**Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013**

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THECOMPANY/UNDERTAKING

**Product Identifier**

**Perihalan Produk:** **Iron(III) chloride hexahydrate**
**Product Description:** **Iron(III) chloride hexahydrate**
**Cat No. :** 472150000
**Synonyms** Ferric chloride hexahydrate
**CAS No** 10025-77-1
**Molecular Formula** Cl3 Fe . 6 H2 O

**Relevant identified uses of the substance or mixture and uses advised against**

**Recommended Use** Laboratory chemicals.
**Uses advised against** No Information available

**Company**

Thermo Fisher Scientific Fisher Scientific (M) Sdn Bhd
Hap Seng Business Park, Lot 01-03, 01-04 Aras 1 Unity Square,
No 12, Persiaran Perusahaan, Seksyen 23, 40300 Shah Alam,
Selangor Darul Ehsan, Malaysia.
Main line: +60 3-5525 7888

**Supplier**

**E-mail address** Enquiry.my@thermofisher.com

**Emergency Telephone Number**

Tel: +03-5525 7888
CHEMTREC Malaysia **1-800-815-308** (Malay)
CHEMTREC Malaysia (Kuala Lumpur) **+(60)-327884561** (Malay)

## SECTION 2: HAZARDS IDENTIFICATION

**Classification of the substance or mixture**

| | |
|---|---|
| Acute oral toxicity | Category 4 (H302) |
| Skin Corrosion/Irritation | Category 2 (H315) |
| Serious Eye Damage/Eye Irritation | Category 1 (H318) |

**Label Elements**

**Signal Word** **Danger**

**Hazard Statements**
H302 - Harmful if swallowed
H315 - Causes skin irritation
H318 - Causes serious eye damage

**Precautionary Statements**
**Prevention**
P264 - Wash face, hands and any exposed skin thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P280 - Wear protective gloves/protective clothing/eye protection/face protection
**Response**
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
P310 - Immediately call a POISON CENTER or doctor
P330 - Rinse mouth
P362 + P364 - Take off contaminated clothing and wash it before reuse
**Storage**
P403 - Store in a well-ventilated place
**Disposal**
P501 - Dispose of contents/ container to an approved waste disposal plant

**Other Hazards**

Toxic to terrestrial vertebrates
This product does not contain any known or suspected endocrine disruptors

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS No | Weight % |
|---|---|---|
| Iron (III) chloride hexahydrate | 10025-77-1 | <=100 |
| Iron(III) chloride | 7705-08-0 | - |

## SECTION 4: FIRST AID MEASURES

**Description of first aid measures**

**General Advice** If symptoms persist, call a physician.

**Eye Contact** Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

**Skin Contact** Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.

**Ingestion** Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.

**Inhalation** Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.

**Self-Protection of the First Aider** Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

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

None reasonably foreseeable. Causes severe eye damage. Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

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

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

**Extinguishing media**

**Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Extinguishing media which must not be used for safety reasons**

No information available.

**Special hazards arising from the substance or mixture**

Non-combustible, substance itself does not burn but may decompose upon heating to produce corrosive and/or toxic fumes. May ignite combustibles (wood paper, oil, clothing, etc.). In the event of fire and/or explosion do not breathe fumes. Keep product and empty container away from heat and sources of ignition.

**Hazardous Combustion Products**

Chlorine, Metal oxides, Hydrogen chloride gas.

**Advice for fire-fighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

**Personal Precautions, Protective Equipment and Emergency Procedures**

Use personal protective equipment as required. Avoid dust formation. Ensure adequate ventilation.

**Environmental precautions**

Should not be released into the environment. Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system.

**Methods and Material for Containment and Cleaning Up**

Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

**Reference to Other Sections**

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

**Precautions for Safe Handling**

Wear personal protective equipment/face protection. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. Avoid ingestion and inhalation.

**Conditions for Safe Storage, Including any Incompatibilities**

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep in properly labeled containers. Keep away from water or moist air. Store under an inert atmosphere. Protect from moisture.

