

SAFETY DATA SHEET

Preparation Date: 10/16/2013

Revision Date: 8/2/2018

Revision Number: G5

1. IDENTIFICATION

Product identifier

Product code: HY106
Product Name: HYDROCHLORIC ACID, 37 PERCENT, FCC

Other means of identification

Synonyms: Muriatic Acid;
 Chlorohydric acid;
 Spirits of salt
 Acide chlorhydrique (French)

CAS #: 7647--01-0
RTECS # MW4025000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: In the production of chloride; refining ore in the production of tin and tantalum; for the neutralization of basic systems; as a laboratory reagent; as a catalyst and solvent in organic synthesis; for oil and gas-well treatment; in removing scale from boilers and heat exchange equipment; pharmaceutical aid (acidifier); in the manufacture of phosphoric acid and in the production of ammonium chloride; metal treating agent (steel pickling); in food processing as a starch modifier; in the manufacturer of sodium glutamate; in the manufacturer of gelatin; in the conversion of cornstarch to syrup; in the brewing industry; in sugar refining; in the manufacture of fertilizers, dyes and dyestuffs, artificial silks, pigments for paints; in electroplating, leather tanning, the photographic industry, in soap refining, in the textile industry, in the rubber industry; in petroleum activation; metal cleaning operations; recovery of zinc from galvanized iron scrap.

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: Martin LaBenz (West Coast)

Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

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

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


| | |
|-----------------------|------------|
| Acute toxicity - Oral | Category 4 |
|-----------------------|------------|

| | |
|--|---------------------------|
| Acute toxicity - Inhalation (Gases) | Category 4 |
| Skin corrosion/irritation | Category 1 Sub-category A |
| Serious eye damage/eye irritation | Category 1 |
| Specific target organ toxicity (single exposure) | Category 3 |
| Corrosive to metals | Category 1 |

Label elements

Danger

Hazard statements
Harmful if swallowed
Harmful if inhaled
Causes severe skin burns and eye damage
May cause respiratory irritation
May be corrosive to metals



Hazards not otherwise classified (HNOC)

Not Applicable

Other hazards

Not available

Precautionary Statements - Prevention

Wash face, hands and any exposed skin thoroughly after handling
Do not eat, drink or smoke when using this product
Use only outdoors or in a well-ventilated area
Do not breathe dust/fume/gas/mist/vapors/spray
Wear protective gloves/protective clothing/eye protection/face protection
Keep only in original container

Precautionary Statements - Response

Immediately call a POISON CENTER or doctor/physician
Absorb spillage to prevent material damage
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. Call a POISON CENTER or doctor/physician if you feel unwell. Immediately call a POISON CENTER or doctor/physician.
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Rinse mouth
Do NOT induce vomiting

Precautionary Statements - Storage

Store locked up

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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

| Components | CAS-No. | Weight % |
|-------------------|-----------|----------|
| Water | 7732-18-5 | 62-64 |
| Hydrogen chloride | 7647-01-0 | 36-38 |

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. Continue flushing with plenty of water for at least 15 minutes. Remove all contaminated clothes and shoes. Immediate medical attention is required. Call a physician 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 breathing is difficult, give oxygen. If not breathing, give artificial respiration. **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. Immediate medical attention is required. Call a physician immediately.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. If victim is conscious, give water or milk. Do not give Sodium Bicarbonate (Baking Soda). 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
- Irritating to respiratory system
- Burning sensation of the respiratory tract
- Coughing
- Hoarseness of the voice
- Choking sensation
- Dyspnea (Shortness of breath and difficulty breathing)
- Shallow respiration
- Can burn mouth, throat, and stomach
- May cause abdominal pain, nausea, vomiting, diarrhea
- May cause perforation of the digestive tract
- May cause salivation
- Thirst
- May cause difficulty swallowing
- Discoloration and excessive decay of teeth
- Weak, rapid pulse or rapid heart rate (Tachycardia)
- Shock
- It may affect the kidneys

May cause chemical burns to the respiratory tract
May cause inflammation of the lungs (pneumonitis)
May cause inflammation and edema of the larynx and bronchi

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:

