

SAFETY DATA SHEET

Ferric chloride solution

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

1.1. Product identifier

Trade name

Ferric chloride solution

Other names / Synonyms

Iron (III) chloride solution

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

Relevant identified uses of the substance or mixture

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, Agrochemical uses, Treatment of waste water, Intermediate, Treatment of drinking water, European Committee Approval , Laboratory use Restricted to professional users.

Uses advised against

None known.

1.3. Details of the supplier of the safety data sheet

Company and address

Industrial Chemicals Limited

Jupiter House,
Warley Hill Business Park,
The Drive,
Warley,
Brentwood,
Essex,
CM13 3BE
United Kingdom
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www.icgl.co.uk

E-mail

sds@icgl.co.uk

Revision

15/02/2024

SDS Version

10.0

Date of previous version

08/02/2024 (10.0)

1.4. Emergency telephone number

Contact The National Poisons Information Service (dial 111, 24 h service).
See section 4 "First aid measures".

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Met. Corr. 1; H290, May be corrosive to metals.
Acute Tox. 4; H302, Harmful if swallowed.
Skin Irrit. 2; H315, Causes skin irritation.
Eye Dam. 1; H318, Causes serious eye damage.

2.2. Label elements

Hazard pictogram(s)



Signal word

Danger

Hazard statement(s)

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

Precautionary statement(s)

General

-

Prevention

Wash hands and exposed skin thoroughly after handling. (P264)
 Wear protective gloves/protective clothing/eye protection/face protection. (P280)

Response

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
 Continue rinsing. (P305+P351+P338)
 Absorb spillage to prevent material damage. (P390)

Storage

Store in a container with a resistant inner liner. (P406)

Disposal

Dispose of contents/container in accordance with local regulation (P501)

Hazardous substances

Iron trichloride
 Iron dichloride

Additional labelling

EUH208, Contains nickel dichloride. May produce an allergic reaction.

2.3. Other hazards

Additional warnings

This mixture/product does not contain any substances known to fulfil the criteria for PBT and vPvB classification.
 This product does not contain any substances considered to be endocrine disruptors in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605.

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable. This product is a mixture.

3.2. Mixtures

Product/substance	Identifiers	% w/w	Classification	Note
Water	CAS No.: 7732-18-5 EC No.: 231-791-2 UK-REACH: Index No.:	40-60%		
Iron trichloride	CAS No.: 7705-08-0 EC No.: 231-729-4 UK-REACH: 01-1226171269-4-0001 Index No.:	40-60%	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318	
Iron dichloride	CAS No.: 7758-94-3 EC No.: 231-843-4 UK-REACH: 01-5991118000-4-0002 Index No.:	0.1-1.0%	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318	
hydrogen chloride	CAS No.: 7647-01-0 EC No.: 231-595-7 UK-REACH: 01-4393370836-4-0014	1-5%	Skin Corr. 1B, H314 STOT SE 3, H335	[1]

	Index No.: 017-002-00-2			
nickel dichloride	CAS No.: 7718-54-9	<1%	Acute Tox. 3, H301	[1], [3]
	EC No.: 231-743-0		Skin Irrit. 2, H315 (SCL: 20.00 %)	
	UK-REACH:		Skin Sens. 1, H317 (SCL: 0.01 %)	
	Index No.: 028-011-00-6		Acute Tox. 3, H331	
			Resp. Sens. 1, H334	
			Muta. 2, H341	
			Carc. 1A, H350i	
			Repr. 1B, H360D	
			STOT RE 1, H372 (SCL: 1.00 %)	
			STOT RE 2, H373 (SCL: 0.10 %)	
			Aquatic Acute 1, H400 (M=1)	
			Aquatic Chronic 1, H410 (M=1)	

See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if these are available.

Other information

[1] European occupational exposure limit.

[3] According to UK REACH, Annex XVII, the substance is subject to restrictions.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In the case of accident: Contact a doctor or casualty department – take the label or this safety data sheet. Contact a doctor if in doubt about the injured person's condition or if the symptoms persist. Never give an unconscious person water or other drink.

Inhalation

Upon breathing difficulties or irritation of the respiratory tract: Bring the person into fresh air and stay with him/her.

Skin contact

IF ON SKIN: Wash with plenty of water and soap.

Remove contaminated clothing and shoes. Ensure to wash exposed skin thoroughly with water and soap. DO NOT use solvents or thinners.

If skin irritation occurs: Get medical advice/attention.

Eye contact

If in eyes: Flush eyes with plenty of water or salt water (20-30 °C) for at least 30 minutes and continue until irritation stops. Remove contact lenses. Make sure you flush under the upper and lower eyelids. Seek medical assistance immediately and continue flushing during transport.

Ingestion

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

Rinse mouth.

Burns

Not applicable.