**Specific End Uses**
Use in laboratories.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

**Control Parameters**

| Component | Malaysia | ACGIH TLV | OSHA PEL |
|---|---|---|---|
| Iron (III) chloride hexahydrate | | TWA: 1 mg/m³ | (Vacated) TWA: 1 mg/m³ |
| Iron(III) chloride | | TWA: 1 mg/m³ | (Vacated) TWA: 1 mg/m³ |

| Component | European Union | The United Kingdom | Germany |
|---|---|---|---|
| Iron (III) chloride hexahydrate | | STEL: 2 mg/m³ 15 min<br>TWA: 1 mg/m³ 8 hr | |
| Iron(III) chloride | | STEL: 2 mg/m³ 15 min<br>TWA: 1 mg/m³ 8 hr | |

**Exposure Controls**
**Engineering Measures**
Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

**Personal protective equipment**

**Eye Protection** Goggles
**Hand Protection** Protective gloves
**Skin and body protection** Long sleeved clothing

Inspect gloves before use.
Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)
Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.
Remove gloves with care avoiding skin contamination.

**Respiratory Protection** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators
**Recommended Filter type:** Particulates filter conforming to EN 143
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
When RPE is used a face piece Fit Test should be conducted

**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice

**Environmental exposure controls** No information available

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

**Information on basic physical and chemical properties**

| | | |
|---|---|---|
| **Appearance** | Dark yellow | |
| **Physical State** | Solid | |
| **Odor** | No information available | |
| **Odor Threshold** | No data available | |
| **pH** | 2 | 0.1M in water |
| **Melting Point/Range** | 37 °C / 98.6 °F | |
| **Softening Point** | No data available | |
| **Boiling Point/Range** | 280 - 285 °C / 536 - 545 °F | |
| **Flash Point** | Not applicable | **Method -** No information available |
| **Evaporation Rate** | Not applicable | Solid |
| **Flammability (solid,gas)** | No information available | |
| **Explosion Limits** | No data available | |
| **Vapor Pressure** | negligible | |
| **Vapor Density** | Not applicable | Solid |
| **Specific Gravity / Density** | 1.82 (H2O=1) | |
| **Bulk Density** | No data available | |
| **Water Solubility** | 920 g/l (20°C) | |
| **Solubility in other solvents** | No information available | |

**Partition Coefficient (n-octanol/water)**

| **Component** | **log Pow** |
|---|---|
| Iron (III) chloride hexahydrate | 4 |
| Iron(III) chloride | -4 |

| | | |
|---|---|---|
| **Autoignition Temperature** | No data available | |
| **Decomposition Temperature** | No data available | |
| **Viscosity** | Not applicable | Solid |
| **Explosive Properties** | No information available | |
| **Oxidizing Properties** | No information available | |
| **Molecular Formula** | Cl3 Fe . 6 H2 O | |
| **Molecular Weight** | 270.29 | |

## SECTION 10: STABILITY AND REACTIVITY

**Reactivity**

None known, based on information available.

**Chemical Stability**

Hygroscopic.

**Possibility of Hazardous Reactions**

| | |
|---|---|
| **Hazardous Polymerization** | Hazardous polymerization does not occur. |
| **Hazardous Reactions** | None under normal processing. |

**Conditions to Avoid**

Avoid dust formation. Incompatible products. Excess heat. Exposure to air or moisture over prolonged periods. Exposure to moist air or water.

**Incompatible Materials**

Strong oxidizing agents. Metals. Strong bases.

**Hazardous Decomposition Products**

Chlorine. Metal oxides. Hydrogen chloride gas.

## SECTION 11: TOXICOLOGICAL INFORMATION

**Information on Toxicological Effects**

**Product Information**

**(a) acute toxicity;**

**Oral** Category 4
**Dermal** No data available
**Inhalation** No data available

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---|---|---|
| Iron (III) chloride hexahydrate | LD50 = 900 mg/kg ( Rat ) | - | - |
| Iron(III) chloride | 450 mg/kg ( Rat )<br>316 mg/kg ( Rat ) | - | - |

**(b) skin corrosion/irritation;** Category 2

**(c) serious eye damage/irritation;** Category 1

**(d) respiratory or skin sensitization;**

**Respiratory** No data available
**Skin** No data available

No information available

**(e) germ cell mutagenicity;** No data available

**(f) carcinogenicity;** No data available

There are no known carcinogenic chemicals in this product

**(g) reproductive toxicity;** No data available

**(h) STOT-single exposure;** No data available

**(i) STOT-repeated exposure;** No data available

**Target Organs** None known.

**(j) aspiration hazard;** Not applicable
Solid

**Symptoms / effects,both acute and delayed** Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing.

**Endocrine Disrupting Properties** Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## SECTION 12: ECOLOGICAL INFORMATION

