

## SAFETY DATA SHEET

Preparation Date: 3/11/2019

Revision date 3/11/2019

Revision Number: G1

### 1. IDENTIFICATION

#### Product identifier

**Product code:** F-166  
**Product Name:** FERRIC CHLORIDE TS, USP TEST SOLUTION

#### Other means of identification

**Synonyms:** No information available  
**CAS #:** Mixture  
**RTECS #** Not available  
**CI#:** Not available

#### Recommended use of the chemical and restrictions on use

**Recommended use:** No information available.  
**Uses advised against** No information available

**Supplier:** Spectrum Chemical Mfg. Corp  
 14422 South San Pedro St.  
 Gardena, CA 90248  
 (310) 516-8000

**Order Online At:** <https://www.spectrumchemical.com>  
**Emergency telephone number** Chemtrec 1-800-424-9300  
**Contact Person:** Tom Tyner (USA - West Coast)  
**Contact Person:** Ibad Tirmiz (USA - East Coast)

### 2. HAZARDS IDENTIFICATION

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Considered a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Specific target organ toxicity (single exposure)	Category 3

#### Label elements

**Danger**

#### **Hazard statements**

Causes severe skin burns and eye damage  
 May cause respiratory irritation



**Hazards not otherwise classified (HNOC)**

Not Applicable

**Other hazards**

Not available

**Precautionary Statements - Prevention**

Do not breathe dust/fume/gas/mist/vapors/spray  
Wash face, hands and any exposed skin thoroughly after handling  
Wear protective gloves/protective clothing/eye protection/face protection  
Use only outdoors or in a well-ventilated area

**Precautionary Statements - Response**

*Immediately call a POISON CENTER or doctor/physician*  
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 or doctor/physician.  
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
Wash contaminated clothing before reuse  
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. Call a POISON CENTER or doctor/physician if you feel unwell.  
IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

**Precautionary Statements - Storage**

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

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	CAS No	Weight-%
Water	7732-18-5	91
Ferric Chloride hexahydrate	10025-77-1	9

**4. FIRST AID MEASURES**

**First aid measures**

**General Advice:**

National Capital Poison Center in the United States can provide assistance if you have a poison emergency and need to talk to a poison specialist. Call 1-800-222-1222. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. First aider needs to protect himself.

**Skin Contact:** Wash off immediately with soap and plenty of water. Remove all contaminated clothes and shoes. Continue flushing with plenty of water for at least 15 minutes. Immediate medical attention is required. Call a physician or Poison Control Centre immediately.

**Eye Contact:** Flush eyes with water for 15 minutes. Immediate medical attention is required. Call a physician immediately.

**Inhalation:** Move to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. **WARNING!** It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Get medical attention.

**Ingestion:** Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician or Poison Control Center immediately.

**Most important symptoms and effects, both acute and delayed**

**Symptoms** Severe skin and eye irritation or burns  
 Causes eye damage  
 May affect the liver  
 It may affect the kidneys  
 Causes digestive (gastrointestinal) tract irritation  
 May cause gastrointestinal (digestive) tract burns  
 Ingestion may cause vomiting and nausea  
 May cause diarrhea

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician:** Treat symptomatically.

**Protection of first-aiders**

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste.

**5. FIRE-FIGHTING MEASURES**

**Extinguishing Media**

**Suitable Extinguishing Media:** The product is not flammable. If it is involved in a fire, extinguish the fire using an agent suitable for the type of surrounding fire.

**Unsuitable Extinguishing Media:** No information available.

**Specific hazards arising from the chemical**

**Hazardous combustion products** No information available.

**Specific hazards** No information available.

**Special Protective Actions for Firefighters**

**Specific Methods:** No information available

**Special Protective Equipment for Firefighters:** As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

## 6. ACCIDENTAL RELEASE MEASURES

### Personal precautions, protective equipment and emergency procedures

**Personal Precautions:** Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.

**Environmental precautions** Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Prevent entry into waterways, sewers, basements or confined areas.

### Methods and material for containment and cleaning up

**Methods for containment** Stop leak if you can do it without risk. In case of large spill, dike if needed. Dike far ahead of liquid spill for later disposal.

**Methods for cleaning up** Absorb spill with inert material (e.g. vermiculite, dry sand or earth). Use appropriate tools to put the spilled material in a suitable chemical waste disposal container. Clean contaminated surface thoroughly.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

#### **Technical Measures/Precautions:**

Provide sufficient air exchange and/or exhaust in work rooms. Keep away from incompatible materials.

#### **Safe Handling Advice**

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Do not ingest. Do not breathe vapors or spray mist. Handle in accordance with good industrial hygiene and safety practice.

### Conditions for safe storage, including any incompatibilities

#### **Technical Measures/Storage Conditions:**

Keep container tightly closed. Keep in a well-ventilated place. Store at room temperature in the original container. Store away from incompatible materials. Store in a segregated and approved area.

