SAFETY DATA SHEET

Issue Date 08-Feb-2018 **Revision Date** 10-Feb-2018 **Version** 2

1. IDENTIFICATION

Product identifier

Product Name Iron Standard Solution 100 ± 0.5 mg/L as Fe

Other means of identification

Product Code(s) 1417542-CA

Safety data sheet number M00362

Recommended use of the chemical and restrictions on use

Recommended Use Standard solution

Uses advised against No information available

Details of the supplier of the safety data sheet

Initial Supplier Identifier
Hach Sales & Service LP. 3020 Gore Road, London, Ontario N5V 4T7 Canada Tel: 1-800-665-7635

Manufacturer Address
Hach Company P.O. Box 389 Loveland, CO 80539 USA +1(970) 669-3050

Emergency telephone number

Emergency Telephone Chemtrec 1-800-424-9300
CANUTEC 613-992-4624

2. HAZARD IDENTIFICATION

Classification

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 1

Label elements

Signal word - Danger

Hazard statements
H315 - Causes skin irritation
H318 - Causes serious eye damage

Precautionary Statements
P302 + P352 - IF ON SKIN: Wash with plenty of water and soap
P332 + P313 - If skin irritation occurs: Get medical advice/attention
P362 + P364 - Take off contaminated clothing and wash it before reuse
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
P310 - Immediately call a POISON CENTER or doctor

Unknown Acute Toxicity
0 % of the mixture consists of ingredient(s) of unknown toxicity.
- 0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
- 0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
- 0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

Other Hazards Known
Not applicable.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance
Not applicable

Mixture

Chemical Family Mixture.

Chemical name	Synonyms	CAS No.	Percent Range	Units	HMIRA #
Hydrochloric acid	No information available	7647-01-0	<1%	g	-
Iron chloride (FeCl2)	No information available	7758-94-3	<0.1%	g	-

4. FIRST AID MEASURES

Description of first aid measures

General advice Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Inhalation Remove to fresh air. Get medical attention immediately if symptoms occur.

Eye contact Get immediate medical advice/attention. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep eye wide open while rinsing. Do not rub affected area.

Skin contact Wash off immediately with soap and plenty of water for at least 15 minutes. Get medical attention if irritation develops and persists.

Ingestion Clean mouth with water and drink afterwards plenty of water. Never give anything by mouth to an unconscious person. Do NOT induce vomiting. Call a physician.

Self-protection of the first aider Avoid contact with skin, eyes or clothing. Wear personal protective clothing (see section 8).

Most important symptoms and effects, both acute and delayed

Symptoms Burning sensation.

Indication of any immediate medical attention and special treatment needed

Note to physicians Treat symptomatically.

5. FIRE-FIGHTING MEASURES

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

Unsuitable Extinguishing Media Caution: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical No information available.

Hazardous combustion products This material will not burn.

Special protective equipment for fire-fighters Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

WHMIS Notice Only persons properly qualified to respond to an emergency involving hazardous substances should respond to a spill involving chemicals. See Section 13, Special Instructions for disposal assistance.

Personal precautions Avoid contact with skin, eyes or clothing. Use personal protective equipment as required. Ensure adequate ventilation.

Other Information Refer to protective measures listed in Sections 7 and 8.

Environmental precautions

Environmental precautions Prevent further leakage or spillage if safe to do so.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

Prevention of secondary hazards Clean contaminated objects and areas thoroughly observing environmental regulations.

