

Iron(III) chloride solution 45° Be',
JUNSEI CHEMICAL CO., LTD.,18520jis_J_E2-1,15/Dec/2021

Date of issue for the 1st edition : 15/Dec/2021

Safety Data Sheet

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

Product identifier:

Product name: Iron(III) chloride solution 45° Be'

Reference number(SDS):18520jis_J_E2-1

Product type:

Reagent

Details of the supplier of the safety data sheet

Manufacturer/Supplier: JUNSEI CHEMICAL CO., LTD.

Address: 1-6, Ohmano-cho, Koshigaya-shi, Saitama 343-0844, Japan

Division: Quality Assurance Department

Telephone number: +81-48-986-6161

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e-mail address: shiyaku-t@junsei.co.jp

2. Hazards identification

GHS classification and label elements of the product

Classification of the substance or mixture

HEALTH HAZARDS

Acute toxicity (Oral): Category 4

Skin corrosion/irritation: Category 1

Serious eye damage/eye irritation: Category 1

Specific target organ toxicity – single exposure: Category 1(systemic toxicity)

Specific target organ toxicity – single exposure: Category 3 (Respiratory tract irritation)

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

H302-Harmful if swallowed

H314-Causes severe skin burns and eye damage

H318-Causes serious eye damage

H370-Causes damage to organs

H335-May cause respiratory irritation

H402-Harmful to aquatic life

PRECAUTIONARY STATEMENT

Prevention

Avoid release to the environment.

Do not breathe dust/fume/gas/mist/vapors/spray.

Use only outdoors or in a well-ventilated area.

Wash contaminated parts thoroughly after handling.

Wear protective gloves, protective clothing or face protection.

Wear eye protection/face protection.

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Do not eat, drink or smoke when using this product.

Response

Immediately call a POISON CENTER/doctor/physician.

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

IF exposed or concerned: Call a POISON CENTER/doctor/physician.

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

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

Wash contaminated clothing before reuse.

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

IF SWALLOWED: Call a POISON CENTER/doctor/physician if you feel unwell.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Storage

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

Disposal

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

3. Composition/information on ingredients

Mixture/Substance selection:

Mixture

Common name, synonyms: Ferric chloride solution 45° Be'

Ingredient name:Iron(III) chloride

Content (%):42<

Chemical formula:Cl₃Fe

Chemicals No, Japan:1-213

CAS No.:7705-08-0

MW:162.20

ECNO:231-729-4

Ingredient name:Water

Content (%):Residual quantity of the ingredient mentioned above.

Chemical formula:H₂O

CAS No.:7732-18-5

MW:18.02

ECNO:231-791-2

4. First-aid measures

Descriptions of first-aid measures

General measures

Immediately call a POISON CENTER/doctor/physician.

Keep victim warm and quiet.

Call emergency medical service.

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.

Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

IF INHALED

Remove person to fresh air and keep comfortable for breathing.

Give artificial respiration if victim is not breathing.

Administer oxygen if breathing is difficult.

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

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IF ON SKIN (or hair)

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

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

Remove and isolate contaminated clothing and shoes.

For minor skin contact, avoid spreading material on unaffected skin.

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. Do NOT induce vomiting.

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

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use appropriate extinguishing media suitable for surrounding facilities.

The product is non-flammable.

Unsuitable extinguishing media

Do not use direct water jet.

Specific hazards arising from the substance or mixture

Containers may explode when heated.

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

Runoff from fire control or dilution water may cause pollution.

Advice for firefighters

Specific fire-fighting measures

Evacuate non-essential personnel to safe area.

Cool container with water spray.

Special protective equipment and precautions for fire-fighters

Wear fire resistant or flame 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

Keep unauthorized personnel away.

In case of contact with substance, immediately flush skin or eyes with running water for at least 20 minutes.

Ventilate area until material pick up is complete.

Wear proper protective equipment.

PUBLIC SAFETY: Ventilate closed spaces before entering.

EVACUATION : Spill: See the Table of Initial Isolation and Protective Action Distances for highlighted substances. For non-highlighted substances, increase, in the downwind direction, as necessary, the isolation distance shown under "PUBLIC SAFETY".

Environmental precautions

Avoid release to headsprings, rivers, lakes, ocean and groundwater.

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.

Stop leak if you can do it without risk.

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Prevent entry into waterways, sewers, basements or confined areas.
Keep out of low areas.

7. Handling and storage

Precautions for safe handling

Preventive measures

(Exposure Control for handling personnel)

Do not breathe dust/fume/gas/mist/vapors/spray.

(Protective measures against fire and explosion)

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

(Exhaust/ventilator)

Exhaust/ventilator should be available.

