Safety Data Sheet

For INDIA, According to GHS (Rev. 8)

FERRIC CHLORIDE LIQUID

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SECTION 1: IDENTIFICATION

1.1 GHS Product identifier:

FERRIC CHLORIDE LIQUID
Iron(III) Chloride Solution; Ferric Chloride Solution (40% min.)
CAS: 7705-08-0

Other means of identification:

Formula: $FeCl_3$ (aqueous solution) | Shipping name: Ferric Chloride Solution

1.2 Recommended use of the chemical and restrictions on use:

Relevant uses: Coagulant for effluent water and sewage treatment, textile processing/etching, chlorinating and condensing agent, water treatment in Reverse Osmosis process. For industrial user only.

Uses advised against: All uses not specified in this section or in section 7.3.

1.3 Supplier's details:

SURAJ CHEMICALS
No 92, Govindappa Naicken Street, Shiva Complex, Chennai – 600001, Tamil Nadu, India
Tel: +91 - 7092722822, +91 - 9840284032 / +91 - 44 - 25393652, 42130281
Email: sales@surajchemicals.com | Website: www.surajchemicals.com
GST No: 33ACEPV8190L1ZZ

1.4 Emergency phone number:

Emergency Contact No: +91 - 7092722822, +91 - 9840284032

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture:

GHS:
Classification of this product has been carried out in accordance with the Globally Harmonized System of Classification and Labelling of Chemicals (GHS), based on the source safety data (Corrosive, Class 8) and the well-established public/harmonised classification for Iron(III) Chloride (CAS 7705-08-0):

Skin Corr. 1B	Skin corrosion, Category 1B, H314
STOT SE 3	Respiratory tract irritation, single exposure, Category 3, H335
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic hazard, Category 3, H412

2.2 GHS label elements, including precautionary statements:

GHS: Danger

Hazard statements:

Skin Corr. 1B: H314 – Causes severe skin burns and eye damage.
STOT SE 3: H335 – May cause respiratory irritation.
Aquatic Chronic 3: H412 – Harmful to aquatic life with long lasting effects.

Precautionary statements:

P260: Do not breathe mist/vapours.
P264: Wash hands thoroughly after handling.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353: IF ON SKIN (or hair): Remove/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.
P310: Immediately call a POISON CENTER/doctor.
P405: Store locked up.
P501: Dispose of contents/container in accordance with local regulations on hazardous waste.

2.3 Other hazards which do not result in classification:

Corrosive to most common metals. Forms a number of adducts and substitution products.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances:

Chemical description: Ferric Chloride, aqueous solution

In accordance with Annex 4.3.3 of the GHS, the product contains:

Identification	Chemical Name / Classification	Concentration
CAS: 7705-08-0	Iron(III) Chloride (Ferric Chloride) — Skin Corr. 1B: H314; STOT SE 3: H335; Aquatic Chronic 3: H412 – Danger	40–43% (as $FeCl_3$)
—	Water (solvent)	Balance

Free acid (as HCl): 0.01–0.50% by weight. Ferrous salts (as $FeCl_2$): 0.10% max. Insoluble matter: 0.05% max. To obtain more information on the hazards of the substances, consult sections 11, 12 and 16.

3.2 Mixtures:

Aqueous solution of minimum 40% concentration – see composition table above.

SECTION 4: FIRST AID MEASURES

4.1 Description of necessary first-aid measures:

Request medical assistance immediately, showing the SDS of this product.

By inhalation:

Remove the affected person to fresh air and keep at rest. Seek medical attention if breathing difficulty persists.

By skin contact:

Wash with plenty of water for at least 15 minutes. Remove contaminated clothing while flushing. If irritation persists, get medical attention.

By eye contact:

Wash with plenty of water for at least 15 minutes, holding eyelids open. If irritation persists, get medical attention.

By ingestion/aspiration:

Do not induce vomiting. Rinse mouth with water. Product is irritant to eyes, mouth and throat and can cause vomiting and gastric haemorrhage if swallowed; seek medical attention immediately.

4.2 Most important symptoms/effects, acute and delayed:

Irritant to eyes, mouth and throat; vomiting and gastric haemorrhage and shortness of breath if swallowed. Acute and delayed effects are also indicated in sections 2 and 11.

4.3 Indication of immediate medical attention and special treatment needed, if necessary:

Not relevant.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 Suitable extinguishing media:

Suitable: Product is not flammable – use extinguishing media appropriate for the surrounding fire.
Unsuitable: None known.

