

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 06/01/2015

Version 1.5

## SECTION 1. Identification

### Product identifier

Product number 109972  
Product name Iron standard 1000 mg Fe, (FeCl<sub>3</sub> in 15% HCl) Titrisol®

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

Identified uses Reagent for analysis

### Details of the supplier of the safety data sheet

Company EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821,  
United States of America | General Inquiries: +1-978-715-4321 |  
Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)

Emergency telephone 800-424-9300 CHEMTREC (USA)  
+1-703-527-3887 CHEMTREC (International)  
24 Hours/day; 7 Days/week

## SECTION 2. Hazards identification

### GHS Classification

Corrosive to Metals, Category 1, H290  
Skin irritation, Category 2, H315  
Serious eye damage, Category 1, H318  
Specific target organ systemic toxicity - single exposure, Category 3, Respiratory system, H335  
For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

*Hazard pictograms*



*Signal Word*  
Danger

*Hazard Statements*

H290 May be corrosive to metals.  
H315 Causes skin irritation.  
H318 Causes serious eye damage.  
H335 May cause respiratory irritation.

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## *Precautionary Statements*

P234 Keep only in original container.

P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.

P264 Wash skin thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/ eye protection/ face protection.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

P310 Immediately call a POISON CENTER or doctor/ physician.

P321 Specific treatment (see supplemental first aid instructions on this label).

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.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

P406 Store in corrosive resistant stainless steel container with a resistant inner liner.

P501 Dispose of contents/ container to an approved waste disposal plant.

## **Other hazards**

None known.

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## **SECTION 3. Composition/information on ingredients**

Chemical nature

Aqueous solution

### **Hazardous ingredients**

*Chemical Name (Concentration)*

CAS-No.

*hydrochloric acid (>= 10 % - < 30 % )*

7647-01-0

Exact percentages are being withheld as a trade secret.

*iron(III) chloride (>= 5 % - < 10 % )*

7705-08-0

Exact percentages are being withheld as a trade secret.

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## **SECTION 4. First aid measures**

### **Description of first-aid measures**

*Inhalation*

After inhalation: fresh air.

*Skin contact*

After skin contact: wash off with plenty of water. Remove contaminated clothing.

*Eye contact*

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

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### *Ingestion*

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

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

irritant effects, Cough, Shortness of breath

The following applies to soluble iron compounds: nausea and vomiting after swallowing. The absorption of large quantities is followed by cardiovascular disorders. Toxic effect on liver and kidneys.

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

No information available.

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## **SECTION 5. Fire-fighting measures**

### **Extinguishing media**

#### *Suitable extinguishing media*

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### **Special hazards arising from the substance or mixture**

Not combustible.

Ambient fire may liberate hazardous vapors.

Fire may cause evolution of:

Hydrogen chloride gas

### **Advice for firefighters**

#### *Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### *Further information*

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6. Accidental release measures**

### **Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### **Environmental precautions**

Do not let product enter drains.

### **Methods and materials for containment and cleaning up**

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Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10).

Take up with liquid-absorbent and neutralizing material (e.g. Chemizorb® H<sup>+</sup>, Art. No. 101595).

Dispose of properly. Clean up affected area.

## SECTION 7. Handling and storage

### Precautions for safe handling

Observe label precautions.

### Conditions for safe storage, including any incompatibilities

Tightly closed.

Storage temperature: no restrictions.

## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

#### Ingredients

Basis	Value	Threshold limits	Remarks
<i>hydrochloric acid 7647-01-0</i>			
ACGIH	Ceiling Limit Value:	2 ppm	
NIOSH/GUIDE	Ceiling Limit Value and Time Period (if specified):	5 ppm 7 mg/m <sup>3</sup>	
OSHA_TRANS	Ceiling Limit Value:	5 ppm 7 mg/m <sup>3</sup>	
Z1A	Ceiling Limit Value:	5 ppm 7 mg/m <sup>3</sup>	
<i>iron(III) chloride 7705-08-0</i>			
ACGIH	Time Weighted Average (TWA):	1 mg/m <sup>3</sup>	Expressed as: as Fe
NIOSH/GUIDE	Recommended exposure limit (REL):	1 mg/m <sup>3</sup>	Expressed as: as Fe
Z1A	Time Weighted Average (TWA):	1 mg/m <sup>3</sup>	Expressed as: as Fe

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

### Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

### Eye/face protection

Tightly fitting safety goggles

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### *Hand protection*

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

### *Other protective equipment:*

Acid-resistant protective clothing.

### *Respiratory protection*

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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## SECTION 9. Physical and chemical properties

Physical state	liquid
Color	orange
Odor	stinging
Odor Threshold	No information available.
pH	ca. 0.5 at 68 °F (20 °C)
Melting point	No information available.
Boiling point	No information available.
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	No information available.
Relative vapor density	No information available.
Density	1.07 g/cm <sup>3</sup> at 68 °F (20 °C)
Relative density	No information available.
Water solubility	at 68 °F (20 °C) soluble

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Partition coefficient: n-octanol/water	Not applicable
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Corrosion	May be corrosive to metals.

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## SECTION 10. Stability and reactivity

### Reactivity

See below

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

Exothermic reaction with:

Amines, potassium permanganate, salts of oxyhalogenic acids, semimetallic oxides, semimetallic hydrogen compounds, Aldehydes, vinylmethyl ether

Risk of ignition or formation of inflammable gases or vapors with:

carbides, lithium silicide, Fluorine, Aluminum, hydrides, formaldehyde, Metals, strong alkalis, Sulfides

Risk of explosion with:

Alkali metals, conc. sulfuric acid

### Conditions to avoid

no information available

### Incompatible materials

Metals, metal alloys

Gives off hydrogen by reaction with metals.