7. HANDLING AND STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place. Store locked up. Keep out of the reach of children.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure Limits This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

Chemical name	Alberta OEL	British Columbia OEL	Manitoba OEL	New Brunswick OEL	New Foundland & Labrador OEL
Hydrochloric acid <1%	Ceiling: 2 ppm Ceiling: 3 mg/m³	Ceiling: 2 ppm	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7.5 mg/m³	Ceiling: 2 ppm
Iron chloride (FeCl2) <0.1%	TWA: 1 mg/m³	TWA: 1 mg/m³ STEL: 2 mg/m³	TWA: 1 mg/m³	TWA: 1 mg/m³	TWA: 1 mg/m³

Chemical name	Northwest Territories OEL	Nova Scotia OEL	Nunavut OEL	Ontario TWA	Prince Edward Island OEL
Hydrochloric acid <1%	Ceiling: 2 ppm	Ceiling: 2 ppm	Ceiling: 2 ppm	Ceiling: 2 ppm	Ceiling: 2 ppm
Iron chloride (FeCl2) <0.1%	TWA: 1 mg/m³ STEL: 3 mg/m³	TWA: 1 mg/m³	TWA: 1 mg/m³ STEL: 3 mg/m³	TWA: 1 mg/m³	TWA: 1 mg/m³

Chemical name	Quebec OEL	Saskatchewan OEL	Yukon OEL
Hydrochloric acid <1%	Ceiling: 5 ppm Ceiling: 7.5 mg/m³	Ceiling: 2 ppm	Ceiling: 5 ppm Ceiling: 7 mg/m³
Iron chloride (FeCl2) <0.1%	TWA: 1.0 mg/m³	TWA: 1 mg/m³ STEL: 3 mg/m³	STEL: 2 mg/m³ TWA: 1 mg/m³

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Hydrochloric acid <1%	Ceiling: 2 ppm	(vacated) Ceiling: 5 ppm (vacated) Ceiling: 7 mg/m³ Ceiling: 5 ppm Ceiling: 7 mg/m³	IDLH: 50 ppm Ceiling: 5 ppm Ceiling: 7 mg/m³
Iron chloride (FeCl2) <0.1%	TWA: 1 mg/m³	(vacated) TWA: 1 mg/m³	TWA: 1 mg/m³ Fe

Legend See section 16 for terms and abbreviations

Appropriate engineering controls

Engineering Controls Showers
Eyewash stations
Ventilation systems.

Individual protection measures, such as personal protective equipment

Respiratory protection No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.

Hand Protection Wear suitable gloves. Impervious gloves.

Eye/face protection Tight sealing safety goggles.

Skin and body protection Wear suitable protective clothing. Long sleeved clothing.

General Hygiene Considerations Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do not eat, drink or smoke when using this product.

Environmental exposure controls Local authorities should be advised if significant spillages cannot be contained. Do not allow into any sewer, on the ground or into any body of water.

Thermal hazards None under normal processing.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid		
Appearance	aqueous solution	**Color**	colorless
Odor	Odorless	**Odor threshold**	No data available

Property	Values	Remarks • Method
Molecular weight	No data available	
pH	1.0	
Melting point/freezing point	~ 0 °C / 32 °F	Estimation based on theoretical calculation
Boiling point / boiling range	~ 100 °C / 212 °F	Estimation based on theoretical calculation
Evaporation rate	0.94 (water = 1)	
Vapor pressure	17.477 mm Hg / 2.33 kPa at 20 °C / 68 °F	Estimation based on theoretical calculation
Vapor density (air = 1)	0.62	
Specific gravity (water = 1 / air = 1)	0.99	
Partition Coefficient (n-octanol/water)	Not applicable	
Soil Organic Carbon-Water Partition Coefficient	Not applicable	
Autoignition temperature	No data available	
Decomposition temperature	No data available	
Dynamic viscosity	~ 1 cP (mPa s) at 20 °C / 68 °F	
Kinematic viscosity	~ 1.01 cSt (mm^2/s) at 20 °C / 68 °F	

Solubility(ies)

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Soluble	> 1000 mg/L	25 °C / 77 °F

Solubility in other solvents

Chemical Name	Solubility classification	Solubility	Solubility Temperature
Acid	Soluble	> 1000 mg/L	25 °C / 77 °F

Other Information

Metal Corrosivity

Steel Corrosion Rate	3.94 mm/yr / 0.16 in/yr
Aluminum Corrosion Rate	5.64 mm/yr / 0.22 in/yr

Volatile Organic Compounds (VOC) Content

Chemical name	CAS No.	Volatile organic compounds (VOC) content	CAA (Clean Air Act)
Hydrochloric acid	7647-01-0	Not applicable	-
Iron chloride (FeCl2)	7758-94-3	No data available	-

Explosive properties

Upper explosion limit	No data available
Lower explosion limit	No data available

Flammable properties

Flash point	No data available
Method	No information available

Flammability Limit in Air

Upper flammability limit:	No data available
Lower flammability limit:	No data available

Oxidizing properties No data available.