Contact with metals may evolve flammable hydrogen gas. Calcium carbide reacts with hydrogen chloride gas with incandescence. Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine. Rubidium acetylene carbide burns with slightly warm Hydrochloric acid. Lithium silicide in contact with hydrogen chloride becomes incandescent. When dilute hydrochloric acid is used, gas that is spontaneously flammable in air is evolved. Magnesium boride treated with concentrated hydrochloric acid produces spontaneously flammable gas. Cesium acetylene carbide burns in hydrogen chloride gas. Cesium carbide ignites in contact with Hydrochloric acid unless acid is dilute. Hydrogen chloride in contact with the following can cause an explosion or ignition on contact, or other violent/vigorous reaction: Acetic anhydride AgClO + CCl4 Alcohols + hydrogen cyanide, Aluminum Aluminum-titanium alloys (with HCl vapor), 2-Amino ethanol, Ammonium hydroxide, Calcium carbide Ca3P2 Chlorine + dinitroanilines (evolves gas), Chlorosulfonic acid Cesium carbide Cesium acetylene carbide, 1,1-Difluoroethylene Ethylenediamine, Ethyleneimine, Fluorine, HClO4 Hexalithium disilicide H2SO4 Metal acetylides or carbides, Magnesium boride, Mercuric sulfate, Oleum, Potassium permanganate, beta-Propiolactone Propylene oxide Rubidium carbide, Rubidium, acetylene carbide Sodium (with aqueous HCl), Sodium hydroxide Sodium tetraselenium, Sulfonic acid, Tetraselenium tetranitride, U3P4, Vinyl acetate. Silver perchlorate with carbon tetrachloride in the presence of hydrochloric acid produces trichloromethyl perchlorate which detonates at 40 deg. C.

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

Environmental precautions Prevent further leakage or spillage if safe to do so. Should not be released into the environment. Do not let product enter drains. Do not flush into surface water or sanitary sewer system. 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.

Methods for cleaning up Neutralize with Sodium carbonate or Sodium bicarbonate. Dilute with water. Absorb spill with inert material (e.g. vermiculite, dry sand or earth), then place in a suitable chemical waste container. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:

Use only in area provided with appropriate exhaust ventilation. Keep away from incompatible materials.

Safe Handling Advice

Wear personal protective equipment. Avoid contact with skin, eyes and clothing. 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 in a dry and well-ventilated place. Store at room temperature in the original container. May corrode metallic surfaces. Do not store in uncoated metallic containers. Store in a segregated and approved area. Store away from incompatible materials.

Incompatible Materials:

- Oxidizing agents
- Metals
- Alkalis
- Organic materials
- Water

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

| Components | CAS-No. | OSHA | NIOSH | ACGIH | AIHA WEEL |
|-------------------|-----------|--|--|---------------|-----------|
| Water | 7732-18-5 | None | None | None | None |
| Hydrogen chloride | 7647-01-0 | 5 ppm Ceiling 7 mg/m ³ Ceiling | 5 ppm Ceiling 7 mg/m ³ Ceiling | 2 ppm Ceiling | None |

Canada

| Components | CAS-No. | Canada - Alberta | Canada - British Columbia | Canada - Ontario | Canada - Quebec |
|-------------------|-----------|--|---------------------------|------------------|--|
| Water | 7732-18-5 | None | None | None | None |
| Hydrogen chloride | 7647-01-0 | 2 ppm Ceiling 3 mg/m ³ Ceiling | 2 ppm Ceiling | 2 ppm Ceiling | 5 ppm Ceiling 7.5 mg/m ³ Ceiling |

Australia and Mexico

| Components | CAS-No. | Australia | Mexico |
|-------------------|-----------|-----------|--|
| Water | 7732-18-5 | None | None |
| Hydrogen chloride | 7647-01-0 | None | 5 ppm Ceiling 7 mg/m ³ Ceiling |

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:** Face-shield and Goggles
- Skin and body protection:** Chemical resistant protective suit
Gloves
Boots
- Respiratory protection:** Vapor respirator. Be sure to use an approved/certified respirator or equivalent.
- Hygiene measures:** Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

