxicity:

iron dichloride:	LD50 oral (rat);	450 mg/kg
iron(II) chloride, 30%, aq:	LD50 oral (rat);	1800 mg/kg

11.2. Chronic toxicity:
Not listed in carcinogenicity class (IARC,EC,TLV,MAK).
Not listed in mutagenicity class (EC,MAK).
Not classified as toxic to reproduction (EC).

11.3. Acute effects/symptoms:

11.3.1. Inhalation:
Dry/sore throat.
Coughing.
EXPOSURE TO HIGH CONCENTRATIONS:
Irritation of the respiratory tract.
Irritation of the nasal mucous membranes.
Respiratory difficulties.

11.3.2. Skin contact:
Tingling/irritation of the skin.

11.3.3. Eye contact:
Irritation of the eye tissue.
Inflammation/damage of the eye tissue.

11.3.4. Ingestion:
Nausea/vomiting.

11.4 Chronic effects:
ON CONTINUOUS/REPEATED EXPOSURE/CONTACT:
Slowing ossification.

12. ECOLOGICAL INFORMATION

12.1. Toxicity

12.1.1. iron dichloride
LC50 fishes: Species- *GAMBUSIA AFFINIS;* value-75.6 mg/l; duration (h)-96 h value
EC50 Daphnia: Species- DAPHNIA MAGNA; value-27.9 mg/l; duration (h)-48 h; (SOFT WATER)

12.1.2. iron(II) chloride, conc=30%, aqueous solution
LC50 fishes: Species- GAMBUSIA AFFINIS; value-75.6 mg/l; duration (h)-96 h
EC50 Daphnia: Species- DAPHNIA MAGNA; value-29.74 mg/l; duration (h)-48 h

12.2. Persistence and degradability
BOD20: Not applicable.
Biodegradability: not applicable.

12.3. Bio accumulative potential
Bioaccumulation: not applicable.

12.4. Mobility in soil
Volatile organic compounds (VOC): Not applicable.
Solubility in/reaction with water: Literature reports: soluble in water.
Ground water: Ground water pollutant.
European drinking water standards:
Maximum concentration in drinking water: 0.200 mg/l (iron)
(Directive 98/83/EC); 250 mg/l (chloride) (Directive 98/83/EC)

12.5. Results of PBT and vPvB assessment
The criteria of PBT and vPvB as listed in annex XIII of regulation (EC) No 1907/2006

12.6. Other adverse effects
Not dangerous for the ozone layer (Council Regulation (EC) no 1272/2008 and 1005/2009).

13. DISPOSAL CONSIDERATIONS

13.1 Provisions relating to waste:

Waste material code (Directive 2008/98/EC, decision 2001/118/EC).
06 03 14: solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13.
Remove waste in accordance with local and/or national regulations.
Can be considered as non-hazardous waste according to Directive 2008/98/EC.

13.2 Disposal methods:

Recycle/reuse.
Remove for physico-chemical/biological treatment.
Remove to an authorized dump (Class I).
May be discharged to wastewater treatment installation.
Do not discharge into drains or the environment.

13.3 Packaging/Container:

Waste material code packaging (Directive 2008/98/EC)

14. TRANSPORT INFORMATION

14.1. ADR

Proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Techn/chem name ADR:	(ferrous chloride solution)
UN number:	3264
Class:	8
Packing group:	III
Hazard identification number:	80
Classification code:	C1
Labels:	8
Tunnel restriction code:	(E)
Environmentally hazardous mark:	No

14.2. RID

Proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Techn/chem name RID:	(ferrous chloride solution)
UN number:	3264
Class:	8
Packing group:	III
Hazard identification number:	80
Classification code:	C1
Labels:	8
Environmentally hazardous mark:	No

14.3. ADNR

Proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Techn/chem name ADNR:	(ferrous chloride solution)
UN number:	3264
Class:	8
Packing group:	III
Classification code:	C1
Labels:	8
Environmentally hazardous mark:	No

14.4. IMDG

Proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Techn/chem name IMO:	(ferrous chloride solution)
UN number:	3264
Class:	8
Packing group:	III
Labels:	8
Marine pollutant:	-
Environmentally hazardous mark	No

14.5. ICAO

Proper shipping name:	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Techn/chem name ICAO:	(ferrous chloride solution)
UN number:	3264
Class:	8
Packing group:	III
Labels:	8
Environmentally hazardous mark:	No

Labels:

Hazard warning panel:

15. REGULATORY INFORMATION

15.1 EU Legislation:

DSD/DPD
Classification and labelling according to the criteria of Regulation (EC) No 1272/2008 and after evaluation of available test data

Harmful
Contains: iron dichloride

15.1.1. R-phrases

22	Harmful if swallowed
38	Irritating to skin
41	Risk of serious damage to eyes

15.1.2. S-phrases

(02)	(Keep out of the reach of children)
26	In case of contact with eyes, rinse immediately with plenty of water and seek medical advice
39	Wear eye/face protection
(46)	(If swallowed, seek medical advice immediately and show this container or label)
15.	Regulatory information

15.1.3. Classification and labelling according to the criteria of Regulation (EC) No 1272/2008 and after evaluation of available test data

Contains: iron dichloride

15.1.4. Signal word:

Dgr: Danger

15.1.5.H-statements:

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

15.1.6. P-statements

P280	Wear protective gloves and eye protection/face protection.
P310	Immediately call a POISON CENTER or doctor/physician.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330	Rinse mouth.

16. OTHER INFORMATION

PBT-substances = persistent, bio-accumulative and toxic substances
DSD = Dangerous Substance Directive
DPD = Dangerous Preparation Directive
CLP (EU-GHS) = Classification, labelling and packaging (Globally Harmonised System in Europe)

16.1. Full text of any R-phrases referred to under headings 2 and 3:

R22	Harmful if swallowed.
R38	Irritating to skin.
R41	Risk of serious damage to eyes.

16.2. Full text of any H-statements referred to under headings 2 and 3:

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

16.3. Full text of any classes referred to under headings 2 and 3:

Acute Tox.	Acute toxicity.
Eye Dam.	Serious eye damage.
Met. Corr.	Substance or mixture corrosive to metals.
Skin Irrit.	Skin irritation.

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 Servo Solutions 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.

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