#### **Incompatible Materials:**

Metals  
Strong bases

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### **National occupational exposure limits**

##### **United States**

Component	CAS No	OSHA	NIOSH	ACGIH	AIHA WEEL
Water	7732-18-5	None	None	None	None
Ferric Chloride hexahydrate	10025-77-1	None	1 mg/m <sup>3</sup> TWA (as Fe)	None	None

##### **Canada**

Component	CAS No	Canada - Alberta	Canada - British Columbia	Canada - Ontario	Canada - Quebec
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Water	7732-18-5	None	None	None	None
Ferric Chloride hexahydrate	10025-77-1	1 mg/m <sup>3</sup> TWA (as Fe)	1 mg/m <sup>3</sup> TWA (as Fe) 2 mg/m <sup>3</sup> STEL (as Fe)	1 mg/m <sup>3</sup> TWA (as Fe)	1 mg/m <sup>3</sup> TWAEV (as Fe)

### Australia and Mexico

Component	CAS No	Australia	Mexico
Water	7732-18-5	None	None
Ferric Chloride hexahydrate	10025-77-1	1 mg/m <sup>3</sup> TWA (as Fe)	1 mg/m <sup>3</sup> TWA (as Fe) 2 mg/m <sup>3</sup> STEL (as Fe)

### Appropriate engineering controls

#### Engineering measures to reduce exposure:

Ensure adequate ventilation. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors and mist below their respective threshold limit value.

### Individual protection measures, such as personal protective equipment

#### Personal Protective Equipment

**Eye protection:** Goggles or Face-shield.

**Skin and body protection:** Chemical resistant apron  
Gloves  
Long sleeved clothing  
If working with large quantities:  
Chemical resistant protective suit

**Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.

**Hygiene measures:** Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

#### Physical state:

Liquid

#### Appearance:

Clear.

#### Color:

Orange.

#### Odor:

No information available.

#### Taste

No information available.

#### Formula

No information available

#### Molecular/Formula weight (g/mole): Flammability (solid, gas)

No information available

no data available

#### Flashpoint (°C/°F):

No information available

#### Flash Point Tested according to:

Not available

#### Autoignition Temperature (°C/°F):

No information available

#### Lower Explosion Limit (%):

No information available

#### Upper Explosion Limit (%):

No information available

#### Melting point/range(°C/°F):

No information available

#### Decomposition temperature(°C/°F):

No information available

#### Boiling point/range(°C/°F):

No information available

#### Bulk density:

No information available

#### Density (g/cm<sup>3</sup>):

No information available

#### Specific gravity:

No information available

#### pH

No information available

#### Vapor pressure @ 20°C (kPa):

No information available

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**Evaporation rate:**  
No information available

**Vapor density:**  
No information available

**VOC content (g/L):**  
No information available

**Odor threshold (ppm):**  
No information available

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

**Viscosity:**  
No information available

**Miscibility:**  
No information available

**Solubility:**  
Easily soluble in cold water  
Easily soluble in hot water

## 10. STABILITY AND REACTIVITY

**Reactivity**  
No information available

### Chemical stability

**Stability:** Stable under recommended storage conditions.

**Possibility of Hazardous Reactions:** Hazardous polymerization does not occur

**Conditions to avoid:** Incompatible materials.

**Incompatible Materials:** Metals  
Strong bases

**Hazardous decomposition products:** No information available.

### Other Information

**Corrosivity:** No information available

**Special Remarks on Corrosivity:** No information available

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

**Principal Routes of Exposure:**  
Eyes. Skin. Ingestion. Inhalation.

### Acute Toxicity

### Component Information

Water	
CAS No	7732-18-5
LD50/oral/rat = > 90 mL/kg Oral LD50 Rat	
LD50/oral/mouse = No information available	
LD50/dermal/rabbit = No information available	
LD50/dermal/rat = No information available	
LC50/inhalation/rat = No information available	
LC50/inhalation/mouse = No information available	
Other LD50 or LC50 information = No information available	
Ferric Chloride hexahydrate	

CAS No	10025-77-1
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**LD50/oral/rat** = 900 mg/kg Oral LD50 Rat  
**LD50/oral/mouse** = No information available  
**LD50/dermal/rabbit** = No information available  
**LD50/dermal/rat** = No information available  
**LC50/inhalation/rat** = No information available  
**LC50/inhalation/mouse** = No information available  
**Other LD50 or LC50 information** = > 2000 mg/kg dermal LD50 Rabbit (for Ferric chloride anhydrous CAS number 7705-08-0)

