

Product Name:	Hydrochloric acid
CAS#:	Mixture.
TSCA: TSCA 8(b) inventory:	Hydrochloric acid
CI#:	Not applicable.
Synonym:	Hydrochloric Acid;
Chemical Name:	Hydrogen Chloride
Chemical Formula:	HCl

1. Product and Company Identification

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Product Name	RXSOL-19-1107-210
Product Type	HYDROCHLORIC ACID

Company Details:

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2. Composition / Information on ingredients

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Chemica Name	CAS #	% by weight
Hydrogenchloride	7647-01-0	32-38
Water	7732-18-5	68-62

Toxicological Data on Ingredients: Hydrogen chloride: GAS (LC50): Acute: 4701 ppm 0.5 hours [Rat].

3. Hazards Identification

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Potential Acute Health Effects

Very hazardous in case of skin contact (corrosive, irritant, permeate (irritant, corrosive), of ingestion, . Slightly hazardous in case of sensitization (sensitizer). Non-corrosive for lungs. Liquid or spray mist may produce irritation, particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of the respiratory tract, characterized by coughing, choking, or shortness of breath. Over-exposure can result in death. Inflammation of the eye is characterized by watering, and itching. Skin inflammation is characterized by itching, swelling, or, occasionally, blistering.

Potential Chronic Health Effects

Carcinogenic Effects
Mutagenic Effects
Teratogenic Effects
Developmental Toxicity

Slightly hazardous in case of skin contact (sensitizer).
Classified 3 (Not classifiable for human.)by IARC [Hydrochloric acid]
Not available
Not available
Not available

The substance may be toxic to kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation.Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs

4. First Aid Measures

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Eye Contact

Check for and remove any contact lenses. In case of contact, immerse with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

Skin Contact

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly wash before reuse. Get medical attention immediately.

Serious Skin Contact

Wash with a disinfectant soap and cover the contaminated skin with a protective cream. Seek immediate medical attention.

Inhalation

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Serious Inhalation

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If not breathing, perform mouth-to-mouth resuscitation. WARNING: It is dangerous to the person providing aid to give mouth-to-mouth resuscitation if the material is toxic, infectious or corrosive. Seek immediate medical attention.

Ingestion

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion

Not available.

5. Fire-fighting Measures

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Flammability of the Product

Non-flammable.

Auto-Ignition Temperature

Not applicable.

Flash Points

Not applicable.

Flammable Limits

Not applicable.

Products of Combustion

Not available.

Fire Hazards in Presence of Various Substances

of metals

Explosion Hazards in Presence of Various Substances

Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions

Not applicable.

Special Remarks on Fire Hazards

Non combustible. Calcium carbide reacts with hydrogen chloride to produce acetylene and incandescence. Uranium phosphide reacts with hydrochloric acid to produce spontaneously flammable phosphine. Rubidium acetylene carbides burn in warm hydrochloric acid. Lithium silicide in contact with hydrogen chloride becomes incandescent. When dilute hydrochloric acid is used, gas spontaneously ignites in air. Magnesium boride treated with concentrated hydrochloric acid produces spontaneously flammable gas. Cesium acetylene carbide burns in hydrogen. Cesium carbide ignites in contact with hydrochloric acid unless acidified. Cesium reacts with most metals to produce flammable hydrogen gas.

Special Remarks on Explosion Hazards:

Hydrogen chloride in contact with the following can cause an explosion: Acetic anhydride, Acetic acid, contact, or other violent/vigorous reaction: Acetic anhydride, AgClO₄, Aluminum, Aluminum-titanium alloys (with HCl), Ammonium hydroxide, Calcium carbide CaC₂, Chlorine, Ethanol, Potassium permanganate, beta-Propiolactone, Propylene, Sulfuric acid, Tetraselenium, Sulfonic acid, Tetraselenium tetranitride, Urea, Silver perchlorate with carbon tetrachloride in the presence of light produces trichloromethyl perchlorate which detonates at 40 deg. C.

6. Accidental Release Measures

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Small Spill

Dilute with water and mop up, or absorb with an inert dry material and place in appropriate waste disposal container. If necessary: Neutralize the residue with a solution of sodium carbonate.

Large Spill

Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with sand or other non-combustible material. Do not get water inside of container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water to reduce vapors. Prevent entry into sewers, basements or confined areas. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration above the TLV. Check TLV on the MSDS and with local authorities.

7. Handling and Storage

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Precautions

Keep locked up.. Keep container dry. Do not ingest. Do not breathe vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately. Read the container or the label. Avoid contact with skin and eyes. Incompatible with oxidizing agents, organic materials, metals, acids. May corrode metallic surfaces. Store in a metallic or coated fiberboard container with a strong polyethylene inner package.

Storage

Keep container tightly closed. Keep container in a cool, well-ventilated area.