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

Sensitisation: This product contains substances, which may produce an allergic reaction through inhalation. The allergic reaction typically takes place within an hour after exposure. The reaction results in an inflammatory reaction to the lungs.

Sensitisation: This product contains substances, which may trigger allergic reaction upon dermal contact.

Manifestation of allergic reactions typically takes place within 12-72 hours after exposure.

The product contains substances that cause serious eye damage. Contact with these substances can cause irreversible effects on the eye / serious eye damage.

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

IF exposed or concerned:

Get immediate medical advice/attention.

Information to medics

Bring this safety data sheet or the label from this product.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Not applicable.

5.2. Special hazards arising from the substance or mixture

Fire will result in dense smoke. Exposure to combustion products may harm your health. Closed containers, which are exposed to fire, should be cooled with water. Do not allow fire-extinguishing water to enter the sewage system and nearby surface waters.

If the product is exposed to high temperatures, e.g. in the event of fire, dangerous decomposition compounds are produced. These are:

Halogenated compounds

Some metal oxides

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective clothing to prevent contact. Upon direct exposure contact The National Poisons Information Service (dial 111, 24 h service) in order to obtain further advice.

Hazchem Code: 2X

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid direct contact with spilled substances.

Ensure adequate ventilation, especially in confined areas.

Contaminated areas may be slippery.

6.2. Environmental precautions

Avoid discharge to lakes, streams, sewers, etc.

Keep unauthorized persons away from the spill

6.3. Methods and material for containment and cleaning up

Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

Wherever possible cleaning should be performed with normal cleaning agents. Avoid use of solvents.

6.4. Reference to other sections

See section 13 "Disposal considerations" on handling of waste.

See section 8 "Exposure controls/personal protection" for protective measures.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid direct contact with the product.

Smoking, drinking and consumption of food is not allowed in the work area.

See section 8 "Exposure controls/personal protection" for information on personal protection.

7.2. ▼ Conditions for safe storage, including any incompatibilities

Containers that have been opened must be carefully resealed and kept upright to prevent leakage.

Store in a container with a resistant inner liner.

Recommended storage material

Plastic

Store in vented vessels of rubber lined mild steel or HDPE.

▼ Storage temperature

Dry, cool and well ventilated

Corrosive storage.

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.

Incompatible materials

Alkali

Strong oxidizing agents

7.3. Specific end use(s)

This product should only be used for applications quoted in section 1.2.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Iron trichloride

Long term exposure limit (8 hours) (ppm): 0.15
 Long term exposure limit (8 hours) (mg/m³): 1
 Short term exposure limit (15 minutes) (ppm): 0.3
 Short term exposure limit (15 minutes) (mg/m³): 2

Iron dichloride

Long term exposure limit (8 hours) (mg/m³): 1
 Short term exposure limit (15 minutes) (mg/m³): 2

hydrogen chloride

Long term exposure limit (8 hours) (ppm): 1
 Long term exposure limit (8 hours) (mg/m³): 2
 Short term exposure limit (15 minutes) (ppm): 5
 Short term exposure limit (15 minutes) (mg/m³): 8

nickel dichloride

Long term exposure limit (8 hours) (mg/m³): 0,1 (as Ni)

The Control of Substances Hazardous to Health Regulations 2002. SI 2002/2677 The Stationery Office 2002.
 EH40/2005 Workplace exposure limits (Fourth Edition 2020).

DNEL

hydrogen chloride

Duration:	Route of exposure:	DNEL:
Long term	Inhalation	8 mg/m ³
Short term	Inhalation	15 mg/m ³

nickel dichloride

Duration:	Route of exposure:	DNEL:
Long term – Local effects - Workers	Dermal	440 ng/cm ²
Long term – Local effects - General population	Inhalation	60 ng/m ³
Long term – Local effects - Workers	Inhalation	50 µg/m ³
Long term – Systemic effects - General population	Inhalation	60 ng/m ³
Long term – Systemic effects - Workers	Inhalation	50 µg/m ³
Short term – Local effects - General population	Inhalation	100 µg/m ³
Short term – Local effects - Workers	Inhalation	1.6 mg/m ³
Short term – Systemic effects - General population	Inhalation	1.1 mg/m ³
Short term – Systemic effects - Workers	Inhalation	12.8 mg/m ³
Long term – Systemic effects - General population	Oral	11 µg/kgbw/day
Short term – Systemic effects - General population	Oral	370 µg/kgbw/day

PNEC

nickel dichloride

Route of exposure:	Duration of Exposure:	PNEC:
Freshwater		7.1 µg/L
Freshwater sediment		109 mg/kg
Intermittent release (freshwater)		0 ng/L
Intermittent release (marine water)		0 ng/L
Marine water		8.6 µg/L
Marine water sediment		109 mg/kg
Predators		120 µg/kg
Sewage treatment plant		330 µg/L

Soil 29.9 mg/kg

8.2. Exposure controls

Compliance with the given occupational exposure limits values should be controlled on a regular basis.