(Safety treatments)

Avoid contact with skin.

Avoid contact with eyes.

Safety Measures

Use only outdoors or in a well-ventilated area.

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

Wear protective gloves, protective clothing or face protection.

Wear eye protection/face protection.

Use personal protective equipment as required.

When using do not eat, drink or smoke.

Any incompatibilities

Strong bases, Metals should not be mixed with the chemicals.

Advice on general occupational hygiene

Wash contaminated parts thoroughly after handling.

Do not eat, drink or smoke when using this product.

Wash contaminated clothing before reuse.

Storage

Conditions for safe storage

Store in a well-ventilated place. Keep container tightly closed.

Keep cool. Protect from sunlight.

Store in accordance with local/national regulation.

Store locked up.

Container and packaging materials for safe handling data is not available.

Specific end use(s)

See information in Section 7.1 and 7.2 for handling and storage recommendations. See
Section 8 for exposure controls and personal protection recommendations.

8. Exposure controls/personal protection

Control parameters

Control value in MHLW is not available.

Adopted value

(Iron(III) chloride)

Adopted value in JSOH is not available.

ACGIH(1990) TWA: 1mg-Fe/m³ (URT & skin irr)

Exposure controls

Appropriate engineering controls

Do not use in areas without adequate ventilation.

Eye wash station should be available.

Washing facilities should be available.

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Individual protection measures

Respiratory protection

Wear respiratory protection.

Hand protection

Wear protective gloves. Recommended material(s): neoprene, nitrile, butyl rubber, viton, PVC, impermeable or chemical resistant rubber

Consult with your glove and/or personnel equipment manufacturer for selection of appropriate compatible materials.

Eye protection

Wear chemical safety goggle.

Wear eye/face protection.

Skin and body protection

Wear impervious clothing and boots in case of repeated or prolonged treatment.

9. Physical and Chemical Properties

Information on basic physical and chemical properties

Physical state: Liquid

Color: Dark brown

Odor: Slight iron-like odor

Odor threshold data is not available.

Melting point/Freezing point data is not available.

Boiling point or initial boiling point data is not available.

Boiling range data is not available.

Flammability (gases, liquids and solids): Non-flammable

Lower and upper explosion limit/flammability limit data is not available.

Flash point: Non-flammable

Auto-ignition temperature data is not available.

Decomposition temperature data is not available.

Self-Accelerating Decomposition Temperature/SADT data is not available.

pH: ≤ 2

Dynamic viscosity data is not available.

Kinematic viscosity data is not available.

Solubility:

Solubility in water: Miscible

Solubility in solvent data is not available.

n-Octanol/water partition coefficient data is not available.

Vapor pressure data is not available.

Vapor density data is not available.

VOC data is not available.

Evaporation rate data is not available.

Density and/or relative density data is not available.

Relative vapor density (Air=1) data is not available.

Relative density of the Vapor/air - mixture at 20°C (Air = 1) data is not available.

Critical temperature data is not available.

Particle characteristics data is not available.

10. Stability and Reactivity

Reactivity

Reactivity data is not available.

Chemical stability

Stable under normal storage/handling conditions.

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Possibility of hazardous reactions

Decomposes on heating. This produces toxic and corrosive gases

Conditions to avoid

Contact with incompatible materials.

Heat.

Incompatible materials

Strong bases, Strong oxidizing agents, Metals

Hazardous decomposition products

Chlorine, Hydrogen chloride, Metal oxides.

11. Toxicological Information

Information on toxicological effects

Acute toxicity

Acute toxicity (Oral)

[GHS Cat. Japan, base data]

(Iron(III) chloride) rat LD50=500-1872mg/kg (SIDS, 2008)

Irritant properties

Skin corrosion/irritation

[GHS Cat. based on pH]

pH ≤ 2, accordingly Skin corrosion/irritation: Category 1

[GHS Cat. Japan, base data]

(Iron(III) chloride) 0.1M solution pH=2 (HSDB, Access on September 2014)

Serious eye damage/irritation

[GHS Cat. based on pH]

pH ≤ 2, accordingly Serious eye damage/eye irritation: Category 1

[GHS Cat. Japan, base data]

(Iron(III) chloride) 0.1M solution pH=2 (HSDB, Access on September 2014)

Allergenic and sensitizing effects data is not available.

Mutagenic effects data is not available.

Carcinogenic effects data is not available.

Reproductive toxicity data is not available.

STOT

STOT-single exposure

[cat.1]

[GHS Cat. Japan, base data]

(Iron(III) chloride) systemic toxicity (SIDS, 2008; HSDB, Access on September 2014)

[cat.3 (resp. irrit.)]