- Physical state:** Liquid
- Appearance:** No information available.
- Color:** Colorless. Light yellow.
- Odor:** Pungent. Irritating.
- Taste:** No information available.
- Formula:** HCl
- Molecular/Formula weight (g/mole):** No information available
- Flammability:** No information 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):

-62.25°C (-80°F) (20.69% HCl in water)
-46.2 C (31.24% HCl in water)
-25.4 C (39.17% HCl in water)

Decomposition temperature(°C/°F):

No information available

Boiling point/range(°C/°F):

108.58 C @ 760 mm Hg (for 20.22% HCl in water)
83 C @ 760 mm Hg (for 31% HCl in water)
50.5 C (for 37% HCl in water)

Bulk density:

No information available

Density (g/cm3):

No information available

Specific gravity:

1.1- 1.19 (Water = 1)
1.10 (20%and 22% HCl solutions)
1.12 (24% HCl solution)
1.15 (29.57% HCl solution)
1.16 (32% HCl solution)
1.186 - 1.19 (37% and 38%HCl solutions)

pH:

No information available

Vapor pressure @ 20°C (kPa):

No information available

Evaporation rate:

No information available

Vapor density:

1.267

VOC content (g/L):

No information available

Odor threshold (ppm):

0.25 to 10 ppm

Partition coefficient (n-octanol/water):

No information available

Viscosity:

No information available

Miscibility:

No information available

Solubility:

Soluble in Ether
Soluble in Water

10. STABILITY AND REACTIVITY

Reactivity

For Hydrogen chloride or concentrated Hydrochloric Acid:

Reacts with most metals to produce flammable Hydrogen gas.

Sodium reacts very violently with gaseous hydrogen chloride.

Calcium phosphide and Hydrochloric acid undergo a very energetic reaction.

Hydrogen chloride reacts with oxidizers releasing chlorine gas.

Hydrogen chloride gas is emitted when Hydrochloric acid comes in contact with Sulfuric acid.

Adsorption of Hydrochloric acid onto Silicon dioxide results in exothermic reaction.

Hydrogen chloride causes aldehydes and epoxides to violently polymerize.

Reacts violently with bases, oxidizers forming toxic chlorine gas.

Reacts, often violently or vigorously or exothermically, with acetic anhydride, active metals, aliphatic amines, alkanolamines, alkylene oxides, aromatic amines, amides, 2-aminoethanol, ammonia, ammonium hydroxide, calcium phosphide, chlorosulfonic acid, ethylene diamine, ethyleneimine, epichlorohydrin, isocyanates, metal acetylides, oleum, organic anhydrides, perchloric acid, 3-propiolactone, uranium phosphide, sulfuric acid, vinyl acetate, vinylidene fluoride, alcohols + hydrogen cyanide, Aluminum phosphide, Aluminum-titanium alloys, 2-Amino ethanol, Ammonium hydroxide, Ammonium, 1,4-Benzoquinone diimine, Cesium telluroacylated, Chlorine + dinitroanilines, Chloroacetaldehyde oxime, Cyanogen chloride, 1,1-Difluoroethylene, dinitroanilines, Ethylene, Ethyl 2-formylpropionate oxime, Hexalithium disilicide, Hydrogen peroxide, Methyl vinyl ether, Nitric acid + glycerol, Potassium, Potassium permanganate, beta-Propiolactone, Propylene oxide, Rubidium acetylide, Silver chlorite, Sodium 2-allyloxy-6-nitrophenylpyruvate oxime, Sodium hydroxide, Sodium teranitride, 2,4,6-Tri(2-acetylhydrazino)-1,3,5-trinitrobenzene, Sulfonic acid, Cesium cyanotridecahydrodecarborate(2-), Potassium ferricyanide, Vinylidene fluoride, Potassium ferrocyanide, Ammonium hexacyanoferrate (II).

Reaction with oxidizers such as permanganates, chlorates, chlorites, and hypochlorites may produce chlorine or bromine gas.

Reacts vigorously with alkalis and with many organic materials.

Cesium acetylene carbide burns in hydrogen chloride gas.

Lithium silicide in contact with hydrogen chloride becomes incandescent.

Magnesium boride in contact with concentrated hydrochloric acid produces spontaneously flammable gas.