Bulk density Not applicable

Particle Size No information available

Particle Size Distribution No information available

10. STABILITY AND REACTIVITY

Reactivity
Not applicable.

Chemical stability
Stability Stable under normal conditions.

Explosion data
Sensitivity to Mechanical Impact None
Sensitivity to Static Discharge None.

Possibility of Hazardous Reactions
Possibility of Hazardous Reactions None under normal processing.

Hazardous polymerization
None under normal processing.

Conditions to avoid

Conditions to avoid None known based on information supplied.

Incompatible materials

Incompatible materials Strong acids. Strong bases. Strong oxidizing agents.

Hazardous Decomposition Products

Thermal decomposition can lead to release of irritating and toxic gases and vapors.

11. TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Product Information

Inhalation Specific test data for the substance or mixture is not available. May cause irritation of respiratory tract.

Eye contact Specific test data for the substance or mixture is not available. Severely irritating to eyes. Causes serious eye damage. May cause burns. May cause irreversible damage to eyes. (based on components).

Skin contact Specific test data for the substance or mixture is not available. Causes skin irritation. (based on components).

Ingestion Specific test data for the substance or mixture is not available. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Aggravated Medical Conditions Skin disorders. Eye disorders.

Toxicologically synergistic products None known.

Toxicokinetics, metabolism and distribution See ingredients information below.

Chemical name	Toxicokinetics, metabolism and distribution
Hydrochloric acid (<1%) CAS#: 7647-01-0	Low concentrations of hydrochloric acid solution do not seem to cause adverse effects to animals and its corrosivity may be greatly attributed to any acute deaths, therefore it is not classified for acute toxicity.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms Redness. Burning. May cause blindness. May cause redness and tearing of the eyes.

Product Acute Toxicity Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Unknown Acute Toxicity

0 % of the mixture consists of ingredient(s) of unknown toxicity.

0 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
0 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity

0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
0 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)

Acute Toxicity Estimations (ATE)

ATEmix (oral)	No information available
ATEmix (dermal)	No information available
ATEmix (inhalation-dust/mist)	No information available
ATEmix (inhalation-vapor)	No information available
ATEmix (inhalation-gas)	No information available

Ingredient Acute Toxicity Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Iron chloride (FeCl2) (<0.1%) CAS#: 7758-94-3	Rat LD_{50}	450 mg/kg	None reported	None reported	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Endpoint type**	**Reported dose**	**Exposure time**	**Toxicological effects**	**Key literature references and sources for data**
Hydrochloric acid (<1%) CAS#: 7647-01-0	Rat LD_{50}	234 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)

Dermal Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrochloric acid (<1%) CAS#: 7647-01-0	Rabbit LD_{50}	> 5010 mg/kg	None reported	None reported	IUCLID (The International Uniform Chemical Information Database)
Iron chloride (FeCl2) (<0.1%) CAS#: 7758-94-3	Rat LD_{50}	> 2000 mg/kg	None reported	None reported	OECD (Organization for Economic Co-operation and Development)

Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrochloric acid (<1%) CAS#: 7647-01-0	None reported	None reported	None reported	None reported	No information available
Iron chloride (FeCl2) (<0.1%) CAS#: 7758-94-3	Rat LC_{50}	5 mg/L	4 hours	None reported	No information available

Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrochloric acid (<1%) CAS#: 7647-01-0	Rat LC_{50}	16.8 mg/L	4 hours	None reported	IUCLID (The International Uniform Chemical Information Database)

