# SAFETY DATA SHEET

Version 3

## 1. Identification of the Substance / Preparation and of the Company / Undertaking

**Product Name** Ferric Chloride 37% Solution
**Product Code** 806649
**UN/ID No** UN2582
**Synonyms** Iron (III) Chloride Solution
**Recommended Use** Industrial, Manufacturing or Laboratory use.
**Restrictions on Use** None known

**Manufacturer**
Hawkins, Inc., 2381 Rosegate, Roseville, MN 55113 (612-331-6910)

**Emergency Telephone:**
CHEMTREC (US): 1-800-424-9300

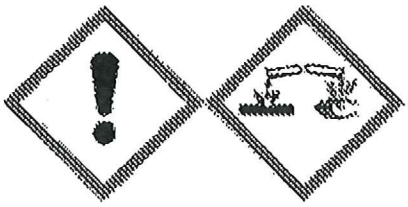
## 2. Hazards Identification

### GHS - Classification

| | |
|---|---|
| Acute toxicity - Oral | Category 4 |
| Skin corrosion/irritation | Category 1 |
| Serious eye damage/eye irritation | Category 1 |
| Corrosive to metals | Category 1 |

**Hazards not otherwise classified (HNOC)**
Not applicable

**Label elements**



**Signal Word:** **Danger**

**Hazard Statements:**
- Harmful if swallowed
- Causes severe skin burns and eye damage
- May be corrosive to metals

**Precautionary Statements:**
- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Do not breathe dusts or mists
- Wear protective gloves/protective clothing/eye protection/face protection
- Keep only in original container
- Immediately call a POISON CENTER or doctor/physician
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
- Wash contaminated clothing before reuse
- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
- IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
- Rinse mouth

- Do NOT induce vomiting
- Absorb spillage to prevent material damage
- Store locked up
- P406 - Store in corrosion resistant container with a resistant inner liner
- Dispose of contents/ container to an approved waste disposal plant

## 3. Composition / Information on Ingredients

| Chemical name | CAS No. | Weight-% |
|---|---|---|
| Ferric chloride | 7705-08-0 | 36.0-38.0 |
| Hydrochloric acid | 7647-01-0 | <=1.0 |
| Water | 7732-18-5 | Balance |

Any concentration shown as a range is due to batch variation or the exact percentage has been withheld as a trade secret.

## 4. First Aid Measures

**Description of first aid measures**

**General advice** Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

**Inhalation** Remove to fresh air. If breathing has stopped, give artificial respiration. Get medical attention immediately. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. If breathing is difficult, (trained personnel should) give oxygen. Delayed pulmonary edema may occur. Get immediate medical advice/attention.

**Eye contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area. Get immediate medical advice/attention.

**Skin contact** Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Get immediate medical advice/attention.

**Ingestion** Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Get immediate medical advice/attention.

**Self-protection of the first aider** Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8). Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

**Most important symptoms and effects, both acute and delayed**

**Symptoms** Burning. Coughing and/ or wheezing. Redness. May cause blindness.

**Indication of any immediate medical attention and special treatment needed**

**Note to physicians** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure.

## 5. Fire-fighting Measures

**Suitable Extinguishing Media** Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Large Fire** CAUTION: Use of water spray when fighting fire may be inefficient.

**Unsuitable extinguishing media** Do not scatter spilled material with high pressure water streams.

**Specific hazards arising from the chemical** The product causes burns of eyes, skin and mucous membranes. Thermal decomposition can lead to release of irritating gases and vapors.

**Explosion Data**

**Sensitivity to mechanical impact** None.

**Sensitivity to static discharge** None.

**Special protective equipment for** Firefighters should wear self-contained breathing apparatus and full firefighting turnout

**fire-fighters** gear. Use personal protection equipment.

## 6. Accidental Release Measures

**Personal precautions, protective equipment and emergency procedures**

**Personal precautions** Avoid contact with skin, eyes or clothing. Ensure adequate ventilation. Use personal protective equipment as required. Attention! Corrosive material. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

**Other information** Refer to protective measures listed in Sections 7 and 8.

**Methods and material for containment and cleaning up**

**Methods for containment** Prevent further leakage or spillage if safe to do so.

**Methods for cleaning up** Dike far ahead of liquid spill for later disposal. Neutralize with soda ash (sodium carbonate) or lime over area of spill. Caution: The use of soda ash or lime may generate carbon dioxide gas. Provide adequate ventilation. Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Pick up and transfer to properly labeled containers. Clean contaminated surface thoroughly. After cleaning, flush away traces with water.

## 7. Handling and Storage

**Precautions for safe handling**

**Advice on safe handling** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Handle product only in closed system or provide appropriate exhaust ventilation. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

**Conditions for safe storage, including any incompatibilities**

**Storage Conditions** Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

**Incompatible materials** Bases. Metals. Product may slowly corrode iron, brass, copper, aluminum, mild steel, and stainless steel. Leather.