Rubidium acetylene carbide burns with slightly warm hydrochloric acid.

Rubidium carbide ignites in contact with hydrochloric acid unless acid is dilute.

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Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine.
 Calcium carbide reacts with hydrogen chloride gas with incandescence.
 Absorption of gaseous hydrogen chloride on mercuric sulfate becomes violent @ 125 deg C.
 Reaction of silver perchlorate with carbon tetrachloride in presence of small amount of hydrochloric acid produces trichloromethyl perchlorate, which detonates @ 40 deg C.
 Cesium carbide ignites in contact with hydrochloric acid unless acid is dilute.
 Hydrochloric acid in the presence of alcohol and glycols results in dehydration reactions.
 Hydrogen chloride gas can react with formaldehyde to form bis(chloromethyl)ether, a human carcinogen.
 Exothermic reaction with water
 Attacks some plastics, rubber, and coatings.

Chemical stability

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Stable at normal conditions.

Incompatible Materials: Oxidizing agents
 Metals
 Alkalis
 Organic materials
 Water

Hazardous decomposition products: Hydrogen chloride gas. Hydrogen. Hydrogen, by reaction with metals.

Other Information

Corrosivity: Severe corrosive effect on 304 Stainless Steel
 Severe corrosive effect on 316 Stainless Steel
 Severe corrosive effect on Copper and copper alloys
 Severe corrosive effect on Bronze
 Severe corrosive effect on Brass

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
 Skin. Inhalation. Ingestion.

Acute Toxicity

The following values are calculated based on chapter 3.1 of the GHS document

ATEmix (inhalation-gas) 4115-7810 ppm; (4-hr)

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 LC50information = No information available

| | |
|-------------------|-----------|
| Hydrogen chloride | |
| CAS-No. | 7647-01-0 |

LD50/oral/rat = 238 - 277 mg/kg Oral LD50 Rat
700 mg/kg (test substance: 31.5% hydrochloric acid solution)
LD50/oral/mouse = No information available
LD50/dermal/rabbit = >5010 mg/kg (Test substance: 31.5% hydrochloric acid solution - from European Chemicals Bureau IUCLID dataset)
LD50/dermal/rat = No information available
LC50/inhalation/rat = 3124 ppm Inhalation LC50 Rat 1 h
1562 ppm 4 h
1.68 mg/L Inhalation LC50 Rat 1h
LC50/inhalation/mouse = 1108 ppm 1 h
Other LD50 or LC50information = 900 mg/kg oral LD50 Rabbit (no information on test substance)

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = 700 mg/kg

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

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = > 5010 mg/kg

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

Skin Contact: Causes severe irritation and burns.

Eye Contact: Causes severe irritation and burns.

Inhalation Harmful by inhalation. Hydrochloric acid is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Inhalation of hydrochloric acid fumes produces nose, throat, and laryngeal irritation, and burning, pain and inflammation, coughing, sneezing, choking sensation, hoarseness, laryngeal spasms, upper respiratory tract edema, chest pains, as well as headache, and palpitations. Inhalation of high concentrations can result in corrosive burns, necrosis of bronchial epithelium, constriction of the larynx and bronchi, nasoseptal perforation, glottal closure, dyspnea, bronchitis. Chemical pneumonitis and pulmonary edema can also occur, particularly if exposure is prolonged. May affect the liver.

Ingestion Harmful if swallowed. Causes irritation and burning, ulceration, or perforation of

the gastrointestinal tract and resultant peritonitis, gastric hemorrhage and infection. Can also cause nausea, vomiting (with "coffee ground" emesis), diarrhea, thirst, difficulty swallowing, salivation, chills, fever, uneasiness, shock, strictures and stenosis (esophageal, gastric, pyloric). May affect behavior (excitement), the cardiovascular system (weak rapid pulse, tachycardia), respiration (shallow respiration), and urinary system (kidneys- renal failure, nephritis). Acute ingestion can also cause erosion of tooth enamel.

Aspiration hazard No information available.