8. Exposure controls and personal protection

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Engineering Controls

Provide exhaust ventilation or other engineering controls to keep the concentrations of vapors below their respective threshold limit value. Eyewash stations and safety showers are proximal to the work-station.

Personal Protection

Face shield. Full suit. Vapor respirator. Be sure to use an approved/compatible respirator or equivalent. Gloves. Boots.

Personal Protection in Case of a Large Spill

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suitable protective clothing might not be sufficient; consult a specialist BEFORE handling.

Exposure Limits

CEIL: 5 (ppm) from OSHA (PEL) [United States] CEIL: 7 (mg/m³) from OSHA (PEL) [United States] CEIL: 5 from NIOSH CEIL: 7 (mg/m³) from NIOSH STEL: 5 (ppm) [United Kingdom (UK)] TWA: 2 STEL: 8 (mg/m³) [United Kingdom (UK)] Consult local authorities for acceptable exposure limits.

9. Physical and chemical properties

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Physical state and appearance

Liquid.

Odor

Pungent. Irritating (Strong.)

Taste

Not available.

Molecular Weight

Not applicable.

Color

Colorless to light yellow.

pH (1% soln/water)

Acidic.

Boiling Point

108.58 C @ 760 mm Hg (for 20.22% HCl in water) 83 C @ 760 mm Hg (for 22.22% HCl in water) 50.5 C (for 37% HCl in water)

Melting Point

-62.25°C (-80°F) (20.69% HCl in water) -46.2 C (31.24% HCl in water) -39.17°C (-32.51°F) (39.17% HCl in water)

Critical Temperature

Not available.

Specific Gravity

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

Vapor Pressure

16 kPa (@ 20°C) average

Vapor Density

1.267 (Air = 1)

Volatility

Not available.

Odor Threshold	0.25 to 10 ppm
Water/Oil Dist. Coeff	Not available.
Ionicity (in Water)	Not available.
Dispersion Properties	See solubility in water, diethyl ether.
Solubility	Soluble in cold water, hot water, diethyl ether.

10. Stability and reactivity

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Stability	The product is stable.
Instability Temperature	Not available.
Conditions of Instability	Incompatible materials, water
Incompatibility with various substances	Highly reactive with metals. Reactive with oxidizing agents, organic water.
Corrosivity	Extremely corrosive in presence of aluminum, of copper, of stainless steel(316). Non-corrosive in presence of glass.
Special Remarks on Reactivity	Reacts with water especially when water is added to the product. Absorbs hydrogen chloride on mercuric sulfate becomes violent @ 125 deg. C. Reacts very violently with gaseous hydrogen chloride. Calcium phosphide reacts with acid undergo very energetic reaction. It reacts with oxidizers releases heat. Incompatible with, alkali metals, carbides, borides, metal oxides, acetylides, sulphides, phosphides, cyanides, carbonates. Reacts with acids to produce flammable Hydrogen gas. Reacts violently (moderate reaction with evolution) with water especially when water is added to the product. Hydrogen chloride from heat, direct sunlight, alkalies (reacts vigorously), organic peroxides, oxidizers (especially nitric acid and chlorates), amines, metals, copper, brass), hydroxides, zinc (galvanized materials), lithium silicide, sulfuric acid(increase in temperature and pressure) Hydrogen chloride is evolved when this product is in contact with sulfuric acid. Adsorption of Hydrogen chloride onto silicon dioxide results in exothermic reaction. Hydrogen chloride reacts with alcohols and epoxides to violently polymerize. Hydrogen chloride or Hydrogen sulfide in contact with the following can cause explosion or ignition on contact with heat. Hydrogen chloride reacts with copper to form copper chloride. Hydrogen chloride reacts with metals (mercury, gold, platinum, tantalum, silver, and certain alloys and alloys of these metals) to form volatile compounds. Hydrogen chloride is one of the most corrosive of the nonoxidizing acids in contact with metals. Corrosivity data on zinc, steel. Severe Corrosive effect on brass and bronze.
Special Remarks on Corrosivity	Highly corrosive. Incompatible with copper and copper alloys. It attacks most metals (mercury, gold, platinum, tantalum, silver, and certain alloys and alloys of these metals) to form volatile compounds. Hydrogen chloride is one of the most corrosive of the nonoxidizing acids in contact with metals. Corrosivity data on zinc, steel. Severe Corrosive effect on brass and bronze.
Polymerization	Will not occur.