Inhalation (Gas) Exposure Route If available, see data below

Product Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Specific Target Organ Toxicity Single Exposure Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrochloric acid (<1%) CAS#: 7647-01-0	Man LD_{Lo}	2.857 mg/kg	None reported	**Vascular** BP lowering not characterized in autonomic section **Lungs, Thorax, or Respiration** Respiratory depression **Gastrointestinal** Other changes	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrochloric acid (<1%) CAS#: 7647-01-0	Human TC_{Lo}	0.05 mg/L	None reported	**Lungs, Thorax, or Respiration** Cough	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Aspiration toxicity
If available, see data below
Kinematic viscosity ~ 1.01 cSt (mm^2/s)

Product Skin Corrosion/Irritation Data
No data available.

Ingredient Skin Corrosion/Irritation Data
If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Hydrochloric acid (<1%) CAS#: 7647-01-0	Existing human experience	Human	None reported	None reported	Corrosive to skin	RTECS (Registry of Toxic Effects of Chemical Substances)
Iron chloride (FeCl2) (<0.1%) CAS#: 7758-94-3	Organization for Economic Co-operation and Development (OECD) - Test 404: Acute Dermal Corrosion/Irritation	Rabbit	500 mg	4 hours	Mild skin irritant	ECHA (The European Chemicals Agency)

Product Serious Eye Damage/Eye Irritation Data
No data available.

Ingredient Eye Damage/Eye Irritation Data
If available, see data below

Chemical name	Test method	Species	Reported dose	Exposure time	Results	Key literature references and sources for data
Hydrochloric acid (<1%) CAS#: 7647-01-0	Existing human experience	Human	None reported	None reported	Corrosive to eyes	No information available
Iron chloride (FeCl2) (<0.1%) CAS#: 7758-94-3	Organization for Economic Co-operation and Development (OECD) - Test 405: Acute Eye Corrosion/Irritation	Rabbit	100 mg	None reported	Corrosive to eyes	ECHA (The European Chemicals Agency)

Sensitization Information

Product Sensitization Data

Skin Sensitization Exposure Route No data available.
Respiratory Sensitization Exposure Route No data available.

Ingredient Sensitization Data

Skin Sensitization Exposure Route If available, see data below.

Chemical name	Test method	Species	Results	Key literature references and sources for data
Iron chloride (FeCl2) (<0.1%) CAS#: 7758-94-3	Local Lymph Node Assay	Mouse	Not confirmed to be a skin sensitizer	No information available

Respiratory Sensitization Exposure Route If available, see data below.

Chronic Toxicity Information

Product Specific Target Organ Toxicity Repeat Dose Data

Oral Exposure Route No data available.
Dermal Exposure Route No data available.
Inhalation (Dust/Mist) Exposure Route No data available.
Inhalation (Vapor) Exposure Route No data available.
Inhalation (Gas) Exposure Route No data available.

Ingredient Specific Target Organ Toxicity Repeat Exposure Data

Oral Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Iron chloride (FeCl2) (<0.1%) CAS#: 7758-94-3	Rat TD_{Lo}	6604 mg/kg	30 days	**Biochemical** Enzyme inhibition, induction, or change in blood or tissue levels (phosphatases) **Blood** Changes in serum composition (e.g. TP, bilirubin, cholesterol) **Liver** Other changes	RTECS (Registry of Toxic Effects of Chemical Substances)

Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Iron chloride (FeCl2) (<0.1%) CAS#: 7758-94-3	Rat TC_{Lo}	0.0002 mg/L	65 days	**Biochemical** Other degenerative changes **Blood** Changes in serum composition (e.g. TP, bilirubin, cholesterol) **Brain and Coverings**	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Vapor) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrochloric acid (<1%) CAS#: 7647-01-0	Rat TC_{Lo}	0.000685 mg/L	84 days	**Behavioral** Muscle contraction or spasticity **Biochemical** Enzyme inhibition, induction, or change in blood or tissue levels (true cholinesterase) **Kidney, Ureter, or Bladder** Other changes in urine composition	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Gas) Exposure Route If available, see data below