5.2 Specific hazards arising from the chemical:

Not flammable. Corrosive to most metals; contact with metals may generate flammable hydrogen gas over time.

5.3 Special protective actions for fire-fighters:

Wear self-contained breathing apparatus and full protective/acid-resistant clothing. Cool fire-exposed containers with water spray.

Additional provisions:

Prevent fire-fighting water runoff from entering drains/watercourses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel:

Avoid contact with skin and eyes. Use PPE described in Section 8. Ventilate the area.

For emergency responders:

Wear protective equipment. Keep unprotected persons away.

6.2 Environmental precautions:

Prevent entry into drains, watercourses and soil.

6.3 Methods and materials for containment and cleaning up:

Cover the spillage with sufficient sodium bicarbonate, or wash with profuse water into a contained area. Neutralize with ammonia, soda ash or caustic and wash with profuse water into drain, subject to local discharge regulations.

6.4 Reference to other sections:

See sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling:

A. General precautions for safe use:

Avoid contact with skin and eyes. Avoid breathing mist/vapours. Corrosive to most metals – handle and store in HDPE, PP, rubber or ceramic-lined equipment only.

B. Technical recommendations for the prevention of fires and explosions:

Not applicable – product is non-flammable.

C. Technical recommendations on general occupational hygiene:

Do not eat or drink during handling; wash hands thoroughly afterwards.

D. Technical recommendations to prevent environmental risks:

Avoid discharge to drains and watercourses.

7.2 Conditions for safe storage, including any incompatibilities:

A. Specific storage requirements:

Storage category	A (Corrosive)
Recommended containers	HDPE, PP, rubber or ceramic-lined; rubber-bonded metal containers

B. General conditions for storage:

Corrosive to most metals – do not store in bare mild-steel vessels. Keep containers closed when not in use.

7.3 Specific end use(s):

Except for the instructions already specified, it is not necessary to provide any special recommendation regarding the uses of this product.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters:

No specific occupational exposure limit has been established for ferric chloride under the Factories Act, 1948. Control airborne mist below levels causing irritation.

8.2 Appropriate engineering controls:

Use local exhaust ventilation where mist may be generated.

B. Respiratory protection:

Not normally required with adequate ventilation; use an acid-gas/mist respirator if mist is generated.

C. Specific protection for the hands:

Rubber gloves (natural or synthetic).

D. Eye and face protection:

Chemical splash goggles or glasses.

E. Bodily protection:

Rubber boots and acid-resistant apron/clothing.

F. Additional emergency measures:

Emergency shower and eyewash stations should be available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties:

Appearance	
Physical state at 20°C	Liquid
Appearance	Brownish liquid, light brown
Color	Brownish

Odor	Without odour
Product Description	
Relative density at 25/25°C	1.45 to 1.48
$FeCl_3$ content (% by weight)	40 to 43
Free acid (as HCl), % by weight	0.01 to 0.50
Ferrous salts (as $FeCl_2$), % by weight	0.10 max.
Insoluble matter, % by weight	0.05 max.
Solubility in water	Soluble
Solubility in organic solvents	Moderately soluble in alcohols, acetone, ethers, esters; insoluble in glycerine, ethyl acetate
Flammability	
Flash Point	Non-applicable
Flammability	Not Flammable

9.2 Other information:

Corrosive to metals	Yes – corrosive to most common metals
Oxidising properties	An oxidising and chlorinating agent
Explosive properties	Not relevant

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity:

Corrosive to most metals. Forms a number of adducts and substitution products.

10.2 Chemical stability:

Stable under the indicated conditions of storage, handling and use.

10.3 Possibility of hazardous reactions:

May react with active metals to liberate hydrogen gas.

10.4 Conditions to avoid:

Shock/Friction	Contact with Air	Increase in Temperature	Sunlight	Humidity
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

10.5 Incompatible materials:

Reactive Metals	Strong Bases	Oxidisers
Avoid contact (corrosive; may liberate hydrogen)	Avoid direct contact	Avoid contact

10.6 Hazardous decomposition products:

None expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects:

In case of exposure that is repetitive, prolonged, or at concentrations higher than the recommended occupational exposure limits, adverse health effects may result depending on the means of exposure:

A. Ingestion (acute effect):

Irritant to mouth and throat; causes vomiting and gastric haemorrhage.