### Product Information

**LD50/oral/rat** =  
**Value - Acute Tox** = No information available

**LD50/oral/mouse** =  
**Value - Acute Tox Oral** = No information available

**LD50/dermal/rabbit**  
**Value - Acute Tox** = No information available

**LD50/dermal/rat**  
**VALUE - Acute Tox Dermal** = No information available

**LC50/inhalation/rat**  
**VALUE-Vapor** = No information available  
**VALUE-Gas** = No information available  
**VALUE-Dust/Mist** = No information available

**LC50/Inhalation/mouse**  
**VALUE-Vapor** = No information available  
**VALUE - Gas** = No information available  
**VALUE - Dust/Mist** = No information available

### Symptoms

<b>Skin Contact:</b>	Causes severe irritation and burns.
<b>Eye Contact:</b>	Causes severe eye irritation and possible burns. Effects can vary from mild irritation to chemical conjunctivitis and corneal damage depending on the intensity and duration of exposure.
<b>Inhalation</b>	Irritating to respiratory system.
<b>Ingestion</b>	Causes digestive (gastrointestinal) tract irritation. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. May cause digestive (gastrointestinal) tract burns.
<b>Aspiration hazard</b>	No information available.

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Chronic Toxicity**                      Ingestion: May affect liver/spleen (increased iron levels and damage), urinary system (kidney, ureter, bladder), blood (changes in white blood cell count), central nervous system, and cardiovascular system. Prolonged or repeated ingestion may cause metabolic acidosis.

**Sensitization:** No information available.

**Mutagenic Effects:** May affect genetic material

**Carcinogenic effects:** Not considered carcinogenic.

Component	CAS No	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Water	7732-18-5	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed
Ferric Chloride hexahydrate	10025-77-1	Not listed	Not listed	Not listed	Not listed	Not listed	Not listed

*ACGIH (American Conference of Governmental Industrial Hygienists)*

*IARC (International Agency for Research on Cancer)*

*NTP (National Toxicology Program)*

*OSHA (Occupational Safety and Health Administration of the US Department of Labor)*

**Reproductive toxicity** No data is available

**Reproductive Effects:** No information available

**Developmental Effects:** No information available

**Teratogenic Effects:** No information available

**Specific Target Organ Toxicity**

**STOT - single exposure** No information available.

**STOT - repeated exposure** No information available.

**Target Organs:** No information available.

**12. ECOLOGICAL INFORMATION**

**Ecotoxicity**

**Ecotoxicity effects:** No data available.

**Persistence and degradability:** No information available

**Bioaccumulative potential:** No information available.

**Mobility in soil** No information available

**Other adverse effects** No information available.

**13. DISPOSAL CONSIDERATIONS**

**Disposal Methods**

**Waste from residues / unused products:**

Waste must be disposed of in accordance with Federal, State and Local regulation.

**Contaminated packaging:**

Empty containers should be taken for local recycling, recovery or waste disposal



Component	CAS No	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Water	7732-18-5	None	None	None	None
Ferric Chloride hexahydrate	10025-77-1	None	None	None	None

## 14. TRANSPORT INFORMATION

### DOT

**UN-No:** UN2582  
**Proper Shipping Name:** Ferric chloride, solution  
**Hazard Class** 8  
**Subsidiary Class** No information available  
**Packing group:** III  
**Emergency Response Guide Number** 154  
**Marine Pollutant** No data available  
**DOT RQ (lbs):** No information available  
**Special Provisions** B15, IB3, T4, TP1  
**Symbol(s):** No information available  
**Description:** UN2582, Ferric chloride, solution, 8, III

### TDG (Canada)

**UN-No:** UN2582  
**Proper Shipping Name:** Ferric chloride solution  
**Hazard Class** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**Marine Pollutant** No Information available  
**Description:** UN2582, Ferric chloride solution, 8, III

### ADR

**UN Number** UN2582  
**Proper Shipping Name:** Ferric chloride solution  
**Transport hazard class(es)** 8  
**Packing group** III  
**Subsidiary Risk:** No information available  
**Description:** UN2582, Ferric chloride solution, 8, III

### IMDG

**UN-No:** UN2582  
**Proper Shipping Name:** Ferric chloride, solution  
**Hazard Class:** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**Marine Pollutant** No information available  
**EMS:** F-A  
**Special Provisions** 223  
**Description** UN2582, Ferric chloride solution, 8, III

### RID

**UN Number** UN2582  
**Proper Shipping Name:** Ferric chloride solution  
**Transport hazard class(es)** 8  
**Subsidiary Risk:** No information available  
**Packing group** III  
**Description:** UN2582, Ferric chloride solution, 8, III

**ICAO (air)**

**UN-No:** UN2582  
**Proper Shipping Name:** Ferric chloride solution  
**Hazard Class** 8  
**Subsidiary Risk:** No information available  
**Packing Group:** III  
**Description:** UN2582, Ferric chloride solution, 8, III  
**Special Provisions** A3