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

Chronic Toxicity Prolonged or repeated inhalation and/or ingestion may affect liver, and cause bleeding of nose and gums, nasal and oral mucosal ulceration, conjunctivitis. It may also affect respiratory tract (changes in pulmonary function, chronic bronchitis, overt respiratory tract abnormalities), teeth (yellowing of teeth and erosion of tooth enamel), kidneys, and behavior/central nervous system (muscle contraction or spasticity). Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated eye contact with vapor/mist can cause conjunctivitis.

Sensitization: No information available.

Mutagenic Effects: Animal experiments showed mutagenic effects
Cytogenetic Analysis - chromosome aberration test (Chinese Hamster ovary):
Genotoxic effects were observed

Carcinogenic effects: Not considered carcinogenic.

| Components | 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 |
| Hydrogen chloride | 7647-01-0 | Group 3 - Not classifiable - Monograph 54 [1992] | A4 Not Classifiable as a Human Carcinogen | 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 on developmental toxicity effects on humans was found
An increase in postnatal mortality was seen in experiments where rats were exposed to Hydrogen Chloride for 1 hour

Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available.
STOT - repeated exposure No information available.
Target Organs: Skin. Eyes. Respiratory system.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: Aquatic environment.

Hydrogen chloride - 7647-01-0

Freshwater Fish Species Data: 282 mg/L LC50 *Gambusia affinis* 96 h
862 mg/L LC50 *Leuciscus idus*

Water Flea Data: <56 mg/L LC50 *Daphnia magna* 72h

Persistence and degradability: No information available

Bioaccumulative potential: No information available.

Mobility: 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

| Components | 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 |
| Hydrogen chloride | 7647-01-0 | None | None | None | None |

14. TRANSPORT INFORMATION

DOT

UN-No: UN1789
Proper Shipping Name: Hydrochloric acid
Hazard Class: 8
Subsidiary Class: No information available
Packing group: II
Emergency Response Guide Number: 157
Marine Pollutant: Severe Marine Pollutant
DOT RQ (lbs): No information available
Special Provisions: A3, A6, B3, B15, IB2, N41, T8, TP2
Symbol(s): [DOT]: (R5) - Identifies a material that is a hazardous substance that has a reportable quantity (RQ) of 5000 pounds (2270 Kilograms).
Description: UN1789, Hydrochloric acid solution, 8, II

TDG (Canada)

UN-No: UN1789
Proper Shipping Name: Hydrochloric acid
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant: No Information available

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Description: UN1789, Hydrochloric acid solution, 8, II

ADR

UN-No: UN1789
Proper Shipping Name: Hydrochloric acid
Hazard Class: 8
Packing Group: II
Subsidiary Risk: No information available

Special Provisions

Description: UN1789, Hydrochloric acid solution, 8, II

IMO / IMDG

UN-No: UN1789
Proper Shipping Name: Hydrochloric acid
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Marine Pollutant No information available
EMS: F-A
Description UN1789, Hydrochloric acid solution, 8, II

RID

UN-No: UN1789
Proper Shipping Name: Hydrochloric acid
Hazard Class: 8
Subsidiary Risk: 8
Packing Group: II
Special Provisions 520
Description: UN1789, Hydrochloric acid solution, 8, II

ICAO

UN-No: UN1789
Proper Shipping Name: Hydrochloric acid
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
Description: UN1789, Hydrochloric acid solution, 8, II
Special Provisions A3

IATA

UN-No: UN1789
Proper Shipping Name: Hydrochloric acid
Hazard Class: 8
Subsidiary Risk: No information available
Packing Group: II
ERG Code: 8L
Special Provisions No information available
Description: UN1789, Hydrochloric acid solution, 8, II

15. REGULATORY INFORMATION

International Inventories

| Components | CAS-No. | U.S. TSCA | KOREA KECL | Philippines (PICCS) | Japan ENCS | CHINA | Australia (AICS) | EINECS-No. |
|-------------------|-----------|-----------------|------------------|---------------------|-----------------|---------|------------------|-------------------|
| Water | 7732-18-5 | Present(ACTIVE) | Present KE-35400 | Present | Not present | Present | Present | Present 231-791-2 |
| Hydrogen chloride | 7647-01-0 | PresentACTIVE | Present KE-20189 | Present | Present (1)-215 | Present | Present | Present 231-595-7 |