B. Inhalation (acute effect):

Causes irritation of the respiratory tract with shortness of breath at higher exposures.

C. Contact with skin and eyes (acute effect):

Causes severe skin burns and eye damage (corrosive).

D. CMR effects (carcinogenicity, mutagenicity, reproductive toxicity):

Classification criteria are not met based on available data.

E. Sensitizing effects:

Not known to be a skin or respiratory sensitiser.

F. Specific target organ toxicity (STOT) – single exposure:

May cause respiratory irritation.

G. Specific target organ toxicity (STOT) – repeated exposure:

Classification criteria are not met based on available data.

H. Aspiration hazard:

Classification criteria are not met based on available data.

SECTION 12: ECOLOGICAL INFORMATION

Harmful to aquatic life with long lasting effects.

12.1 Toxicity:

Product-specific aquatic toxicity data not available from the source; iron(III) salts are generally of low-to-moderate acute aquatic toxicity, though localised pH depression on discharge can be harmful to aquatic life.

12.2 Persistence and degradability:

Not available

12.3 Bioaccumulative potential:

Not expected to bioaccumulate (inorganic iron salt).

12.4 Mobility in soil:

Koc	Henry	Dry Soil	Moist Soil
Not relevant	Not relevant	No	No

12.5 Results of PBT and vPvB assessment:

Non-applicable

12.6 Other adverse effects:

Not described

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Disposal methods:

Neutralize with ammonia, soda ash or caustic soda and wash with profuse water, subject to local trade-effluent discharge regulations. For packaging: avoid treatments as far as possible – use dedicated containers, and do not rinse the dedicated containers. Refer to national and local regulations on waste management.

SECTION 14: TRANSPORT INFORMATION

Transport of dangerous goods by land (ADR/RID):

14.1 UN number	UN2582
14.2 UN proper shipping name	FERRIC CHLORIDE SOLUTION
14.3 Transport hazard class(es)	8
14.4 Packing group	III
14.5 Environmental hazard	Yes
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk	Transportable in HDPE barrels and rubber-lined tanks

Transport of dangerous goods by sea (IMDG):

14.1 UN number	UN2582
14.2 UN proper shipping name	FERRIC CHLORIDE SOLUTION
14.3 Transport hazard class(es)	8 (IMCO Class 8 – I)
14.4 Packing group	III
14.5 Marine pollutant	Yes
14.6 Special precautions for user	IMDG Code Page No.: 8173
14.7 Transport in bulk	Not relevant

Transport of dangerous goods by air (IATA/ICAO):

14.1 UN number	UN2582
14.2 UN proper shipping name	FERRIC CHLORIDE SOLUTION
14.3 Transport hazard class(es)	8
14.4 Packing group	III
14.5 Environmental hazard	Yes
14.6 Special precautions for user	Physico-chemical properties: see section 9
14.7 Transport in bulk	Not relevant

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations specific for the product in question:

It is recommended to use the information included in this safety data sheet as data used in a risk evaluation of local circumstances, in order to establish the necessary risk prevention measures for the manipulation, use, storage and disposal of this product.

Other legislation:

Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
The Factories Act, 1948 (Act No. 63 of 1948), as amended by the Factories (Amendment) Act, 1987 (Act 20 of 1987)
Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016

SECTION 16: OTHER INFORMATION

Legislation related to safety data sheets:

This safety data sheet has been designed in accordance with Annex 4 – Guidance on the preparation of Safety Data Sheets of the Globally Harmonized System of Classification and Labelling of Chemicals (GHS).

Texts of the legislative phrases mentioned in sections 2 and 3:

H314: Causes severe skin burns and eye damage.
H335: May cause respiratory irritation.
H412: Harmful to aquatic life with long lasting effects.

The phrases indicated do not refer to the product itself; they are present merely for informative purposes and refer to the individual components which appear in section 3.

Advice related to training:

Minimal training is recommended to prevent industrial risks for staff using this product, in order to facilitate their comprehension and interpretation of this safety data sheet, as well as the label on the product.

Principal bibliographical sources:

Original manufacturer's product safety data (DCW Limited); harmonised/self-classification data for CAS 7705-08-0 per public GHS classification references; The United Nations Economic Commission for Europe (UNECE).

Abbreviations and acronyms:

ADR: European agreement concerning the international carriage of dangerous goods by road | IMDG: International maritime dangerous goods code | IATA: International Air Transport Association | ICAO: International Civil Aviation Organisation

END OF SAFETY DATA SHEET