### Hazardous decomposition products

in the event of fire: See section 5.

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## SECTION 11. Toxicological information

### Information on toxicological effects

*Likely route of exposure*

Eye contact, Skin contact

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## *Target Organs*

Eyes

Skin

Respiratory system

Cornea

Liver

gastrointestinal tract

## *Acute oral toxicity*

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute toxicity estimate: > 2,000 mg/kg

Calculation method

## *Acute inhalation toxicity*

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

## *Skin irritation*

Mixture causes skin irritation.

## *Eye irritation*

Mixture causes serious eye damage.

## *Specific target organ systemic toxicity - single exposure*

Target Organs: Respiratory system

Mixture may cause respiratory irritation.

## *Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

## *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## **Carcinogenicity**

IARC

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

OSHA

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

NTP

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

ACGIH

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

## **Further information**

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Quantitative data on the toxicity of this product are not available.

Further toxicological data:

The following applies to soluble iron compounds: nausea and vomiting after swallowing. The absorption of large quantities is followed by cardiovascular disorders. Toxic effect on liver and kidneys.

Further data:

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

## Ingredients

### *hydrochloric acid*

No information available.

### *iron(III) chloride*

#### *Acute oral toxicity*

LD50 Rat: 316 mg/kg (RTECS)

#### *Acute dermal toxicity*

LD50 Dermal Rat: > 2,000 mg/kg (External MSDS)

#### *Skin irritation*

Rabbit

Result: irritating

(IUCLID)

#### *Eye irritation*

Rabbit

Result: Severe irritations

OECD Test Guideline 405

#### *Germ cell mutagenicity*

##### *Genotoxicity in vivo*

In vivo micronucleus test

Mouse

Result: negative

(External MSDS)

##### *Genotoxicity in vitro*

Ames test

Result: negative

Method: OECD Test Guideline 471

Mutagenicity (mammal cell test): micronucleus.

Result: negative

Method: OECD Test Guideline 405

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## SECTION 12. Ecological information

### Ecotoxicity

No information available.

### Persistence and degradability

No information available.

### Bioaccumulative potential

*Partition coefficient: n-octanol/water*

Not applicable

### Mobility in soil

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No information available.

### *Additional ecological information*

Further information on ecology

Discharge into the environment must be avoided.

### **Ingredients**

*hydrochloric acid*

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

### *iron(III) chloride*

#### *Toxicity to fish*

LC50 *Lepomis macrochirus* (Bluegill sunfish): 20.3 mg/l; 96 h (External MSDS)

#### *Toxicity to daphnia and other aquatic invertebrates*

Immobilization EC50 *Daphnia magna* (Water flea): 9.6 mg/l; 48 h

OECD Test Guideline 202

#### *Toxicity to algae*

ErC50 *Pseudokirchneriella subcapitata* (green algae): 6.9 mg/l; 72 h

OECD Test Guideline 201

NOEC *Pseudokirchneriella subcapitata* (green algae): 2.4 mg/l; 72 h

OECD Test Guideline 201

#### *Toxicity to fish (Chronic toxicity)*

NOEC *Pimephales promelas* (fathead minnow): 0.33 mg/l; 33 d

(External MSDS)

#### *Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)*

NOEC *Daphnia magna* (Water flea): 0.7 mg/l; 21 d

(External MSDS)

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## **SECTION 13. Disposal considerations**

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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**SECTION 14. Transport information**

**Land transport (DOT)**

UN number UN 1789  
Proper shipping name HYDROCHLORIC ACID  
Class 8  
Packing group II  
Environmentally hazardous --

**Air transport (IATA)**

UN number UN 1789  
Proper shipping name HYDROCHLORIC ACID  
Class 8  
Packing group II  
Environmentally hazardous --  
Special precautions for user no

**Sea transport (IMDG)**

UN number UN 1789  
Proper shipping name HYDROCHLORIC ACID  
Class 8  
Packing group II  
Environmentally hazardous --  
Special precautions for user yes  
EmS F-A S-B

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**SECTION 15. Regulatory information**

**United States of America**

**SARA 313**

The following components are subject to reporting levels established by SARA Title III, Section 313:

*Ingredients*

hydrochloric acid 7647-01-0 17.7 %

**SARA 302**

The following components are subject to reporting levels established by SARA Title III, Section 302:

*Ingredients*

hydrochloric acid 7647-01-0

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## Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

### *Ingredients*

iron(III) chloride

hydrochloric acid

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

### *Ingredients*

iron(III) chloride

hydrochloric acid

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

## DEA List I

Not listed

## DEA List II

Listed

### *Ingredients*

hydrochloric acid

7647-01-0

## US State Regulations

### Massachusetts Right To Know

#### *Ingredients*

hydrochloric acid

iron(III) chloride

### Pennsylvania Right To Know

#### *Ingredients*

hydrochloric acid

iron(III) chloride

### New Jersey Right To Know

#### *Ingredients*

hydrochloric acid

iron(III) chloride

### California Prop 65 Components

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

## Notification status

TSCA:

All components of the product are listed in the TSCA-inventory.

DSL:

All components of this product are on the Canadian DSL.

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## SECTION 16. Other information

### Training advice

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Provide adequate information, instruction and training for operators.

## Labeling

### Hazard pictograms



### Signal Word

Danger

### Hazard Statements

H290 May be corrosive to metals.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H335 May cause respiratory irritation.

### Precautionary Statements

#### Prevention

P280 Wear eye protection.

#### Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

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

P313 Get medical advice/ attention.

### Full text of H-Statements referred to under sections 2 and 3.

H290	May be corrosive to metals.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

### Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

Revision Date 06/01/2015

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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