**IATA**

**UN Number** UN2582  
**Proper Shipping Name:** Ferric chloride solution  
**Transport hazard class(es)** 8  
**Subsidiary Risk:** No information available  
**Packing group** III  
**Precautionary Statements - Response** 8L  
**Special Provisions** No information available  
**Description:** UN2582, Ferric chloride solution, 8, III

<b>15. REGULATORY INFORMATION</b>
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**International Inventories**

Component	CAS No	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	China IECSC	Australia AICS	EINECS-No.
<i>Water</i>	7732-18-5	PresentACTIVE	Present KE-35400	Present	Not present	Present	Present	Present 231-791-2
<i>Ferric Chloride hexahydrate</i>	10025-77-1	Not listed: Ferric Chloride, hexahydrate (CAS number 10025-77-1) is exempt from TSCA 8(b) Inventory listing since it is a hydrate. However the anhydrous form (CAS number 7705-08-0 is listed as ACTIVE on the TSCA 8(b) Inventory.	Not present	Present	Not present	Present [23517]	Present	Not present

**U.S. Regulations***Ferric Chloride hexahydrate*

**Pennsylvania RTK:** Present (as iron salts)  
**Pennsylvania RTK - Environmental Hazard List** Present (as iron salts)  
**Minnesota - Hazardous Substance List:** Present (as iron soluble salts)  
**California Directors List of Hazardous Substances:** Present (as iron soluble salts; refers only to water-soluble salts not mixed in food or animal feed)  
**FDA - Food Additives Generally Recognized as Safe (GRAS):** 21 CFR 184.1297

**California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.****Chemicals Known to the State of California to Cause Cancer:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

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**Chemicals Known to the State of California to Cause Reproductive Toxicity:**

This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Component	CAS No	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Water	7732-18-5	Not Listed	Not Listed	Not Listed	Not Listed
Ferric Chloride hexahydrate	10025-77-1	Not Listed	Not Listed	Not Listed	Not Listed

**CERCLA/SARA**

Component	CAS No	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting de minimis
Water	7732-18-5	None	None	None	None	None
Ferric Chloride hexahydrate	10025-77-1	None	None	None	None	None

**U.S. TSCA**

Component	CAS No	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Water	7732-18-5	Not Applicable	Not Applicable
Ferric Chloride hexahydrate	10025-77-1	Not Applicable	Not Applicable

**Canada****WHMIS 2015 - GHS Classifications**

WHMIS 2015 Hazard Classification Information:

Component

Water

7732-18-5 ( 91 )

Ferric Chloride hexahydrate

10025-77-1 ( 9 )

WHMIS 2015 Hazard Classification

Not a dangerous product according to HPR classification criteria

Acute toxicity - Oral - Category 4: H302 Harmful if swallowed.;  
Health Hazard Not Otherwise Classified - Category 1: Causes severe damage to the respiratory tract; Skin corrosion/irritation - Category 1: H314 Causes severe skin burns and eye damage.;  
Serious Eye Damage/Eye Irritation - Category 1: H318 Causes serious eye damage.

**Canada Hazardous Products Regulation** This product has been classified according to the hazard criteria of the HPR (Hazardous Products Regulation) and the SDS contains all of the information required by the HPR

**DSL/NDSL**

Component	CAS No	Canada (DSL)	Canada (NDSL)
Water	7732-18-5	Present	Not Listed
Ferric Chloride hexahydrate	10025-77-1	Not Listed	Not Listed

Component	CAS No	CEPA Schedule I - Toxic Substances
Water	7732-18-5	Not listed
Ferric Chloride hexahydrate	10025-77-1	Not listed
Component	CAS No	CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting

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Water	7732-18-5	Not listed
Ferric Chloride hexahydrate	10025-77-1	Not listed

## EU Classification

### EU GHS - SV - CLP 1272/2008

Component	CAS No	EU GHS - SV - CLP (1272/2008)
Water	7732-18-5	
Ferric Chloride hexahydrate	10025-77-1	

### EU - CLP (1272/2008)

#### **R-phrase(s)**

R34 - Causes burns

#### **S -phrase(s)**

S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice

S38 - In case of insufficient ventilation, wear suitable respiratory equipment

S45 - In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible)

S36/37/39 - Wear suitable protective clothing, gloves and eye/face protection

Component	CAS No	Classification	Concentration Limits:	Safety Phrases
Water	7732-18-5		No information	
Ferric Chloride hexahydrate	10025-77-1		No information	

**The product is classified in accordance with Annex VI to Directive 67/548/EEC**

#### Indication of danger:

C - Corrosive

## 16. OTHER INFORMATION

Preparation Date: 3/11/2019  
Revision date: 3/11/2019  
Prepared by: Sonia Owen

#### Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

**End of Safety Data Sheet**