

# SAFETY DATA SHEET

## 1. Identification

**Product identifier:** Ferric Chloride Test Solution

**Other means of identification**

**Product No.:** 5921

**Recommended use and restriction on use**

**Recommended use:** Not available.

**Restrictions on use:** Not known.

**Manufacturer/Importer/Supplier/Distributor Information**

**Manufacturer**

**Company Name:** Avantor Performance Materials, Inc.  
**Address:** 3477 Corporate Parkway, Suite 200  
Center Valley, PA 18034

**Telephone:** Customer Service: 855-282-6867

**Fax:**  
**Contact Person:** Environmental Health & Safety  
**e-mail:** info@avantormaterials.com

**Emergency telephone number:**

24 Hour Emergency: 908-859-2151

Chemtrec: 800-424-9300

## 2. Hazard(s) identification

**Hazard Classification**

**Physical Hazards**

Corrosive to metals Category 1

**Health Hazards**

Acute toxicity (Oral) Category 2

Skin Corrosion/Irritation Category 2

Serious Eye Damage/Eye Irritation Category 1

**Label Elements**

**Hazard Symbol:**



**Signal Word:** Danger

**Hazard Statement:** May be corrosive to metals.  
Fatal if swallowed.  
Causes serious eye damage.  
Causes skin irritation.

**Precautionary**

**Statement**

- Prevention:** Keep only in original container. Do not eat, drink or smoke when using this product. Wear protective gloves/protective clothing/eye protection/face protection. Wash hands thoroughly after handling.
- Response:** IF SWALLOWED: Immediately call a POISON CENTER/doctor. Rinse mouth. 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. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention. Absorb spillage to prevent material damage.
- Storage:** Store locked up. Store in corrosive resistant container with a resistant inner liner.
- Disposal:** Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Other hazards which do not result in GHS classification:** None.

**3. Composition/information on ingredients**

**Mixtures**

Chemical Identity	Common name and synonyms	CAS number	Content in percent (%)*
FERRIC CHLORIDE		7705-08-0	9%

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

**4. First-aid measures**

- General information:** Get medical advice/attention if you feel unwell. Show this safety data sheet to the doctor in attendance.
- Ingestion:** Call a physician or poison control center immediately. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
- Inhalation:** Move to fresh air. Call a POISON CENTER or doctor/physician if you feel unwell.
- Skin Contact:** Wash the skin immediately with soap and water. Get medical attention if irritation persists after washing. Wash contaminated clothing before reuse.
- Eye contact:** Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Call a physician or poison control center immediately. In case of irritation from airborne exposure, move to fresh air.

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

**Symptoms:** Fatal if swallowed. Causes serious eye damage.

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

**Treatment:** Treat symptomatically. Symptoms may be delayed.

## 5. Fire-fighting measures

**General Fire Hazards:** No unusual fire or explosion hazards noted.

### Suitable (and unsuitable) extinguishing media

**Suitable extinguishing media:** Use fire-extinguishing media appropriate for surrounding materials.

**Unsuitable extinguishing media:** None known.

**Specific hazards arising from the chemical:** During fire, gases hazardous to health may be formed. Product is highly caustic. Product is acidic. Wear appropriate protective gear if spilled during fire fighting.

### Special protective equipment and precautions for firefighters

**Special fire fighting procedures:** Move containers from fire area if you can do so without risk. Use water spray to keep fire-exposed containers cool. Cool containers exposed to flames with water until well after the fire is out.

**Special protective equipment for fire-fighters:** Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

## 6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures:** Keep unauthorized personnel away. Keep upwind. Use personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. See Section 8 of the MSDS for Personal Protective Equipment.

**Methods and material for containment and cleaning up:** Neutralize with lime or soda ash. Neutralize spill area and washings with dilute acetic acid. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Dike far ahead of larger spill for later recovery and disposal.

**Notification Procedures:** Prevent entry into waterways, sewer, basements or confined areas. Inform authorities if large amounts are involved.

**Environmental Precautions:** Do not contaminate water sources or sewer. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

## 7. Handling and storage

**Precautions for safe handling:** Wear protective gloves/protective clothing/eye protection/face protection. Do not get in eyes, on skin, on clothing. Do not taste or swallow. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash hands thoroughly after handling. Use caution when adding this material to water. See Section 8 of the MSDS for Personal Protective Equipment.

**Conditions for safe storage, including any incompatibilities:** Keep away from food, drink and animal feeding stuffs. Keep container tightly closed. Store in a cool and well-ventilated place. Store in corrosive resistant container with a resistant inner liner. Do not store in metal containers.

## 8. Exposure controls/personal protection

### Control Parameters

#### Occupational Exposure Limits

Chemical Identity	Type	Exposure Limit Values	Source
FERRIC CHLORIDE - as Fe	TWA	1 mg/m <sup>3</sup>	US. ACGIH Threshold Limit Values (2011)
	REL	1 mg/m <sup>3</sup>	US. NIOSH: Pocket Guide to Chemical Hazards (2010)
	TWA	1 mg/m <sup>3</sup>	US. OSHA Table Z-1-A (29 CFR 1910.1000) (1989)
	TWA PEL	1 mg/m <sup>3</sup>	US. California Code of Regulations, Title 8, Section 5155. Airborne Contaminants (08 2010)

#### Appropriate Engineering Controls

No data available.