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U.S. Regulations

Hydrogen chloride

Massachusetts RTK: Present

Massachusetts EHS: extraordinarily hazardous

New Jersey RTK Hazardous Substance List: 1012

New Jersey (EHS) List: 1012 500 lb TPQ

2909 500 lb TPQ

New Jersey - Discharge Prevention - List of Hazardous Substances: Present

New Jersey TCPA - EHS: 15000lbTQ

5000lbTQ

5600lbTQ

2000lbTQ

Pennsylvania RTK: Environmental hazard

Pennsylvania RTK - Environmental Hazard List Present

Michigan PSM HHC: = 5000 lb TQ

Minnesota - Hazardous Substance List: Present

New York Release Reporting - List of Hazardous Substances:

5000 lb RQ

100 lb RQ

Louisiana Reportable Quantity List for Pollutants: 5000lbfinal RQAs listed in 40 CFR 117.3 Table 117.3 and 40 CFR 302.4 Table 302.4

2270kgfinal RQAs listed in 40 CFR 117.3 Table 117.3 and 40 CFR 302.4 Table 302.4

5000lbRQAs listed in Louisiana Administrative Code, Title 33, Part 1, Subpart 2, Chapter 39, Subchapter E. Applies to unauthorized emissions based on total mass emitted into or onto all media within any consecutive 24-hour period

1000lbRQAs listed in Louisiana Administrative Code, Title 33, Part 1, Subpart 2, Chapter 39, Subchapter E. Applies to unauthorized emissions based on total mass emitted into the atmosphere

California Directors List of Hazardous Substances: Present

FDA - Food Additives Generally Recognized as Safe (GRAS): 21 CFR 182.1057

FDA - 21 CFR - Total Food Additives 133.129, 155.191, 155.194, 160.105, 160.185, 172.560, 172.892, 182.1057

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)

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)

| Components | CAS-No. | Carcinogen | Developmental Toxicity | Male Reproductive Toxicity | Female Reproductive Toxicity: |
|-------------------|-----------|------------|------------------------|----------------------------|-------------------------------|
| Water | 7732-18-5 | Not Listed | Not Listed | Not Listed | Not Listed |
| Hydrogen chloride | 7647-01-0 | Not Listed | Not Listed | Not Listed | Not Listed |

CERCLA/SARA

| Components | 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 |
| Hydrogen chloride | 7647-01-0 | 5000 lb final RQ 2270 kg final RQ | 5000 lb EPCRA RQ | None | None | 1.0 % de minimis concentration |

U.S. TSCA

| Components | 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 |
| Hydrogen chloride | 7647-01-0 | Not Applicable | Not Applicable |

Canada

WHMIS 2015 - GHS Classifications

WHMIS 2015 Hazard Classification Information:

Component
Water
7732-18-5 (62-64)
Hydrogen chloride
7647-01-0 (36-38)

WHMIS 2015 Hazard Classification
Not a dangerous product according to HPR classification criteria

Hydrogen Chloride: Gases under pressure - Liquefied gas: H280 Contains gas under pressure, may explode when heated.; Corrosive to Metals - Category 1: H290 May be corrosive to metals. (potentially corrosive to metals; the supplier should be contacted for more information); Acute toxicity - Inhalation - Category 3: H331 Toxic if inhaled.; 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.
Hydrochloric Acid: Corrosive to Metals - Category 1: H290 May be corrosive to metals. (potentially corrosive to metals; the supplier should be contacted for more information); Acute toxicity - Oral - Category 4: H302 Harmful if swallowed. (3.6% in aqueous solution); Acute toxicity - Inhalation - Category 2: H330 Fatal if inhaled.; 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.; Skin corrosion/irritation - Category 2: H315 Causes skin irritation. (3.6% in aqueous solution); Serious Eye Damage/Eye Irritation - Category 1: H318 Causes serious eye damage.; Serious Eye Damage/Eye Irritation - Category 2: H319 Causes serious eye irritation. (3.6% in aqueous solution)