Product Carcinogenicity Data

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available
Inhalation (Gas) Exposure Route	No data available

Ingredient Carcinogenicity Data

Chemical name	CAS No.	ACGIH	IARC	NTP	OSHA
Hydrochloric acid	7647-01-0	-	Group 3	-	X
Iron chloride (FeCl2)	7758-94-3	-	-	-	-

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)	Does not apply
IARC (International Agency for Research on Cancer)	Group 3 - Not classifiable as a human carcinogen
NTP (National Toxicology Program)	Does not apply
OSHA (Occupational Safety and Health Administration of the US Department of Labor)	X - Present

Oral Exposure Route	If available, see data below
Dermal Exposure Route	If available, see data below
Inhalation (Dust/Mist) Exposure Route	If available, see data below
Inhalation (Vapor) Exposure Route	If available, see data below
Inhalation (Gas) Exposure Route	If available, see data below

Product Germ Cell Mutagenicity *invitro* **Data**

No data available.

Ingredient Germ Cell Mutagenicity *invitro* **Data**

If available, see data below

Chemical name	Test	Cell Strain	Reported dose	Exposure time	Results	Key literature references and sources for data
Hydrochloric acid (<1%) CAS#: 7647-01-0	Cytogenetic analysis	Hamster lung	30 mmol/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Iron chloride (FeCl2) (<0.1%) CAS#: 7758-94-3	Morphological transformation	Hamster embryo	2.5 mmol/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Chemical name	**Test**	**Cell Strain**	**Reported dose**	**Exposure time**	**Results**	**Key literature references and sources for data**
Hydrochloric acid (<1%) CAS#: 7647-01-0	Cytogenetic analysis	Hamster ovary	8 mmol/L	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)
Iron chloride (FeCl2) (<0.1%) CAS#: 7758-94-3	Phage inhibition capacity	Escherichia coli	50 ng/well	None reported	Positive test result for mutagenicity	RTECS (Registry of Toxic Effects of Chemical Substances)

Product Germ Cell Mutagenicity *invivo* **Data**

Oral Exposure Route	No data available
Dermal Exposure Route	No data available
Inhalation (Dust/Mist) Exposure Route	No data available
Inhalation (Vapor) Exposure Route	No data available

Inhalation (Gas) Exposure Route No data available

Ingredient Germ Cell Mutagenicity *invivo* Data
Oral Exposure Route If available, see data below
Dermal Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below
Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

Product Reproductive Toxicity Data
Oral Exposure Route No data available
Dermal Exposure Route No data available
Inhalation (Dust/Mist) Exposure Route No data available
Inhalation (Vapor) Exposure Route No data available
Inhalation (Gas) Exposure Route No data available

Ingredient Reproductive Toxicity Data
Oral Exposure Route If available, see data below
Inhalation (Dust/Mist) Exposure Route If available, see data below

Chemical name	Endpoint type	Reported dose	Exposure time	Toxicological effects	Key literature references and sources for data
Hydrochloric acid (<1%) CAS#: 7647-01-0	Rat TC_{Lo}	0.450 mg/L	1 hours	**Effects on Embryo or Fetus** Fetotoxicity (except death e.g. stunted fetus) **Specific Developmental Abnormalities** Homeostasis	RTECS (Registry of Toxic Effects of Chemical Substances)

Inhalation (Vapor) Exposure Route If available, see data below
Inhalation (Gas) Exposure Route If available, see data below

12. ECOLOGICAL INFORMATION

Ecotoxicity

Product Ecological Data
Aquatic toxicity

Fish No data available
Crustacea No data available
Algae No data available

Ingredient Ecological Data

Aquatic toxicity

Fish If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Iron chloride ($FeCl_2$) (<0.1%) CAS#: 7758-94-3	None reported	None reported	None reported	None reported	OECD (Organization for Economic Co-operation and Development)

Crustacea If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Iron chloride ($FeCl_2$) (<0.1%) CAS#: 7758-94-3	48 Hours	*Daphnia magna*	EC_{50}	19 mg/L	OECD (Organization for Economic Co-operation and Development)

Algae If available, see ingredient data below

Chemical name	Exposure time	Species	Endpoint type	Reported dose	Key literature references and sources for data
Iron chloride ($FeCl_2$)	72 Hours	*Selenastrum capricornutum*	EC_{50}	6.9 mg/L	OECD (Organization for

(<0.1%) CAS#: 7758-94-3					Economic Co-operation and Development)

Other Information

Persistence and degradability

Product Biodegradability Data
No data available.