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

**General information:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. An eye wash and safety shower must be available in the immediate work area.

**Eye/face protection:** Wear safety glasses with side shields (or goggles) and a face shield.

#### Skin Protection

**Hand Protection:** Chemical resistant gloves

**Other:** Wear suitable protective clothing.

**Respiratory Protection:** If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

**Hygiene measures:** Provide eyewash station and safety shower. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Do not get this material in contact with skin. Do not get in eyes.

## 9. Physical and chemical properties

### Appearance

**Physical state:** Liquid  
**Form:** No data available.  
**Color:** Dark orange

**Odor:** Odorless

**Odor threshold:** No data available.

**pH:** No data available.

**Melting point/freezing point:** 0 °C

**Initial boiling point and boiling range:** 100 °C

**Flash Point:** Not Applicable

<b>Evaporation rate:</b>	No data available.
<b>Flammability (solid, gas):</b>	No data available.
<b>Upper/lower limit on flammability or explosive limits</b>	
<b>Flammability limit - upper (%):</b>	No data available.
<b>Flammability limit - lower (%):</b>	No data available.
<b>Explosive limit - upper (%):</b>	No data available.
<b>Explosive limit - lower (%):</b>	No data available.
<b>Vapor pressure:</b>	No data available.
<b>Vapor density:</b>	No data available.
<b>Relative density:</b>	1.0 (20 °C)
<b>Solubility(ies)</b>	
<b>Solubility in water:</b>	Soluble
<b>Solubility (other):</b>	No data available.
<b>Partition coefficient (n-octanol/water):</b>	No data available.
<b>Auto-ignition temperature:</b>	No data available.
<b>Decomposition temperature:</b>	No data available.
<b>Viscosity:</b>	No data available.

## 10. Stability and reactivity

<b>Reactivity:</b>	No dangerous reaction known under conditions of normal use.
<b>Chemical Stability:</b>	Material is stable under normal conditions.
<b>Possibility of Hazardous Reactions:</b>	Hazardous polymerization does not occur.
<b>Conditions to Avoid:</b>	Contact with incompatible materials.
<b>Incompatible Materials:</b>	Metals. Allyl chloride. Sodium. Potassium.
<b>Hazardous Decomposition Products:</b>	Hydrogen Chloride. Breaks down and releases toxic and spontaneously combustible gases when wet

## 11. Toxicological information

### Information on likely routes of exposure

<b>Ingestion:</b>	Fatal if swallowed.
<b>Inhalation:</b>	May cause irritation to the mucous membranes and upper respiratory tract.
<b>Skin Contact:</b>	Causes skin irritation.
<b>Eye contact:</b>	Causes serious eye damage.

### Information on toxicological effects

#### Acute toxicity (list all possible routes of exposure)

##### Oral

<b>Product:</b>	No data available.
<b>Specified substance(s):</b>	
FERRIC CHLORIDE	LD 50 (Rat): 28 - 450 mg/kg LD 50 (Mouse): 450 - 895 mg/kg LD 50 (Rat): 450 - 5,000 mg/kg

##### Dermal

<b>Product:</b>	No data available.
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**Inhalation**  
**Product:** No data available.

**Repeated Dose Toxicity**  
**Product:** No data available.

**Skin Corrosion/Irritation**  
**Product:** Causes skin irritation.

**Serious Eye Damage/Eye Irritation**  
**Product:** Causes serious eye damage.

**Respiratory or Skin Sensitization**  
**Product:** Not a skin sensitizer.

**Carcinogenicity**  
**Product:** This substance has no evidence of carcinogenic properties.

**IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:**  
No carcinogenic components identified

**US. National Toxicology Program (NTP) Report on Carcinogens:**  
No carcinogenic components identified

**US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):**  
No carcinogenic components identified

**Germ Cell Mutagenicity**

**In vitro**  
**Product:** No mutagenic components identified

**In vivo**  
**Product:** No mutagenic components identified

**Reproductive Toxicity**  
**Product:** No components toxic to reproduction

**Specific Target Organ Toxicity - Single Exposure**  
**Product:** No data available.

**Specific Target Organ Toxicity - Repeated Exposure**  
**Product:** No data available.

**Aspiration Hazard**  
**Product:** Not classified

**Other Effects:** None known.

**12. Ecological information**

**Ecotoxicity:**

**Acute hazards to the aquatic environment:**

**Fish**  
**Product:** No data available.

**Specified substance(s):**  
FERRIC CHLORIDE  
LC 50 (Bluegill (*Lepomis macrochirus*), 96 h): 20.26 mg/l Mortality  
LC 50 (Fathead minnow (*Pimephales promelas*), 96 h): 20.95 - 22.56 mg/l Mortality  
LC 50 (Western mosquitofish (*Gambusia affinis*), 96 h): 26 mg/l Mortality

