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**Safety Data Sheet****1. Chemical product and company identification****Product name** : Iron(III) chloride, anhydrous**SDS code** : E6-12**Company/undertaking identification** :

HAYASHI PURE CHEMICAL IND.,LTD.

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URL : <https://www.hpc-j.co.jp/>**Emergency number** : 06-6910-7305**Recommended use** : For research and experimental use only.**Restrictions on use** : Do not use on a human body or for animal medicines, foods, household products, cosmetics, etc.**2. Hazards identification****GHS classification**

Physical hazards	Explosives	No classification	
	Flammable gases	No classification	
	Aerosol	No classification	
	Oxidizing gases	No classification	
	Gases under pressure	No classification	
	Flammable liquids	No classification	
	Flammable solids	No classification	
	Self-reactive substances and mixtures	No classification	
	Pyrophoric liquids	No classification	
	Pyrophoric solids	No classification	
	Self-heating substances and mixtures	No classification	
	Substances and mixtures which in contact with water emit flammable gases	No classification	
	Oxidizing liquids	No classification	
	Oxidizing solids	classification not possible	
	Organic peroxides	No classification	
	Corrosive to metals	classification not possible	
	Desensitized explosives	classification not possible	
	Health hazards	Acute toxicity (oral)	Category 4
		Acute toxicity (dermal)	classification not possible
		Acute toxicity (inhalation:gas)	No classification
Acute toxicity (inhalation:vapors)		No classification	
Acute toxicity (inhalation:dust/mist)		classification not possible	
Skin corrosion/irritation		Category 1	
Serious eye damage/eye irritation		Category 1	
Respiratory sensitization		classification not possible	
Skin sensitization		classification not possible	
Germ cell mutagenicity		classification not possible	
Carcinogenicity	classification not possible		
Reproductive toxicity	classification not possible		
Specific target organ toxicity (single exposure)	Category 1 (systemic toxicity)		

	Specific target organ toxicity (single exposure)	Category 3 (Respiratory tract irritation.)
	Specific target organ toxicity (repeated exposure)	classification not possible
	Aspiration hazard	classification not possible
Environmental hazards	Hazardous to the aquatic environment, short-term (acute)	Category 3
	Hazardous to the aquatic environment, long-term (chronic)	No classification
	Hazardous to the ozone layer	classification not possible

Hazard pictograms (GHS JP)



GHS05



GHS07



GHS08

Signal word (GHS JP)	:	Danger
Hazard statements (GHS JP)	:	Harmful if swallowed (H302) Causes severe skin burns and eye damage (H314) May cause respiratory irritation (H335) Causes damage to organs (systemic toxicity) (H370) Harmful to aquatic life (H402)
Precautionary statements (GHS JP)	:	
Prevention	:	Do not breathe dust/fume/gas/mist/vapors/spray. (P260) Wash hands, forearms and face thoroughly after handling. (P264) Do not eat, drink or smoke when using this product. (P270) Use only outdoors or in a well-ventilated area. (P271) Avoid release to the environment. (P273) Wear protective gloves/protective clothing/eye protection/face protection. (P280)
Response	:	IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. (P301+P312) IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. (P301+P330+P331) IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water. (P303+P361+P353) IF INHALED: Remove person to fresh air and keep comfortable for breathing (P304+P340) IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. (P305+P351+P338) IF exposed or concerned: Call a POISON CENTER or doctor. (P308+P311) Immediately call a POISON CENTER or doctor. (P310) Call a POISON CENTER or doctor if you feel unwell. (P312) Wash contaminated clothing before reuse. (P363)
Storage	:	Store in a well-ventilated place. Keep container tightly closed. (P403+P233) Store locked up. (P405)
Disposal	:	Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation. (P501)

### 3. Composition/information on ingredients

Distinction of substance or mixture : Substance

Synonyms : Ferric chloride, anhydrous

Name	Concentration or Concentration range	Formula	Kanpo number		CAS RN
			CSSL no	ISHL no	
Iron(III) chloride	≥97.0%, ≤100%	FeCl <sub>3</sub>	(1)-213	Existing Chemical Substance	7705-08-0

The above concentration or concentration range are not product specification.  
All percentages listed in the above concentration or concentration range are wt%, unless otherwise specified.

## 4. First aid measures

### First aid measures

- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.  
Get immediate medical advice/attention.
- First-aid measures after skin contact : Remove/Take off immediately all contaminated clothing.  
Gently wash with plenty of soap and water.  
Get immediate medical advice/attention.
- First-aid measures after eye contact : IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
Get immediate medical advice/attention.
- First-aid measures after ingestion : Rinse mouth.  
Get immediate medical advice/attention.