[GHS Cat. Japan, base data]

(Iron(III) chloride) respiratory tract irritation (SIDS, 2008; HSDB, Access on September 2014)

STOT-repeated exposure data is not available.

Aspiration hazard data is not available.

Information on other hazards

Data on the preparation itself is not available.

12. Ecological Information

Ecotoxicity

Aquatic toxicity

H402-Harmful to aquatic life

Hazardous to the aquatic environment (Acute)

[GHS Cat. Japan, base data]

(Iron(III) chloride) Crustacea (Daphnia magna) EC50=37.5mg/L/48hr (12.9mg-Fe/L) (SIDS, 2008)

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Hazardous to the aquatic environment (Long-term)

[GHS Cat. Japan, base data]

(Iron(III) chloride) Crustacea (Daphnia magna) NOEC=2.0mg/L/21 days (0.70mg-Fe/L) (SIDS, 2008)

Water solubility

(Iron(III) chloride) reaction [92 g/100 ml (20°C)] (ICSC, 2004)

Persistence and degradability

Persistence and degradability data is not available.

Bioaccumulative potential

Bioaccumulative potential data is not available.

Mobility in soil

Mobility in soil data is not available.

Other adverse effects

Ozone depleting chemical data is not available.

Additional data

Data on the preparation itself is not available.

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.

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

14. Transport Information

UN No., UN CLASS

UN No. or ID No.: 2582

UN Proper Shipping Name :

FERRIC CHLORIDE SOLUTION

Class or division (Transport hazard class) : 8

Packing group : III

ERG GUIDE No.: 154

IMDG Code (International Maritime Dangerous Goods Regulations)

UN No.: 2582

Proper Shipping Name :

FERRIC CHLORIDE SOLUTION

Class or division : 8

Packing group : III

IATA Dangerous Goods Regulations

UN No.: 2582

Proper Shipping Name :

FERRIC CHLORIDE SOLUTION

Class or division : 8

Hazard labels : Corrosive

Packing group : III

Environmental hazards

MARPOL Annex III – Prevention of pollution by harmful substances

Marine pollutants (yes/no) : no

Maritime transport in bulk according to IMO instruments

Noxious Liquid ; Cat. Y

Iron(III) chloride(Y-112)

Non Noxious Liquid ; Cat. OS

Water(OS-18)

15. Regulatory Information

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

Chemicals listed in TSCA Inventory

Iron(III) chloride; Water

Other regulatory information

Regulatory information in this section are limited to intentional ingredient(s), but does not contain information on non-intentional ingredients or impurities which are not informed by supplier(s).

Chemical safety assessment

Advice on safe handling for this product can be found in sections 7 and 8 of this SDS.

16. Other information

GHS classification and labelling

H302–Acute Tox. 4: H302 Harmful if swallowed

H314–Skin Corr. 1: H314 Causes severe skin burns and eye damage

H318–Eye Dam. 1: H318 Causes serious eye damage

H370–STOT SE 1: H370 Causes damage to organs

H335–STOT SE 3: H335 May cause respiratory irritation

H402–Aquatic Acute 3: H402 Harmful to aquatic life

Reference Book

Globally Harmonized System of classification and labelling of chemicals, UN

Recommendations on the TRANSPORT OF DANGEROUS GOODS 21th edit., 2019 UN

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

IATA Dangerous Goods Regulations (62nd Edition) 2021

2020 EMERGENCY RESPONSE GUIDEBOOK (US DOT)

2021 TLVs and BEIs. (ACGIH)

JIS Z 7252 : 2019

JIS Z 7253 : 2019

2021 Recommendation on TLVs (JSOH)

Supplier's data/information

Chemicals safety data management system "GHS Assistant" Version 4.14 (<https://www.asahi-ghs.com/>)

NITE Chemical Risk Information Platform "NITE-CHRIP"

(https://www.nite.go.jp/en/chem/chrip/chrip_search/systemTop)

GHS Classification Guidance for Enterprises 2019 Revised Edition (Ver. 2.0) (Mar. 2020, METI)

Definitions and Abbreviations

SDS (Safety Data Sheet)

LD50 (Lethal Dose, 50%)

LC50 (Lethal Concentration, 50%)

IARC (International Agency for Research on Cancer)

ACGIH (American Conference of Governmental Industrial Hygienists)

EPA (US Environmental Protection Agency)

NTP (US National Toxicology Program)

JSOH (Japan Society for Occupational Health)

EU (European Union)

EC50 (Effective Concentration, 50%)

NOEC (No Observed Effect Concentration)

BOD (Biochemical Oxygen Demand)

COD (Chemical Oxygen Demand)

BCF (Bioconcentration Factor)

anh (anhydride)

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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, 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 2020).