**Aquatic Invertebrates**

**Product:** No data available.

**Specified substance(s):**

**FERRIC CHLORIDE** EC 50 (Water flea (Daphnia magna), 48 h): 9.6 mg/l Intoxication  
LC 50 (Water flea (Daphnia pulex), 48 h): 12.31 - 13.54 mg/l Mortality  
LC 50 (Water flea (Daphnia magna), 48 h): 76 mg/l Mortality

**Chronic hazards to the aquatic environment:**

**Fish**

**Product:** No data available.

**Aquatic Invertebrates**

**Product:** No data available.

**Toxicity to Aquatic Plants**

**Product:** No data available.

**Persistence and Degradability**

**Biodegradation**

**Product:** There are no data on the degradability of this product.

**BOD/COD Ratio**

**Product:** No data available.

**Bioaccumulative Potential**

**Bioconcentration Factor (BCF)**

**Product:** No data available on bioaccumulation.

**Partition Coefficient n-octanol / water (log Kow)**

**Product:** No data available.

**Mobility in Soil:**

The product is water soluble and may spread in water systems.

**Other Adverse Effects:**

The product components are not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

<b>13. Disposal considerations</b>
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**Disposal instructions:**

Discharge, treatment, or disposal may be subject to national, state, or local laws. Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Contaminated Packaging:**

Since emptied containers retain product residue, follow label warnings even after container is emptied.

## 14. Transport information

### DOT

UN Number:	UN 2582
UN Proper Shipping Name:	Ferric chloride, solution
Transport Hazard Class(es)	
Class(es):	8
Label(s):	8
Packing Group:	III
Marine Pollutant:	No

### IMDG

UN Number:	UN 2582
UN Proper Shipping Name:	FERRIC CHLORIDE SOLUTION
Transport Hazard Class(es)	
Class(es):	8
Label(s):	8
EmS No.:	F-A, S-B
Packing Group:	III
Marine Pollutant:	No

### IATA

UN Number:	UN 2582
Proper Shipping Name:	Ferric chloride solution
Transport Hazard Class(es):	
Class(es):	8
Label(s):	8
Marine Pollutant:	No
Packing Group:	III

## 15. Regulatory information

### US Federal Regulations

#### TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

#### US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

None present or none present in regulated quantities.

#### CERCLA Hazardous Substance List (40 CFR 302.4):

FERRIC CHLORIDE Reportable quantity: 1000 lbs.

#### Superfund Amendments and Reauthorization Act of 1986 (SARA)

##### Hazard categories

Acute (Immediate)  Chronic (Delayed)  Fire  Reactive  Pressure Generating

##### SARA 302 Extremely Hazardous Substance

None present or none present in regulated quantities.

##### SARA 304 Emergency Release Notification

Chemical Identity	RQ
FERRIC CHLORIDE	1000 lbs.



**SARA 311/312 Hazardous Chemical**

<b>Chemical Identity</b>	<b>Threshold Planning Quantity</b>
FERRIC CHLORIDE	500 lbs

**SARA 313 (TRI Reporting)**

None present or none present in regulated quantities.

**Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)**

FERRIC CHLORIDE Reportable quantity: 1000 lbs.

**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):**

None present or none present in regulated quantities.

**US State Regulations**

**US. California Proposition 65**

No ingredient regulated by CA Prop 65 present.

**US. New Jersey Worker and Community Right-to-Know Act**

FERRIC CHLORIDE Listed

**US. Massachusetts RTK - Substance List**

FERRIC CHLORIDE Listed

**US. Pennsylvania RTK - Hazardous Substances**

FERRIC CHLORIDE Listed

**US. Rhode Island RTK**

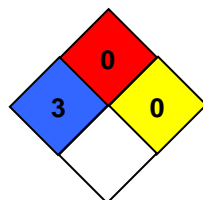
FERRIC CHLORIDE Listed





**Inventory Status:**

Australia AICS:	On or in compliance with the inventory
Canada DSL Inventory List:	On or in compliance with the inventory
EU EINECS List:	On or in compliance with the inventory
EU ELINCS List:	Not in compliance with the inventory.
Japan (ENCS) List:	Not in compliance with the inventory.
EU No Longer Polymers List:	Not in compliance with the inventory.
China Inv. Existing Chemical Substances:	On or in compliance with the inventory
Korea Existing Chemicals Inv. (KECI):	On or in compliance with the inventory
Canada NDSL Inventory:	Not in compliance with the inventory.
Philippines PICCS:	On or in compliance with the inventory
US TSCA Inventory:	On or in compliance with the inventory
New Zealand Inventory of Chemicals:	On or in compliance with the inventory
Japan ISHL Listing:	Not in compliance with the inventory.
Japan Pharmacopoeia Listing:	Not in compliance with the inventory.

**16. Other information, including date of preparation or last revision**

**NFPA Hazard ID**



	Flammability
	Health
	Reactivity
	Special hazard.

Hazard rating: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

**Issue Date:** 12-15-2014

**Revision Date:** No data available.

**Version #:** 1.0

**Further Information:** No data available.

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