



## Safety Data Sheet

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### 1. Identification of the substance/mixture and of the company/undertaking

**Product identifier:**

Product name: Ferroin solution (1,10-Phenanthroline iron(II) salt solution)  
SDS No. : F0045E-2

**Details of the supplier of the safety data sheet**

Manufacturer/Supplier: KISHIDA CHEMICAL CO., LTD.  
Address: 3-1, Honmachibashi, Chuo-ku, Osaka, JAPAN  
Division: Safety Management Dept. of Chemicals  
Telephone number: +81-6-6946-8061  
FAX: +81-6-6946-1607  
e-mail address: kagakuhinanzenkanri@kishida.co.jp

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### 2. Hazards identification

**GHS classification and label elements of the product****Classification of the substance or mixture****HEALTH HAZARDS**

Respiratory sensitization: Category 1

**ENVIRONMENT HAZARDS**

Hazardous to the aquatic environment (Acute): Category 3

(Note) GHS classification without description: Not classified/Classification not possible

**Label elements**

Signal word: Danger

**HAZARD STATEMENT**

May cause allergy or asthma symptoms or breathing difficulties if inhaled

Harmful to aquatic life

**PRECAUTIONARY STATEMENT****Prevention**

Avoid release to the environment.

Avoid breathing dust/fume/gas/mist/vapors/spray.

In case of inadequate ventilation wear respiratory protection. (as specified by the manufacturer/supplier or the competent authority.)

**Response**

If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

**Disposal**

Dispose of contents/container in accordance with local/national regulation.

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### 3. Composition/information on ingredients

**Mixture/Substance selection:****Mixture**

Ingredient name: Tris(1,10-phenanthroline-N1,N10)iron sulphate

Content (%): 1.7

Chemical formula: C<sub>36</sub>H<sub>24</sub>FeN<sub>6</sub>O<sub>4</sub>S



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CAS No.:14634-91-4

ECNO:238-676-6

Ingredient name:Hydrochloric acid

Content (%):0.83

Chemical formula:ClH

Chemicals No, Japan:1-215

CAS No.:7647-01-0

MW:36.5

ECNO:231-595-7

Ingredient name:Water

Content (%):97

Chemical formula:H2O

CAS No.:7732-18-5

MW:18.02

ECNO:231-791-2

Note : The figures shown above are not the specifications of the product.

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#### 4. First-aid measures

Descriptions of first-aid measures

##### IF INHALED

Remove person to fresh air and keep comfortable for breathing.

If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

Call a POISON CENTER or doctor/physician if you feel unwell.

##### IF ON SKIN (or hair)

Take off immediately all contaminated clothing. Rinse skin with water/shower.

If skin irritation or rash occurs: Get medical advice/attention.

##### IF IN EYES

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If eye irritation persists: Get medical advice/attention.

##### IF SWALLOWED

Rinse mouth.

Call a POISON CENTER or doctor/physician if you feel unwell.

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#### 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

Unsuitable extinguishing media data is not available.

Specific hazards arising from the substance or mixture

Containers may explode when heated.

Fire may produce irritating, corrosive and/or toxic gases.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Special protective equipment and precautions for fire-fighters

Wear fire/flame resistant/retardant clothing.

Wear protective gloves/protective clothing/eye protection/face protection.

Firefighters should wear self-contained breathing apparatus with full face piece operated positive pressure mode.

**6. Accidental release measures**

## Personnel precautions, protective equipment and emergency procedures

Ventilate area until material pick up is complete.

Wear proper protective equipment.

## Environmental precautions

Prevent spills from entering sewers, watercourses or low areas.

## Methods and materials for containment and cleaning up

Absorb spill with inert material (dry sand, earth, et al), then place in a chemical waste container.

## Preventive measures for secondary accident

Collect spillage.

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**7. Handling and storage**

## Precautions for safe handling

## Preventive measures

(Exposure Control for handling personnel)

Avoid breathing dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

## Safety Measures

Wear protective gloves, protective clothing or face protection.

When using do not eat, drink or smoke.

## Any incompatibilities

See "10.Stability and Reactivity"

## Storage

## Conditions for safe storage

Keep container tightly closed.

Store in a cool, dry place. Do not store in direct sunlight.

## Container and packaging materials for safe handling

Glass

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**8. Exposure controls/personal protection**

## Control parameters

## Adopted value

(Hydrochloric acid)

ACGIH(2000) STEL: C 2ppm (URT irr)

## OSHA-PEL

(Hydrochloric acid)

STEL: C 5ppm, 7mg/m<sup>3</sup>

## Exposure controls

## Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

## Individual protection measures

## Respiratory protection



- Wear respiratory protection.
- Hand protection
  - Wear protective gloves.
- Eye protection
  - Wear eye/face protection.

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## 9. Physical and Chemical Properties

### Information on basic physical and chemical properties

- Physical state: Liquid
- Color: Reddish brown to brown
- Odor: None
- pH data is not available.
- Boiling point or initial boiling point data is not available.
- Boiling range data is not available.
- Melting point/Freezing point data is not available.
- Decomposition temperature data is not available.
- Flammability (gases, liquids and solids) data is not available.
- Flash point data is not available.
- Auto-ignition temperature data is not available.
- Lower and upper explosion limit/flammability limit data is not available.
- Vapor pressure data is not available.
- Relative vapor density (Air=1) data is not available.
- Density and/or relative density: 1.00g/cm<sup>3</sup>
- Kinematic viscosity data is not available.
- Solubility:
  - Solubility in water: Soluble
- n-Octanol/water partition coefficient data is not available.
- No Particle characteristics data is not available.