**Ecotoxicity effects** Do not empty into drains. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

| Component | Freshwater Fish | Water Flea | Freshwater Algae | Microtox |
|---|---|---|---|---|
| Iron (III) chloride hexahydrate | 22 mg/l 96H (anh subst) | 9.6 mg/l 48H (anh subst) | | |
| Iron(III) chloride | LC50: 20.95 - 22.56 mg/L, 96h semi-static (Pimephales promelas) LC50: = 20.26 mg/L, 96h semi-static (Lepomis macrochirus) | EC50: = 9.6 mg/L, 48h Static (Daphnia magna) EC50: = 27.9 mg/L, 48h (Daphnia magna) | | |

**Persistence and degradability** Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary

**Persistence** May persist.

**Degradability** Not relevant for inorganic substances.

**Degradation in sewage treatment plant** Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

**Bioaccumulative potential** Product has a high potential to bioconcentrate

| Component | log Pow | Bioconcentration factor (BCF) |
|---|---|---|
| Iron (III) chloride hexahydrate | 4 | No data available |
| Iron(III) chloride | -4 | 2756 - 9622 dimensionless |

**Mobility in soil** The product is water soluble, and may spread in water systems. . Will likely be mobile in the environment due to its water solubility. Is not likely mobile in the environment due its low water solubility and propensity to bind to soil particles.

**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors

**Other adverse effects** No information available

## SECTION 13: DISPOSAL CONSIDERATIONS

**Waste treatment methods**

**Waste from Residues/Unused Products** Waste is classified as hazardous Dispose of in accordance with the European Directives on waste and hazardous waste Dispose of in accordance with local regulations

**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point.

**Other Information** Waste codes should be assigned by the user based on the application for which the product was used Do not empty into drains Do not flush to sewer Solutions with low pH-value must be neutralized before discharge

## SECTION 14: TRANSPORT INFORMATION

**IMDG/IMO**

| | |
|---|---|
| **UN-No** | UN3260 |
| **Hazard Class** | 8 |
| **Packing Group** | III |
| **Proper Shipping Name** | CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. Iron(III) chloride hexahydrate |

**Road and Rail Transport**

| | |
|---|---|
| **UN-No** | UN3260 |
| **Hazard Class** | 8 |
| **Packing Group** | III |
| **Proper Shipping Name** | CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. Iron(III) chloride hexahydrate |

**IATA**

| | |
|---|---|
| **UN-No** | UN3260 |
| **Hazard Class** | 8 |
| **Packing Group** | III |
| **Proper Shipping Name** | CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. Iron(III) chloride hexahydrate |

**Special Precautions for User** No special precautions required

## SECTION 15: REGULATORY INFORMATION

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

**International Inventories** X = listed

| Component | EINECS | TSCA | DSL | PICCS | ENCS | ISHL | IECSC | AICS | KECL |
|---|---|---|---|---|---|---|---|---|---|
| Iron (III) chloride hexahydrate | - | - | - | X | X | | X | X | - |
| Iron(III) chloride | 231-729-4 | X | X | X | X | X | X | X | KE-21134 |

**National Regulations**

**Persistent Organic Pollutant** This product does not contain any known or suspected substance
**Ozone Depletion Potential** This product does not contain any known or suspected substance

## SECTION 16: OTHER INFORMATION

**Legend**

**CAS** - Chemical Abstracts Service
**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances
**PICCS** - Philippines Inventory of Chemicals and Chemical Substances
**IECSC** - Chinese Inventory of Existing Chemical Substances
**KECL** - Korean Existing and Evaluated Chemical Substances
**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
**ENCS** - Japanese Existing and New Chemical Substances
**AICS** - Australian Inventory of Chemical Substances
**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit
**ACGIH** - American Conference of Governmental Industrial Hygienists
**RPE** - Respiratory Protective Equipment
**LC50** - Lethal Concentration 50%
**POW** - Partition coefficient Octanol:Water
**TWA** - Time Weighted Average
**IARC** - International Agency for Research on Cancer
**LD50** - Lethal Dose 50%
**EC50** - Effective Concentration 50%

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road
**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code
**OECD** - Organisation for Economic Co-operation and Development
**BCF** - Bioconcentration factor
**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association
**MARPOL** - International Convention for the Prevention of Pollution from Ships
**ATE** - Acute Toxicity Estimate
**VOC** - (Volatile Organic Compound)

**Key literature references and sources for data**
https://echa.europa.eu/information-on-chemicals
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

| | |
|---|---|
| **Prepared By** | Regulatory Affairs |
| **Revision Date** | 23-Mar-2025 |
| **Revision Summary** | SDS sections updated. |

## In accordance with local and national regulations: Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

### 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