## 8. Exposure Controls / Personal Protection

**Control parameters**

**Exposure Limits** The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here.

| Chemical name | ACGIH TLV | OSHA PEL | NIOSH IDLH |
|---|---|---|---|
| Ferric chloride<br>7705-08-0 | TWA: 1 mg/m³ Fe | (vacated) TWA: 1 mg/m³ Fe | TWA: 1 mg/m³ Fe |
| Hydrochloric acid<br>7647-01-0 | Ceiling: 2 ppm | (vacated) Ceiling: 5 ppm<br>(vacated) Ceiling: 7 mg/m³<br>Ceiling: 5 ppm<br>Ceiling: 7 mg/m³ | IDLH: 50 ppm<br>Ceiling: 5 ppm<br>Ceiling: 7 mg/m³ |

**Exposure Guidelines** Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

**Appropriate engineering controls**

**Engineering controls** Showers
Eyewash stations
Ventilation systems.

**Individual protection measures, such as personal protective equipment**

**Eye/face protection** Face protection shield. Tight sealing safety goggles.

| | |
|---|---|
| **Hand protection** | Wear suitable gloves. Impervious gloves. |
| **Skin and body protection** | Wear suitable protective clothing. Long sleeved clothing. Chemical resistant apron. |
| **Respiratory protection** | No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required. |
| **Environmental exposure controls** | Do not allow into any sewer, on the ground or into any body of water. |
| **General hygiene considerations** | Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product. Regular cleaning of equipment, work area and clothing is recommended. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Contaminated work clothing should not be allowed out of the workplace. Wash hands before breaks and immediately after handling the product. |

## 9. Physical and Chemical Properties

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

| | | | |
|---|---|---|---|
| **Physical State:** | Liquid | | |
| **Appearance:** | No information available | **Odor:** | Acidic odor |
| **Color:** | Dark reddish brown | **Odor Threshold:** | No information available |

| Property | Values | Remarks • Method |
|---|---|---|
| **pH:** | 1.0 | pH Range: <1.0 |
| **Salt Out Point:** | | No information available |
| **Melting Point/Freezing Point:** | < -40 °C / -40 °F | |
| **Boiling Point/Boiling Range:** | | No information available |
| **Flash Point:** | | No information available |
| **Evaporation Rate (BuAc=1):** | | No information available |
| **Flammability (solid, gas)** | | No information available |
| **Flammability Limits in Air:** | | No information available |
| **Upper Flammability Limit:** | | **Lower Flammability Limit:** |
| **Vapor Pressure (mm Hg):** | | No information available |
| **Vapor density (Air =1)** | | No information available |
| **Specific Gravity ($H_2O$=1):** | 1.387 | |
| **Specific Gravity (2nd value):** | | |
| **Water Solubility:** | | No information available |
| **Solubility(ies):** | | No information available |
| **Partition Coefficient (n-octanol/water)** | | No information available |
| **Autoignition Temperature:** | | No information available |
| **Decomposition Temperature:** | | No information available |
| **Kinematic Viscosity:** | | No information available |
| **Dynamic Viscosity:** | | No information available |
| **Oxidizing Properties:** | No information available | |
| **Explosive Properties:** | Not considered to be an explosion hazard | |

### 9.2. Other Information

| | |
|---|---|
| **Softening Point:** | No information available |
| **Molecular Weight:** | 162.20 |
| **VOC Content(%):** | No information available |
| **Liquid Density** | No information available |
| **Bulk density** | No information available |

## 10. Stability and Reactivity

| | |
|---|---|
| **Reactivity** | No information available. |
| **Chemical stability** | Stable under normal conditions. |
| **Possibility of hazardous reactions** | None under normal processing. |
| **Conditions to avoid** | Exposure to air or moisture over prolonged periods. Extremes of temperature and direct sunlight. |
| **Incompatible materials** | Bases. Metals. Product may slowly corrode iron, brass, copper, aluminum, mild steel, and stainless steel. Leather. |

**Hazardous decomposition products** Hydrogen chloride.

## 11 Toxicological information

**Information on likely routes of exposure**

**Product Information**

**Inhalation** Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal.

**Eye contact** Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.

**Skin contact** Specific test data for the substance or mixture is not available. Causes severe burns.

**Ingestion** Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways.

**Symptoms related to the physical, chemical and toxicological characteristics**

**Symptoms** Redness. Burning. May cause blindness. Coughing and/ or wheezing.

**Numerical measures of toxicity**

No information available

**Acute Toxicity:**

**The following values are calculated based on chapter 3.1 of the GHS document .**

**ATEmix (oral)** 1,128.10 mg/kg

**ATEmix (inhalation-dust/mist)** 31.06 mg/l

**Unknown Acute toxicity** 39 % of the mixture consists of ingredient(s) of unknown toxicity

0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity

38 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity

39 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

39 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)

38 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

**Component Information**

| Chemical name | Oral LD50 | Dermal LD50 | LC50 (Lethal Concentration) |
|---|---|---|---|
| Ferric chloride<br>7705-08-0 | = 450 mg/kg ( Rat ) | - | - |
| Hydrochloric acid<br>7647-01-0 | 238 - 277 mg/kg ( Rat ) | > 5010 mg/kg ( Rabbit ) | = 1.68 mg/L ( Rat ) 1 h |
| Water<br>7732-18-5 | > 90 mL/kg ( Rat ) | - | - |

**Delayed and immediate effects as well as chronic effects from short and long-term exposure**

**Skin corrosion/irritation** Causes severe burns.

**Serious eye damage/eye irritation** Classification based on data available for ingredients. Causes burns. Risk of serious damage to eyes.