## 5. Fire fighting measures

- Suitable extinguishing media : Water spray, Alcohol-resistant foam, Dry powder, Carbon dioxide, Sand.
- Unsuitable extinguishing media : Do not use a heavy water stream.
- Fire hazard : This product is unburnable.
- Explosion hazard : May induce explosion of containers by heating.  
May induce explosion of containers by water contamination.
- Hazardous decomposition products in case of fire : In case of fire, product may produce irritative or toxic fumes/gases.
- Firefighting instructions : If ignited, for the initial fire-fighting, cut off combustion sources, extinguish fire at a stroke using appropriate fire-extinguishers.  
In the case of peripheral fire, quickly remove movable containers to safe places.  
If unable to be moved containers, sprinkle water to containers and surrounding equipment, etc. to cool.  
Avoid (reject) fire-fighting water to enter environment.  
Even after extinguishing fire, thoroughly cool containers by using plenty of water.
- Protection during firefighting : Wear appropriate fire-resistant clothing including self contained-compressed air breathing apparatus.

## 6. Accidental release measures

### Personal Precautions, Protective Equipment and Emergency Procedures

- General measures : Before entering, ventilate the area.  
Do not let unauthorized persons come close to the area.  
Immediately place the leakage area in isolation, with taking proper distances for all directions.  
Wear appropriate personal protective devices to prevent inhalation and contact with eye, skin, and clothing, and never attempt to work on the lee.

### Environmental precautions

- Environmental precautions : Avoid release to the environment.  
Prevent entry to sewers and public waters.

### Methods and Equipment for Containment and Cleaning up

- Methods for cleaning up : Take care not to generate dust, sweep it up as much as possible, collect it in an empty container that can be sealed, and move it to a safe place.  
Wash out the spilled area with large amounts of water.

## 7. Handling and storage

### Handling

- Technical measures : Work with appropriate personal protective equipment to prevent inhalation or contact to eyes, skin, and clothing.  
Handle with care to prevent leakage, overflowing, or scattering, minimize generation of mist or vapor, and thoroughly ventilate.

Precautions for safe handling : Do not eat, drink or smoke when using this product.  
Thoroughly wash your hands and gargle after handling.  
Ensure good ventilation of the work station.  
Do not contact, breathe or swallow.

Prevents handling of incompatible substances or mixtures : Avoid prolonged or repeated exposure.

### Storage

Storage conditions : Store locked up.  
Store in a well-ventilated place, away from direct sunlight. Keep container tightly closed and keep away from fire and heat sources.

Material used in packaging/containers : Light shielding airtight container.

Technical measures : Comply with applicable regulations.

Storage temperature : Cool and dark place

## 8. Exposure controls / Personal protection equipment

Exposure limit values	
Iron(III) chloride	
Exposure limits (ACGIH)	TWA 1 mg/m <sup>3</sup> , STEL - (as Fe)

Appropriate engineering controls : Cover up tightly the generation source at the handling place or install local exhaust equipment or overall ventilation equipment. Install safety showers and eye-fountains near a handling place. Clearly indicate the location.

### Protective equipment

Respiratory protection : Dustproof mask  
Hand protection : Protective gloves  
Eye protection : Protective glasses (general glasses, glasses with side-shields, goggles)  
Skin and body protection : Protective clothing, Protective boots, Protective apron

## 9. Physical and chemical properties

Physical state : Solid  
Appearance : Crystalline powder  
Color : brownish black  
Odor : Irritating odor  
pH : Strong acidity (as aqueous solution)  
Melting point : 306 °C  
Freezing point : No data available  
Boiling point : 351 °C  
Flash point : No data available  
Auto-ignition temperature : No data available  
Decomposition temperature : No data available  
Flammability (solid, gas) : No data available  
Vapor pressure : No data available  
Relative density : No data available  
Density : 2.80 g/cm<sup>3</sup> (20°C)  
Relative gas density : No data available  
Solubility : Soluble in water. Soluble in alcohol. Soluble in ether.  
Partition coefficient n-octanol/water (Log Pow) : No data available  
Explosive limits (vol %) : No data available  
Viscosity, kinematic : No data available  
Particle characteristics : No data available

## 10. Stability and reactivity

Reactivity : No data available  
Chemical stability : Stable under normal handling conditions. Hygroscopicity.

Possibility of hazardous reactions	:	Reacts with water and generates toxic and corrosive gas. Corrodes metals strongly. Reacts with alkali metals, allyl chloride, ethylene oxide, styrene and bases.
Conditions to avoid	:	Sunlight, moisture, heat. Contact with water, metals, alkali metals, allyl chloride, ethylene oxide, styrene and bases.
Incompatible materials	:	Water, Metals, Alkali metals, Allyl chloride, Ethylene oxide, Styrene, Bases
Hazardous decomposition products	:	Halides, Chlorine, Hydrogen chloride, Hydrogen

## 11. Toxicological information

The information in this section is based on the "GHS Classification Results" by NITE.

