1 Identification

Product identifier

Product name: **Iron(II) chloride tetrahydrate**

Stock number: A16327

CAS Number:

- 13478-10-9

EC number:

- 231-843-4

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

Identified use: SU24 Scientific research and development

Details of the supplier of the safety data sheet

Manufacturer/Supplier:

Alfa Aesar

Thermo Fisher Scientific Chemicals, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

Information Department: Health, Safety and Environmental Department

Emergency telephone number:

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

2 Hazard(s) identification

Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)

- **GHS05 Corrosion**
  - Skin Corr. 1C H314 Causes severe skin burns and eye damage.
  - Eye Dam. 1 H318 Causes serious eye damage.

- **GHS07**
  - Acute Tox. 4 H302 Harmful if swallowed.

Hazard pictograms

- **GHS05**
  - Corrosion symbol

- **GHS07**
  - Acute Tox. symbol

Label elements

GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)

Hazard pictograms

- **GHS05**
  - Corrosion symbol

- **GHS07**
  - Acute Tox. symbol

Signal word Danger

Hazard statements

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

Precautionary statements

P260 Wear protective gloves/protective clothing/eye protection/face protection.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P309 IF exposed or if you feel unwell:

P310 Immediately call a POISON CENTER/doctor/...

WHMIS classification

D2B - Toxic material causing other toxic effects

E - Corrosive material

Classification system

HMIS ratings (scale 0-4)

- Health (acute effects) = 3
- Flammability = 0
- Physical Hazard = 1

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances

CAS® Description:

- 13478-10-9 Iron(II) chloride tetrahydrate

Identification number(s):

- EC number: 231-843-4

4 First-aid measures

Description of first aid measures

General information

Immediately remove any clothing soiled by the product.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.
38.0.2 Seek immediate medical advice.  
After skin contact 
Immediately wash with water and soap and rinse thoroughly.  
Seek immediate medical advice.  
After eye contact Rinse opened eye for several minutes under running water. Then consult a doctor.  
After swallowing Seek medical treatment.  

Information for doctor  
Most important symptoms and effects, both acute and delayed  
Causes severe skin burns.  
Causes serious eye damage.  

Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures  
Extinguishing media  
Use carbon dioxide, extinguishing powder or foam. Water may be ineffective but may be used for cooling exposed containers.  

Special hazards arising from the substance or mixture  
If this product is involved in a fire, the following can be released:  
Hydrogen chloride (HCl)  
Metal oxide fume  

Advice for firefighters  
Protective equipment:  
Wear self-contained respirator.  
Wear fully protective impervious suit.

6 Accidental release measures  
Personal precautions, protective equipment and emergency procedures  
Wear protective equipment. Keep unprotected persons away.  
Ensure adequate ventilation.  

Environmental precautions: Do not allow material to be released to the environment without proper governmental permits.  

Methods and material for containment and cleaning up:  
Use neutralizing agent.  
Dispose of contaminated material as waste according to section 13.  
Ensure adequate ventilation.  

Prevention of secondary hazards: No special measures required.  

Reference to other sections  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

7 Handling and storage  
Handling  
Precautions for safe handling  
Handle under dry protective gas.  
Keep container tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Ensure good ventilation at the workplace.  

Information about protection against explosions and fires: No information known.  

Conditions for safe storage, including any incompatibilities  
Storage  
Requirements to be met by storerooms and receptacles: No special requirements.  

Information about storage in one common storage facility:  
Store away from air.  
Store away from water/moisture.  
Store away from strong bases.  
Store away from oxidizing agents.  

Further information about storage conditions:  
Store under dry inert gas.  
This product is hygroscopic.  
This product is air sensitive.  
Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.  
Protect from humidity and water.  

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection  
Additional information about design of technical systems:  
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.  

Control parameters  
Components with limit values that require monitoring at the workplace:  
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.  

Additional information: No data  

Exposure controls  
Personal protective equipment  
General protective and hygienic measures  
The usual precautionary measures for handling chemicals should be followed.  
Keep away from foodstuffs, beverages and feed.  
Remove all soiled and contaminated clothing immediately.  
Wash hands before breaks and at the end of work.  
Avoid contact with the eyes and skin.  
Maintain an ergonomically appropriate working environment.  

Breathing equipment: Use suitable respirator when high concentrations are present.  

Protection of hands:  
Impervious gloves  
Check protective gloves prior to each use for their proper condition.  
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.  

Penetration time of glove material (in minutes) Not determined  

Eye protection:  
Tightly sealed goggles  
Full face protection
9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:
- Form: Crystalline
- Color: Green-Yellow
- Odor: Odorless
- Odor threshold: Not determined.

pH-value: Not applicable.

Change in condition
- Melting point/Melting range: Not determined
- Boiling point/Boiling range: Not determined
- Sublimation temperature/start: Not determined
- Flammability (solid, gaseous): Not determined
- Ignition temperature: Not determined
- Decomposition temperature: Not determined
- Auto igniting: Not determined.

