

SPI Supplies Division

Structure Probe, Inc.

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Manufacturer's CAGE: 1P573

Safety Data Sheet

Date Effective: February 12, 2018

SPI Catalog # 02554-AB

SPI-Chem™ Ferric Chloride Hexahydrate

Section 1.1: Identification

Chemical Name/Synonyms Ferric chloride hexahydrate; Iron trichloride hexahydrate

Product or Trade Name SPI-Chem™ Ferric Chloride Hexahydrate

CAS #'s 10025-77-1

Chemical Formula..... $\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$

Section 1.2: Relevant Uses/Restrictions

Laboratory chemical for microscopy stain.

Section 1.3: Supplier of the Safety Data Sheet

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Section 1.4: Emergency telephone number

Emergencies

Contacting CHEMTREC:

24 Hour Emergency Use Only #'s...

Worldwide phone: 1-(703)-741-5970

Toll-free phone: 1-(800)-424-9300 USA + Canada only

Section 2: Hazard Identification

2.1 Classification of the substance

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Corrosive to metals (Category 1)

Acute toxicity, Oral (Category 4)

Skin irritation (Category 2)

Serious eye damage (Category 1)

2.2 Label elements

Pictogram



Signal Word: Danger

Hazard statements:

- H290 May be corrosive to metals.
- H302 Harmful if swallowed.
- H315 Causes skin irritation.
- H318 Causes serious eye damage.

Precautionary statements:

- P234 Keep only in original container.
- P264 Wash 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.
- P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.
- P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
- P305 + P351 + P338 + P310 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/doctor.
- P332 + P313 If skin irritation occurs: Get medical advice/ attention.
- P362 Take off contaminated clothing and wash before reuse.
- P390 Absorb spillage to prevent material damage.
- P406 Store in corrosive resistant stainless steel container with a resistant inner liner.
- P501 dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS: none

Hazardous Material Information System USA

Health 2
Fire Hazard 0
Reactivity 0
Personal Protection

NFPA Rating (estimated)

Health 2
Flammability..... 0
Reactivity 0

Section 3: Composition

3.1 Substances:

Ferric chloride hexahydrate CAS #: 10025-77-1
Formula: FeCl₃·6H₂O Molecular Weight: 270.30

EC #: 231-729-4
Percent: <= 100%

Section 4: First Aid Measures

4.1 Description of first aid measures:

General Advice:

Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance.

Inhalation:

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

Skin Contact:

Wash off with soap and plenty of water. Consult a physician.

Eye Contact:

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Ingestion:

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed:

The most important know symptoms and effects are described in the labelling (Section 2.2) and in Section 11.

4.3 Indication of any immediate medical attention and special treatment needed:

No further relevant information available.

Section 5: Fire Fighting Measures

5.1 Extinguishing media:

Use water spray, alcohol-resistant foam, dry chemical, or carbon dioxide.

5.2 Special hazards arising from the substance or mixture:

No further relevant information available.

5.3 Advice for firefighters:

Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information:

No further relevant information available.

Section 6: Accidental Release Measures

6.1 Personal precautions:

Wear respiratory protection.
Avoid dust formation.
Avoid breathing vapors, mist, or gas.
Ensure adequate ventilation.
Evacuate personnel to safe areas.
Avoid breathing dust.
For personal protection, see Section 8.

6.2 Environmental precautions:

Do not let product enter drains.

6.3 Methods and material for containment and cleaning up:

Pick up and arrange disposal without creating dust.
Sweep up and shovel.
Keep in suitable, closed containers for disposal.

6.4 Reference to other sections:

For disposal, see Section 13.

Section 7: Handling and Storage

7.1 Precautions for safe handling

Protective measures:

Avoid contact with skin and eyes.
Avoid formation of dust and aerosols.
Further processing of solid materials may result in the formation of combustible dust.
The potential for combustible dust formation should be taken into consideration before additional processing occurs.
Provide exhaust ventilation at places where dust is formed.
See Section 2.2 for precautions.

7.2 Conditions for safe storage, including any incompatibilities

Store under inert gas.
Keep container tightly closed in a dry and well-ventilated area.

7.3 Specific end uses

Laboratory chemical for microscopy stain.
This material is not being offered for clinical or diagnostic applications, agricultural uses or for human or animal consumption.

Section 8: Exposure Controls and Personal Protection

8. Control parameter and Personal Protection:

Workplace exposure limits:

Iron (III) chloride hexahydrate CAS # 10025-77-7
ACGIH TWA 1.000000 mg/m³ Threshold Limit Value
Upper respiratory tract irritation; Skin irritation

NIOSH TWA 1.00000 mg/m³ Recommended Exposure Limit
Upper respiratory tract irritation; Skin irritation

California PEL 1 mg/m³ California permissible exposure limits for chemical contaminants

Biological limit values: No data available.

8.2 Exposure controls:

8.2.1 Appropriate engineering controls:

Handle in accordance with good industrial hygiene and safety practice.
Wash hands before breaks and at the end of the workday.

8.2.2 Individual protection measures:

Eye/Face protection: Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards, such as NIOSH (US) or EN 166 (EU)>

Skin protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove

removal technique (without toughing glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Glove recommendation: Nitrile rubber, 0.1 mm thickness, 480 minute breakthrough time.

Body protection: Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection: Where risk assessment shows air-purifying respirators are appropriate, use a full-face particle respiratory type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

8.2.3 Environmental exposure controls:

Do not let product enter drains.

Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties:

Appearance: Brownish-yellow solid

Odor: No data available

Odor threshold: No data available

pH: No data available

Melting point/Freezing point: 37 °C (99 °F)

Boiling point/Boiling point range: 280-285 °C (536-545 °F)

Flash Point: No data available

Evaporation rate: No data available

Flammability (solid, gas): No data available

Upper/lower flammability or explosive limits: No data available

Vapor Pressure: 1hPa (1 mm Hg) at 194 °C (381 °F)

Vapor density: No data available

Relative density: 1.820 g/cm³

Solubility: 91.9 grams at 20 °C

Partition coefficient (n-octanol/water): No data available

Auto-ignition temperature: No data available

Decomposition temperature: No data available

Viscosity: No data available

Explosive properties: No data available

Oxidizing Properties: No data available

9.2 Other information: No additional information available.

Section 10: Stability and Reactivity

10.1 Reactivity: No data available.

10.2 Chemical Stability: Stable under recommended storage conditions.

10.3 Possibility of Hazardous Reactions: No data available.

10.4 Conditions to avoid: Exposure to moisture.

10.5 Incompatible materials: Strong oxidizing agents; Forms shock-sensitive mixtures with certain other materials; Sodium/sodium oxides; Potassium.

10.6 Hazardous decomposition products:

Hazardous decomposition products formed under fire conditions: Hydrogen chloride gas, Iron oxides.

Other decomposition products: No data available.

In the event of fire, see Section 5.

Section 11: Toxicological Information

Information on the likely routes of exposure:

11.1 Information on toxicological effects:

A. Acute toxicity:

LD50 Oral, rat 900 mg/kg

Inhalation: No data available.

Dermal: No data available.

B. Skin corrosion/irritation:

No data available.

C. Serious eye damage/irritation:

No data available.

D. Respiratory or skin sensitization:

No data available.

E. Germ cell mutagenicity:

No data available.

F. Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

G. Reproductive toxicity: No data available.

H. STOT-single exposure: No data available.

I. STOT-repeated exposure: No data available.

J. Aspiration hazard: No data available.

Additional information: RTECS: NO5425000

Overdose of iron compounds may have a corrosive effect on the gastrointestinal mucosa and be followed by necrosis, perforation, and stricture formation. Several hours may elapse before symptoms that can include epigastric pain, diarrhea, vomiting, nausea, and hematemesis occur. After apparent recovery, a person may experience metabolic acidosis, convulsions, and coma hours or days later. Further complications may develop leading to acute liver necrosis that can result in death due to hepatic coma.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Section 12: Ecological Information

12.1 Toxicity: No data available.

12.2 Persistence and degradability: No data available.

12.3 Bio-accumulative potential: No data available.

12.4 Mobility in soil: No data available.

12.5 Results of PBT and vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required / not conducted.

12.6 Other adverse effects: No data available.

Section 13: Disposal Considerations

13.1 Waste treatment methods:

Product: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging: Dispose of as unused product.

Section 14: Transport Information

DOT:

UN Number: 3260
Class: 8
Packing Group: III
Proper shipping name: Corrosive solid, acidic, inorganic, n.o.s. (Iron trichloride hexahydrate)
Reportable Quantity (RQ): 1000 lbs.
Poison Inhalation Hazard: no

IATA:

UN Number: 3260
Class: 8
Packing Group: III

Proper shipping name: Corrosive solid, acidic, inorganic, n.o.s. (Iron trichloride hexahydrate)

IMDG:

UN Number: 3260
Class: 8
Packing Group: III
EMS-No: F-A, S-B
Proper shipping name: CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S.
(Iron trichloride hexahydrate)

Section 15: Regulatory Information

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

SARA 302 Components:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components:

This material does not contain any chemical components with know CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards:

Acute Health Hazard.

US State Right-to-Know Components:

CAS Number 10025-77-1, Iron trichloride hexahydrate, is listed on the Massachusetts, Pennsylvania, and New Jersey Right-to-Know Lists.

California Prop. 65 Components:

This product does not contain any chemicals known to the State of California to cause cancer, birth defects, or any other reproductive harm.

15.2 Chemical Safety Assessment: Chemical safety assessment not required/ not conducted.

Date of Preparation: 12 February 2018.

Abbreviations and acronyms

IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
CMRG: Chemical Manufacturer's Recommended Guidelines
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
AIHA: American Industrial Hygiene Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bio-accumulative and Toxicological
vPvB: very Persistent and very Bio-accumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety Health
ATE: Acute Toxicity Estimates

TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
STEL: Short Term Exposure Limit
CEIL: Ceiling

Section 16: Other Information

Disclaimer of Liability:

Caution! Do not use SPI Supplies products or materials in applications involving implantation within the body; direct or indirect contact with the blood pathway; contact with bone, tissue, tissue fluid, or blood; or prolonged contact with mucous membranes. Products offered by SPI Supplies are not designed or manufactured for use in implantation in the human body or in contact with internal body fluids or tissues. SPI Supplies will not provide to customers making devices for such applications any notice, certification, or information necessary for such medical device use required by US FDA (Food and Drug Administration) regulation or any other statute. SPI Supplies and Structure Probe, Inc. make no representation, promise, express warranty or implied warranty concerning the suitability of these materials for use in implantation in the human body or in contact with internal body tissues of fluids.

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