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## 10. Stability and Reactivity

### Reactivity

Not available.

### Chemical stability

Stable under normal storage/handling conditions.

### Possibility of hazardous reactions

(Hydrochloric acid)

The gas is heavier than air and may accumulate in lowered spaces causing a deficiency of oxygen.

The solution in water is a strong acid. It reacts violently with bases and is corrosive.

Reacts violently with oxidants. This produces toxic gas (chlorine). Attacks many metals in the presence of water. This produces flammable/explosive gas (hydrogen). (ICSC 0163)

### Conditions to avoid

Contact with incompatible materials.

Contact with fire source.

### Incompatible materials

Bases, Oxidizing agents, Metals

### Hazardous decomposition products

Carbon oxides, Sulfur oxides, Nitrogen oxides, Chlorine, Hydrogen, Iron compounds

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## 11. Toxicological Information

### Information on toxicological effects



Ferriin solution (1,10-Phenanthroline iron(II) salt solution),F0045E-2,20/02/2020

**Acute toxicity****Acute toxicity (Oral)**

[GHS Cat. Japan, base data]

(Hydrochloric acid)

rat LD50=238mg/kg (SIDS, 2009)

**Acute toxicity (Inhalation)**

[GHS Cat. Japan, base data]

(Hydrochloric acid)

gas: rat LC50=1411ppm/4hr (SIDS, 2009)

**Irritant properties****Skin corrosion/irritation**

[GHS Cat. Japan, base data]

(Hydrochloric acid)

rabbit/mouse/rat/human corrosive (SIDS, 2009)

**Serious eye damage/irritation**

[GHS Cat. Japan, base data]

(Hydrochloric acid)

rabbit corrosive (SIDS, 2002)

**Sensitization****Respiratory sensitization**

[GHS Cat. Japan, base data]

(Hydrochloric acid)

cat. 1; Occupational/Environmental Allergy Society, Japan

Mutagenic effects data is not available.

**Carcinogenicity**

(Hydrochloric acid)

IARC-Gr.3 : Not Classifiable as a Human Carcinogen

(Hydrochloric acid)

ACGIH-A4(2000) : Not Classifiable as a Human Carcinogen

Reproductive toxicity data is not available.

**STOT**

STOT-single exposure data is not available.

STOT-repeated exposure data is not available.

Aspiration hazard data is not available.

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**12. Ecological Information****Ecotoxicity****Aquatic toxicity**

Harmful to aquatic life

**Aquatic acute toxicity component(s) data**

[GHS Cat. Japan, base data]

(Hydrochloric acid)

Crustacea (Daphnia magna) EC50=0.492mg/L/48hr (SIDS, 2005)

**Water solubility**

(Hydrochloric acid)

67 g/100 ml (30°C) (ICSC, 2000)

**Persistence and degradability**

Persistence and degradability data is not available.

**Bioaccumulative potential**

(Hydrochloric acid)

log Pow=0.25 (ICSC, 2000)

**Mobility in soil**

Mobility in soil data is not available.



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Other adverse effects

Ozone depleting chemical data is not available.

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### 13. Disposal considerations

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging

Waste treatment methods

Avoid release to the environment (- if this is not the intended use).

Dispose of contents/container in accordance with local/national regulation.

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### 14. Transport Information

Not applicable to UN No., UN CLASS

Not applicable to IMDG Code

Not applicable to IATA Dangerous Goods Regulations

Environmental hazards

MARPOL Annex III - Prevention of pollution by harmful substances

Marine pollutants (yes/no) : no

Transport in bulk according to Annex II of MARPOL73/78 and IBC Code

Noxious Liquid ; Cat. Z

Hydrochloric acid

Non Noxious Liquid ; Cat. OS

Water

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### 15. Regulatory Information

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

US major regulations

Chemicals listed in TSCA Inventory

Hydrochloric acid; Water; Tris(1,10-phenanthroline-N1,N10)iron sulphate

Other regulatory information

Ensure this material in compliance with federal requirements and ensure conformity to local regulations.

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### 16. Other information

GHS classification and labelling

Resp. Sens. 1: H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled

Aquatic Acute 3: H402 Harmful to aquatic life

Reference Book

Globally Harmonized System of classification and labelling of chemicals, (6th ed., 2015), UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 20th edit., 2017 UN

IMDG Code, 2018 Edition (Incorporating Amendment 39-18)

IATA Dangerous Goods Regulations (60th Edition) 2019

Classification, labelling and packaging of substances and mixtures (table3-1 ECNO6182012)

2016 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2019 TLVs and BEIs. (ACGIH)

<http://monographs.iarc.fr/ENG/Classification/index.php>

Supplier's data/information

General Disclaimer

This data sheet was created based on the information we currently have and may be revised according to new information. In addition, the precautions apply only to normal handling,



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and in the case of special handling, please make adequate countermeasure to maintain your safety.

The data given here is based on current knowledge and experience. The purpose of this Safety Data Sheet is to describe the products in terms of their safety requirements. The data does not signify any warranty with regard to the products' properties.

The GHS classification data given here is based on current Japan official data (NITE published in 2018).