Ingredient Biodegradability Data

Chemical name	Test method	Biodegradation	Exposure time	Results
Hydrochloric acid (<1%) CAS#: 7647-01-0	None reported	None reported	None reported	Readily biodegradable

Bioaccumulation

Product Bioaccumulation Data
No data available.

Partition Coefficient (n-octanol/water) Not applicable

Ingredient Bioaccumulation Data

Mobility

Soil Organic Carbon-Water Partition Coefficient Not applicable

Water solubility

Water solubility classification	Water solubility	Water Solubility Temperature
Soluble	> 1000 mg/L	25 °C / 77 °F

Other adverse effects
No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging Do not reuse empty containers.

14. TRANSPORT INFORMATION

Transport Canada Not regulated

TDG Not regulated

IATA Not regulated

IMDG Not regulated

Note: No special precautions necessary.

Additional information
There is a possibility that this product could be contained in a reagent set or kit composed of various compatible dangerous goods. If the item is not in a reagent set or kit, the classification given above applies.
If the item is part of a reagent set or kit the classification would change to the following:
UN3316 Chemical Kit, Hazard Class 9, Packing Group II or III.
If the item is not regulated, the Chemical Kit classification does not apply.

15. REGULATORY INFORMATION

Regulatory information

National Inventories

DSL/NDSL	Complies

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

International Inventories

TSCA	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies
TCSI	Complies
AICS	Complies
NZIoC	Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
ENCS - Japan Existing and New Chemical Substances
IECSC - China Inventory of Existing Chemical Substances
KECL - Korean Existing and Evaluated Chemical Substances
PICCS - Philippines Inventory of Chemicals and Chemical Substances
TCSI - Taiwan Chemical Substances Inventory
AICS - Australian Inventory of Chemical Substances
NZIoC - New Zealand Inventory of Chemicals

Canada - CEPA - Mercury Containing Products
None

International Regulations

Ozone-depleting substances (ODS) Not applicable

Persistent Organic Pollutants Not applicable

Export Notification requirements Not applicable

16. OTHER INFORMATION, INCLUDING DATE OF PREPARATION OF THE LAST REVISION

Special Comments
None

NFPA and HMIS Classifications

NFPA	Health hazards - 3	Flammability - 0	Instability - 0	Physical and Chemical Properties -
HMIS	**Health hazards** - 3	**Flammability** - 0	**Physical Hazards** - 0	**Personal protection** - X - See section 8 for more information

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

NIOSH IDLH	*Immediately Dangerous to Life or Health*
ACGIH	ACGIH (American Conference of Governmental Industrial Hygienists)
NDF	*no data*

Legend - Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TWA	TWA (time-weighted average)	STEL	STEL (Short Term Exposure Limit)
MAC	Maximum Allowable Concentration	Ceiling	Ceiling Limit Value
X	Listed	Vacated	These values have no official status. The only binding levels of contaminants are those listed in the final OSHA PEL. These lists are for reference purposes only. Please note that some reference state regulations of these "liberated" exposure limits in their state regulations.
SKN*	Skin designation	SKN+	Skin sensitization
RSP+	Respiratory sensitization	**	Hazard Designation
C	Carcinogen	R	Reproductive toxicant
M	mutagen		

Prepared By Hach Product Compliance Department

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Revision Note
None

Disclaimer

USER RESPONSIBILITY: Each user should read and understand this information and incorporate it in individual site safety programs in accordance with applicable hazard communication standards and regulations.

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End of Safety Data Sheet