**Respiratory or skin sensitization** No information available.

**Germ cell mutagenicity** No information available.

**Carcinogenicity** See section 2 for classified hazards based on component information.

| Chemical name | ACGIH | IARC | NTP | OSHA |
|---|---|---|---|---|
| Hydrochloric acid 7647-01-0 | - | Group 3 | - | - |

**IARC (International Agency for Research on Cancer)**
Group 3 - Not Classifiable as to Carcinogenicity in Humans

**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** No information available.

**Target Organ Effects:** Eyes, Gastrointestinal tract (GI), Liver, Respiratory system, Skin.
**Other Adverse Effects:** No information available.
**Aspiration hazard** No information available.

## 12. Ecological Information

**Ecotoxicity** The environmental impact of this product has not been fully investigated.

| Chemical name | Toxicity to algae | Toxicity to fish | Toxicity to microorganisms | Toxicity to daphnia and other aquatic invertebrates |
|---|---|---|---|---|
| Ferric chloride 7705-08-0 | - | 20.26: 96 h Lepomis macrochirus mg/L LC50 semi-static 20.95 - 22.56: 96 h Pimephales promelas mg/L LC50 semi-static | - | 27.9: 48 h Daphnia magna mg/L EC50 9.6: 48 h Daphnia magna mg/L EC50 Static |

**Persistence and Degradability:** No information available.
**Bioaccumulation:** There is no data for this product.
**Component Information**

| Chemical name | Partition coefficient |
|---|---|
| Ferric chloride 7705-08-0 | -4 |

**Other Adverse Effects:** No information available.

## 13. Disposal Considerations

**Waste treatment methods**

**Waste from residues/unused products** Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.
**Contaminated packaging** Do not reuse empty containers.
**US EPA Waste Number (product as supplied)** D002.

## 14. Transport Information

**DOT**

**Proper shipping name** FERRIC CHLORIDE, SOLUTION
**Hazard Class** 8
**UN/ID No** UN2582
**Packing Group** III
**Description** UN2582, FERRIC CHLORIDE, SOLUTION, 8, PG III

## 15 Regulatory Information

### International Inventories

| | |
|---|---|
| **AICS** | Complies |
| **TSCA** | Complies |
| **DSL/NDSL** | Complies |
| **EINECS/ELINCS** | Complies |
| **ENCS** | Complies |
| **IECSC** | Complies |
| **KECL** | Complies |
| **PICCS** | Complies |

| Chemical name | AICS | TSCA | DSL | NDSL | EINECS | ELINCS | ENCS | IECSC | KECL | PICCS |
|---|---|---|---|---|---|---|---|---|---|---|
| Ferric chloride | Present | Present ACTIVE | Present | - | Present | - | Present | Present [29428] | Present | Present |
| Hydrochloric acid | Present | Present ACTIVE | Present | - | Present | - | Present | Present [37053] | Present | Present |
| Water | Present | Present ACTIVE | Present | - | Present | - | Present | Present [32224] | Present | Present |

**Inventory Legend**

**AICS** - Australian Inventory of Chemical Substances
**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
**EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
**ENCS** - Japan Existing and New Chemical Substances
**IECSC** - China Inventory of Existing Chemical Substances
**KECL** - Korean Existing and Evaluated Chemical Substances
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**RESTRICTIONS - REACH TITLE VII** No information available

### US Federal Regulations

**CERCLA**

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

| Chemical name | Hazardous Substances RQs | Extremely Hazardous Substances RQs | SARA Extremely Hazardous Substances TPQ |
|---|---|---|---|
| Ferric chloride | 1000 lb | - | - |
| Hydrochloric acid | 5000 lb | 5000 lb | 500 lb TPQ |

**SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

| Chemical name | SARA 313 - Threshold Values % |
|---|---|
| Hydrochloric acid | 1.0 |

**SARA 311/312 Hazard Categories**

| | |
|---|---|
| **Acute health hazard** | Yes |
| **Chronic health hazard** | No |
| **Fire hazard** | No |
| **Sudden release of pressure hazard** | No |
| **Reactive hazard** | No |

## 16 Other Information

**NSF/ANSI 60 Certification**

| | |
|---|---|
| **Maximum Use (mg/L unless otherwise indicated):** | 250 |
| **Prepared By:** | HSE Department |
| **Issue Date:** | 27-Jun-2012 |
| **Revision Date:** | 15-Jun-2020 |
| **Revision Note:** | Reviewed and Re-issued |

**Disclaimer:**
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The 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, unless specified in the text.

End of Safety Data Sheet