Danger of explosion: Not determined.

Explosion limits:
- Lower: Not determined
- Upper: Not determined

Vapor pressure: Not applicable.

Density at 20 °C (68 °F): 1.93 g/cm³ (16.106 lbs/gal)

Solubility in/Water at 20 °C (68 °F): 1600 g/l

Partition coefficient (n-octanol/water): Not determined.

Viscosity:
- dynamic: Not applicable.
- kinematic: Not applicable.

Other information: No further relevant information available.

10 Stability and reactivity

Reactivity: No information known.

Chemical stability: Stable under recommended storage conditions.

Thermal decomposition / conditions to be avoided: Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions: React with strong oxidizing agents

Conditions to avoid: No further relevant information available.

Incompatible materials:
- Air
- Water/moisture
- Bases
- Oxidizing agents

Hazardous decomposition products:
- Hydrogen chloride (HCl)
- Metal oxide fume

11 Toxicological information

Information on toxicological effects

Acute toxicity:
Harmful if swallowed.
Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.
The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.
LD/LC50 values that are relevant for classification: No data

Skin irritation or corrosion: Causes severe skin burns.

Eye irritation or corrosion: Causes serious eye damage.

Sensitization: No sensitizing effects known.

Germ cell mutagenicity: No effects known.

Carcinogenicity: No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

Reproductive toxicity: No effects known.

Specific target organ system toxicity - repeated exposure: No effects known.

Specific target organ system toxicity - single exposure: No effects known.

Aspiration hazard: No effects known.

Subacute to chronic toxicity: No effects known.

Additional toxicological information: To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

12 Ecological information

Toxicity
Aquatic toxicity: No further relevant information available.

Persistence and degradability: No further relevant information available.

Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

Additional ecological information:

General notes:
Do not allow material to be released to the environment without proper governmental permits.
Do not allow undiluted product or large quantities to reach ground water, water course or sewage system.

Avoid transfer into the environment.

Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

Other adverse effects: No further relevant information available.
### 13 Disposal considerations

**Waste treatment methods**
Recommendation Consult state, local or national regulations to ensure proper disposal.

**Uncleaned packagings:**
Recommendation: Disposal must be made according to official regulations.

**Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

<table>
<thead>
<tr>
<th>UN-Number</th>
<th>UN3260</th>
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<tbody>
<tr>
<td>DOT, IMDG, IATA</td>
<td>UN3260</td>
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<tr>
<td><strong>UN proper shipping name</strong></td>
<td><strong>DOT</strong></td>
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<tr>
<td>RO Corrosive solid, acidic, inorganic, n.o.s. (Iron(II) chloride tetrahydrate)</td>
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<tr>
<td><strong>IMDG, IATA</strong></td>
<td>CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Iron(II) chloride tetrahydrate)</td>
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**Transport hazard class(es)**

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<td>Label 8 (C2) Corrosive substances</td>
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<td>Packing group III</td>
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**Environmental hazards:** Not applicable.

**Special precautions for user**

| Warning: Corrosive substances |
| EMS Number: F-A,S-B |
| Segregation groups Acids |

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

Not applicable.

**Transport/Additional information:**

| DOT | Hazardous substance: 100 lbs, 45.4 kg |
| Marine Pollutant (DOT): No |
| **UN "Model Regulation":** UN3260, Corrosive solid, acidic, inorganic, n.o.s. (Iron(II) chloride tetrahydrate), 8, III |

### 15 Regulatory information

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

- **GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS).
- **Signal word** Danger
- **Hazard statements**
  - H302 Harmful if swallowed.
  - H314 Causes severe skin burns and eye damage.
- **Precautionary statements**
  - P280 Wear protective gloves/protective clothing/eye protection/face protection.
  - P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
  - P309 IF exposed or if you feel unwell: Immediately call a POISON CENTER/doctor/...

**National regulations**

- All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.
- All components of this product are listed on the Canadian Domestic Substances List (DSL).
- SARA Section 313 (specific toxic chemical listings) Substance is not listed.
- California Proposition 65
  - Prop 65 - Chemicals known to cause cancer Substance is not listed.
  - Prop 65 - Developmental toxicity Substance is not listed.
- California Proposition 65 - Developmental toxicity, female Substance is not listed.
- Prop 65 - Developmental toxicity, male Substance is not listed.
- Information about limitation of use: For use only by technically qualified individuals.
- This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.
- Other regulations, limitations and prohibitive regulations
  - Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006. Substance is not listed.
  - The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.
- Substance is not listed.
- Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.
- Chemical safety assessment: A Chemical Safety Assessment has not been carried out.
16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing SDS: Global Marketing Department
Date of preparation / last revision 11/24/2015 / -

Abbreviations and acronyms:
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)