General recommendations

Smoking, drinking and consumption of food is not allowed in the work area.

Exposure scenarios

There are no exposure scenarios implemented for this product.

Exposure limits

Professional users are subjected to the legally set maximum concentrations for occupational exposure. See occupational hygiene limit values above.

Appropriate technical measures

The formation of vapours must be kept at a minimum and below current limit values (see above). Installation of a local exhaust system if normal air flow in the work room is not sufficient is recommended. Ensure eyewash and emergency showers are clearly marked.

Ensure that eyewash stations and safety showers are located within easy reach.

Apply standard precautions during use of the product. Avoid inhalation of vapours.

Hygiene measures

Take off contaminated clothing and wash it before reuse.

Measures to avoid environmental exposure

No specific requirements.

Individual protection measures, such as personal protective equipment

Generally

Use only UKCA marked protective equipment.

Respiratory Equipment

Type	Class	Colour	Standards
If mists are formed, a respirator must be worn. If ventilation is inadequate, suitable respiratory protection must be worn. Wear a respirator fitted with the following cartridge: Particulate filter, type P2.			

Skin protection

Recommended	Type/Category	Standards
Dedicated work clothing should be worn.	-	-



Hand protection

Material	Glove thickness (mm)	Breakthrough time (min.)	Standards
Use protective gloves. Wear protective gloves made of the following material: Neoprene. Glove manufacturers' specifications should always be checked first.			

Eye protection

Type	Standards
Chemical splash goggles	

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state

Liquid

Colour

Yellow

Odour / Odour threshold

slight (Odour threshold: Not Known ppm)

pH

<3

Density (g/cm³)

1.43

Kinematic viscosity

10 mPa.s (20 °C)

Particle characteristics

Does not apply to liquids.

Phase changes**Melting point/Freezing point (°C)**

-12°C

Softening point/range (waxes and pastes) (°C)

Does not apply to liquids.

Boiling point (°C)

150

Vapour pressure

8 Pa (25 °C)

Relative vapour density

Testing not relevant or not possible due to the nature of the product.

Decomposition temperature (°C)

Testing not relevant or not possible due to the nature of the product.

Data on fire and explosion hazards**Flash point (°C)**

Testing not relevant or not possible due to the nature of the product.

Flammability (°C)

Testing not relevant or not possible due to the nature of the product.

Auto-ignition temperature (°C)

>240

Lower and upper explosion limit (% v/v)

Testing not relevant or not possible due to the nature of the product.

Solubility**Solubility in water**

soluble in water

n-octanol/water coefficient (LogKow)

1.9

Solubility in fat (g/L)

Testing not relevant or not possible due to the nature of the product.

9.2. Other information**Evaporation rate (n-butylacetate = 100)**

lower than water

Oxidizing properties

Not considered to be oxidising

Other physical and chemical parameters

avoid excessive heat for prolonged period of time

SECTION 10: Stability and reactivity**10.1. Reactivity**

No data available.

10.2. Chemical stability

The product is stable under the conditions, noted in section 7 "Handling and storage".

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

Alkali

Strong oxidizing agents

10.6. Hazardous decomposition products

The product is not degraded when used as specified in section 1.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008 as retained and amended in UK law

Acute toxicity

Harmful if swallowed.

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/irritation

Causes serious eye damage.

Respiratory sensitisation

This product contains substances that may trigger an allergic reaction in already sensitized persons.

Skin sensitisation

This product contains substances that may trigger an allergic reaction in already sensitized persons.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Based on available data, the classification criteria are not met.

Reproductive toxicity

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Long term effects

The product contains substances that cause serious eye damage. Contact with these substances can cause irreversible effects on the eye / serious eye damage.

Endocrine disrupting properties

This mixture/product does not contain any substances known to have hormone-disrupting properties in relation to health.

Other information

hydrogen chloride has been classified by IARC as a group 3 carcinogen.

nickel dichloride has been classified by IARC as a group 1 carcinogen.

SECTION 12: Ecological information

12.1. Toxicity

No data available.

12.2. Persistence and degradability

Based on available data, the classification criteria are not met.

12.3. Bioaccumulative potential

Based on available data, the classification criteria are not met.

12.4. Mobility in soil

No data available.

12.5. Results of PBT and vPvB assessment

This mixture/product does not contain any substances known to fulfil the criteria for PBT and vPvB classification.

12.6. Endocrine disrupting properties

This mixture/product does not contain any substances considered to have endocrine-disrupting properties in relation to the environment.

12.7. Other adverse effects

None known.