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

WHMIS 1988 Hazard Class

D1A Very toxic materials
D1B Toxic materials
E Corrosive material

Components

Water

Hydrogen chloride

WHMIS 1988
Uncontrolled product according to WHMIS classification criteria
A,D1A,E
D1A,E
E 0.036% in aqueous solution, 0.36% in aqueous solution, 3.6% in aqueous solution
D1B,E 28% in aqueous solution
D1A,E 31.45% in aqueous solution, 35.2% in aqueous solution

Canada Controlled Products Regulation:

This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

| Components | WHMIS Ingredient Disclosure List - |
|-------------------|------------------------------------|
| Hydrogen chloride | 1 % |

Inventory

| Components | CAS-No. | Canada (DSL) | Canada (NDSL) |
|-------------------|-----------|--------------|---------------|
| Water | 7732-18-5 | Present | Not Listed |
| Hydrogen chloride | 7647-01-0 | Present | Not Listed |

| Components | CAS-No. | CEPA Schedule I - Toxic Substances |
|------------|-----------|------------------------------------|
| Water | 7732-18-5 | Not listed |

| | | |
|-------------------|-----------|---|
| Hydrogen chloride | 7647-01-0 | Not listed |
| Components | CAS-No. | CEPA - 2010 Greenhouse Gases Subject to Mandatory Reporting |
| Water | 7732-18-5 | Not listed |
| Hydrogen chloride | 7647-01-0 | Not listed |

EU Classification

EU GHS - SV - CLP 1272/2008

| Components | CAS-No. | EU GHS - SV - CLP (1272/2008) |
|-------------------|-----------|--|
| Water | 7732-18-5 | |
| Hydrogen chloride | 7647-01-0 | <p>Hydrogen Chloride: Gases under pressure: H280 Contains gas under pressure, may explode when heated.; Acute toxicity - Inhalation - Acute Tox. 3: H331 Toxic if inhaled. (Minimum classification); Skin corrosion/irritation - Skin Corr. 1A: H314 Causes severe skin burns and eye damage.017-002-00-2</p> <p>Hydrochloric Acid: Skin corrosion/irritation - Skin Corr. 1B: H314 Causes severe skin burns and eye damage. (C >= 25 %); Specific target organ toxicity - Single exposure - STOT SE 3: H335 May cause respiratory irritation. (C >= 10 %)017-002-01-X</p> <p>Skin corrosion/irritation - Skin Corr. 1B: H314 Causes severe skin burns and eye damage. (C >= 25 %); Skin corrosion/irritation - Skin Irrit. 2: H315 Causes skin irritation. (10 % <= C <25 %); Serious Eye Damage/Eye Irritation - Eye Irrit. 2: H319 Causes serious eye irritation. (10 % <= C <25 %); Specific target organ toxicity - Single exposure - STOT SE 3: H335 May cause respiratory irritation. (C >= 10 %)017-002-01-X</p> |

EU - CLP (1272/2008)

R-phrase(s)

R34 - Causes burns.

R37 - Irritating to respiratory system.

S -phrase(s)

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

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

S 1/2 - Keep locked up and out of the reach of children.

| Components | CAS-No. | Classification | Concentration Limits: | Safety Phrases |
|-------------------|-----------|--|--|--|
| Water | 7732-18-5 | | No information | |
| Hydrogen chloride | 7647-01-0 | Hydrogen Chloride T; R23 C; R35 Hydrochloric Acid: + hydrochloric acid ...% | Hydrogen Chloride: 0.02%<=C<0.2% Xi;R36/37/38 0.2%<=C<0.5% C;R34 0.5%<=C<1% | For Hydrogen Chloride: S1/2 S9 S26 S36/37/39 S45 Hydrochloric Acid: S(1/2)-S26-S45 |

| | | | | |
|--|--|---|---|--|
| | | C; R34 - Xi; R37 Concentration Limit(s): C >= 25 % C; R34-37 10 % <= C < 25 % Xi; R36/37/38 | C;R20-34 1%<=C<5% C;R20-35 5%<=C T;C;R23-35 | |
|--|--|---|---|--|

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

Indication of danger:

C - Corrosive.

Xi - Irritant.



16. OTHER INFORMATION

Preparation Date: 10/16/2013
Revision Date: 8/2/2018
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