Iron(III) chloride	
Acute toxicity (oral)	Category 4
Acute toxicity (dermal)	classification not possible
Acute toxicity (gas)	No classification
Acute toxicity (vapour)	No classification
Acute toxicity (inhalation:dust/mist)	classification not possible
Skin corrosion/irritation	Category 1
Serious eye damage/irritation	Category 1
Respiratory sensitization	classification not possible
Skin sensitization	classification not possible
Germ cell mutagenicity	classification not possible
Carcinogenicity	classification not possible
Reproductive toxicity	classification not possible
STOT-single exposure	Category 1 Category 3 (Respiratory tract irritation.)
STOT-repeated exposure	classification not possible
Aspiration hazard	classification not possible

## 12. Ecological information

The information in this section is based on the "GHS Classification Results" by NITE.

Iron(III) chloride	
Hazardous to Aquatic Environment - Acute Hazard	Category 3
Hazardous to Aquatic Environment - Chronic Hazard	No classification
Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Hazardous to the ozone layer	classification not possible

## 13. Disposal considerations

Ecology - waste materials	:	With the detail information of the waste, subcontract its disposal to a waste disposer authorized by a Prefectural Governor.
Contaminated container and packaging	:	Empty the packaging completely prior to disposal. Empty containers should be taken for recycle, recovery or waste in accordance with local regulation.

## 14. Transport information

### International Regulations

#### Transport by sea(IMDG)

UN-No. (IMDG)	:	1773
Proper Shipping Name (IMDG)	:	FERRIC CHLORIDE, ANHYDROUS
Packing group (IMDG)	:	III
Transport hazard class(es) (IMDG)	:	8
Hazard labels (IMDG)	:	8

Class (IMDG)	: 8
Packing instructions (IMDG)	: P002, LP02
IBC packing instructions (IMDG)	: IBC08
IBC special provisions (IMDG)	: B3
Tank instructions (IMDG)	: T1
Tank special provisions (IMDG)	: TP33
Stowage category (IMDG)	: A
Properties and observations (IMDG)	: Brown solid. In the presence of moisture, highly corrosive to most metals. The provisions of this Code should not apply to the solid hydrated form.
MFAG-No	: 157
<b>Air transport(IATA)</b>	
UN-No. (IATA)	: 1773
Proper Shipping Name (IATA)	: Ferric chloride, anhydrous
Packing group (IATA)	: III
Transport hazard class(es) (IATA)	: 8
Hazard labels (IATA)	: 8
Class (IATA)	: 8
PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y845
PCA limited quantity max net quantity (IATA)	: 5kg
PCA packing instructions (IATA)	: 860
PCA max net quantity (IATA)	: 25kg
CAO packing instructions (IATA)	: 864
CAO max net quantity (IATA)	: 100kg
Special provision (IATA)	: A803
ERG code (IATA)	: 8L
<b>Marine pollutant</b>	: Not applicable
<b>Regulations in Japan</b>	
Regulatory information by sea	: Conform to the provisions of the Ship Safety Law.
Regulatory information by air	: Conform to the provisions of the Civil Aeronautics Law.
MFAG-No	: 157
<b>Special transport precautions</b>	: When transporting, load containers so that they do not tip over, damage, drop or collapse. Make sure there is no leak in containers.

## 15. Regulatory information

### National law

Industrial Safety and Health Law	: Harmful Substances Whose Names Are to be Indicated on the Label (Law Art.57, Para.1, Enforcement Order Art.18 Item 1, Item 2, Attached Table No.9) Notifiable Substances (Law Art.57-2, Enforcement Order Art.18-2 Item 1, Item 2, Attached Table No.9) Water-soluble iron salts (Ordinance number : 352)
Japanese Poisonous and Deleterious Substances Control Law	: Not applicable
Water Pollution Prevention Law	: Designated Chemical Substances (Law Article 2, Paragraph 4, Enforcement Order Article 3-3)
Fire Service Law	: Not applicable
Air Pollution Control Law	: Hazardous Air Pollutants (Central Environment Council Report No. 9)
Foreign Exchange and Foreign Trade Control Act	: Export Trade Control Ordinance appendix 1-16
Ship Safety Act	: Corrosive substances (Dangerous Goods Notification Schedule first second and third Article Dangerous Goods Regulations)
Civil Aeronautics Law	: Corrosive substances (Hazardous materials notice Appended Table 1 Article 194 of the Enforcement Regulations)
Port Regulation Law	: Corrosive substances (Article 21, Paragraph 2 of Law, Article 12 rule, notice attached table that defines the type of dangerous goods)
Waterworks Law	: Hazardous Substances (Act Article 4 paragraph 2), Standard for Water Quality (Ministry Order No.101 of 2003)
Sewerage Law	: Substances for Water Quality Standard (Act Art.12-2 Para.2, Enforcement Order Art.9-4)
Japanese Pollutant Release and Transfer Register Law (PRTR Law)	: Not applicable

## 16. Other information

- Data sources : Handbook of 17423 Chemical Products, The Chemical Daily Co, Ltd.  
International Chemical Safety Cards.  
National Institute of Technology and Evaluation (NITE).  
2020 Emergency Response Guidebook (ERG 2020).
- Other information : The SDS is copyrighted material of Hayashi Pure Chemical Ind, Ltd.  
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