SECTION 13: Disposal considerations

Waste treatment methods

Product is covered by the regulations on hazardous waste. (*)

HP 4 - Irritant (skin irritation and eye damage)

HP 6 - Acute toxicity

Dispose of contents/container to an approved waste disposal plant.

Regulation (EU) No 1357/2014 of 18 December 2014 on waste as retained and amended in UK law.

EWC code




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

Specific labelling

Contaminated packing

Packaging containing residues of the product must be disposed of similarly to the product.

SECTION 14: Transport information

	14.1 UN / ID	14.2 UN proper shipping name	14.3 Hazard class(es)	14.4 PG*	14.5 Env**	Other information:
ADR	UN2582	FERRIC CHLORIDE SOLUTION	Transport hazard class: 8 Label: 8 Classification code: C1 	III	No	Limited quantities: 5 L Tunnel restriction code: (E) See below for additional information.
IMDG	UN2582	FERRIC CHLORIDE SOLUTION	Transport hazard class: 8 Label: 8 Classification code: C1 	III	No	Limited quantities: 5 L EmS: F-A S-B See below for additional information.
IATA	UN2582	FERRIC CHLORIDE SOLUTION	Transport hazard class: 8 Label: 8 Classification code: C1 	III	No	See below for additional information.

* Packing group

** Environmental hazards

Additional information

ADR / See Table A, section 3.2.1 for any information on special provisions, requirements, or warnings in connection with transport. See section 5.4.3, for instructions in writing regarding mitigation of damages in relation to incidents or accidents during transport.

IMDG / See section 3.2.1, for any information on special provisions, requirements, or warnings in connection with transport.

IATA / See Table 4.2 for any information on special provisions, requirements, or warnings in connection with

transport.

This product is within scope of the regulations of transport of dangerous goods.

Hazchem Code: 2X

14.6. Special precautions for user

Not applicable.

14.7. Maritime transport in bulk according to IMO instruments

No data available.

SECTION 15: Regulatory information

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

Restrictions for application

Restricted to professional users.

Demands for specific education

No specific requirements.

SEVESO - Categories / dangerous substances

hydrogen chloride

Regulation on drug precursors

hydrogen chloride is included (Category 3)

UK-REACH, Annex XVII

nickel dichloride is subject to restrictions, UK-REACH annex XVII (entry 27).

Additional information

Not applicable.

Sources

The Management of Health and Safety at Work Regulations 1999.

Control of Major Accident Hazards (COMAH) Regulations 2015.

Regulation (EU) No 1357/2014 of 18 December 2014 on waste as retained and amended in UK law.

The Controlled Drugs (Drug Precursors) Regulations 2008.

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures (CLP) as retained and amended in UK law.

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as retained and amended in UK law.

15.2. Chemical safety assessment

No

SECTION 16: Other information

Full text of H-phrases as mentioned in section 3

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 through prolonged or repeated exposure.

H373, May cause damage to organs through prolonged or repeated exposure.

H400, Very toxic to aquatic life.

H410, Very toxic to aquatic life with long lasting effects.

Abbreviations and acronyms

ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway

ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road

ATE = Acute Toxicity Estimate

BCF = Bioconcentration Factor

CAS = Chemical Abstracts Service

CE = Conformité Européenne (European conformity)

CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
 CSA = Chemical Safety Assessment
 CSR = Chemical Safety Report
 DMEL = Derived Minimal Effect Level
 DNEL = Derived No Effect Level
 EINECS = European Inventory of Existing Commercial chemical Substances
 ES = Exposure Scenario
 EUH statement = CLP-specific Hazard statement
 EuPCS = European Product Categorisation System
 EWC = European Waste Catalogue
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IARC = International Agency for Research on Cancer (IARC)
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 OECD = Organisation for Economic Co-operation and Development
 PBT = Persistent, Bioaccumulative and Toxic
 PNEC = Predicted No Effect Concentration
 RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
 RRN = REACH Registration Number
 SCL = A specific concentration limit
 SVHC = Substances of Very High Concern
 STOT-RE = Specific Target Organ Toxicity - Repeated Exposure
 STOT-SE = Specific Target Organ Toxicity - Single Exposure
 TWA = Time weighted average
 UN = United Nations
 UVBC = Unknown or variable composition, complex reaction products or of biological materials
 VOC = Volatile Organic Compound
 vPvB = Very Persistent and Very Bioaccumulative

Additional information

The classification of the substance/mixture in regard of health hazards are in accordance with the calculation methods given by Regulation (EC) No. 1272/2008 (CLP) as retained and amended in UK law.

▼ The safety data sheet is validated by

LWetton

Other

A change (in proportion to the last essential change (first cipher in SDS version, see section 1)) is marked with a blue triangle.

The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.

It is recommended to hand over this safety data sheet to the actual user of the product. Information in this safety data sheet cannot be used as a product specification.

Country-language: GB-en