11. Toxicological information

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Routes of Entry	Absorbed through skin. Dermal contact. Eye contact. Inhalation.
Toxicity to Animals	Acute oral toxicity (LD50): 900 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 1108 ppm, 1 hours [Mouse]. Acute toxicity of the vapor (LC50): 312 ppm, 1 hours [Rat].
Chronic Effects on Humans	CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for humans) [Hydrochloric acid]. May cause damage to the following organs: kidneys, liver, membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth.
Other Toxic Effects on Humans	Very hazardous in case of skin contact (corrosive, irritant, permeator). Hazardous in case of eye contact (corrosive), of inhalation (lung corrosion).
Special Remarks on Toxicity to Animals	Lowest Published Lethal Doses (LDL/LCL) LDL [Man] -Route: Oral; Dose: 1300 ppm/30M LCL [Rabbit] - Route: Inhalation; Dose: 4413 ppm/30M
Special Remarks on Chronic Effects on Humans	May cause adverse reproductive effects (fetotoxicity). May affect general health.
Special Remarks on other Toxic Effects on Humans	Acute Potential Health Effects: Skin: Corrosive. Causes severe skin irritation/burns. Eyes: Corrosive. Causes severe eye irritation/conjunctivitis. Inhalation: May be fatal if inhaled. Material is extremely dangerous to the mucous membranes and upper respiratory tract. Inhalation of fumes produces nose, throat, and laryngeal burning, and irritation, inflammation, coughing, sneezing, choking sensation, hoarseness,

upper respiratory tract edema, chest pains, as well as headache, dizziness, and nausea. Inhalation of high concentrations can result in corrosive burns, necrosis of the respiratory epithelium, constriction of the larynx and bronchi, nasospetal pressure, and airway closure, occur, particularly if exposure is prolonged. May affect the central nervous system. May be fatal if swallowed. Causes irritation and burning, ulceration, and hemorrhage in the gastrointestinal tract and resultant peritonitis, gastric hemorrhage, and shock. May also cause nausea, vomiting (with "coffee ground" emesis), diarrhea, and difficulty swallowing, salivation, chills, fever, uneasiness, shock, stricture of the esophagus (esophageal, gastric, pyloric). May affect behavior (excitement), the cardiovascular system (weak rapid pulse, tachycardia), respiration (shallow respiration), and the renal system (kidneys- renal failure, nephritis). Acute exposure via inhalation can also cause erosion of tooth enamel. Chronic Potential Health Effects: Chronic bronchitis. Chemical pneumonitis and pulmonary edema can also occur.

12. Ecological information

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Ecotoxicity	Not available.
BOD5 and COD	Not available.
Products of Biodegradation	Possibly hazardous short term degradation products are not likely. However, degradation products may arise.
Toxicity of the Products of Biodegradation	The products of degradation are less toxic than the product itself.
Special Remarks on the Products of Biodegradation	Not available.

13. Disposal considerations

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Waste Disposal	Waste must be disposed of in accordance with federal, state and local control regulations.
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14. Transport information

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DOT Classification	Class 8: Corrosive material
Identification	Hydrochloric acid, solution UNNA: 1789 PG: II
Special Provisions for Transport	Not available.

15. Regulatory information

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Federal and State Regulations	Connecticut hazardous material survey.:
Hydrochloric acid Illinois toxic substances disclosure to employee act	Hydrochloric acid Illinois chemical safety act
Hydrochloric acid New York release reporting list	
Hydrochloric acid Rhode Island RTK hazardous substances	Hydrochloric acid Pennsylvania RTK
Hydrochloric acid Minnesota RTK	Hydrochloric acid Massachusetts
Hydrochloric acid New Jersey	Hydrochloric acid Massachusetts spill list
Hydrochloric acid Louisiana RTK reporting list	Hydrochloric acid New Jersey spill list:
Hydrochloric acid California	Hydrochloric acid Louisiana spill reporting
Hydrochloric acid TSCA 8(b) inventory	Director's List of Hazardous Substances
Hydrochloric acid SARA 302/304/311/312 extremely hazardous substances	Hydrochloric acid TSCA 4(a) proposed testrules
notification and release reporting	Hydrochloric acid SARA 313 toxic chemical
Hazardous substances	Hydrochloric acid CERCLA
Other Regulations	Hydrochloric acid: 5000 lbs. (2268 kg)
OSHA	Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200)
EINECS	This product is on the

Other Classifications

WHMIS (Canada)

CLASS D-2A

CLASS E

DSCL (EEC)

Material causing other toxic effects

Corrosive liquid.

R34- Causes burns. R37- Irritating to respiratory system. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S36/37- In case of accident or if you feel unwell, seek medical advice immediately (show label if possible).

HMIS (U.S.A.):

Health Hazard : 3

Fire Hazard : 0

Reactivity : 1

Personal Protection:

National Fire Protection Association (U.S.A.):

Health : 3

Flammability : 0

Reactivity : 1

Specific hazard :

Protective Equipment :

Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

16. Other informationwww.rxmarine.com**References**

Hawley, G.G.. The Condensed Chemical Dictionary, 11e ed., New York, Van Nostrand Reinold, 1987. -SAX, N.I. Dangerous Properties of Industrial Materials, 8th ed., New York, Van Nostrand Reinold, 6e ed. 1984. -The Sigma-Aldrich Library of Chemical Safety Data, Edition II. -Guide de la loi et du règlement sur les produits dangereux, marchandises dangereuses au Canada. Centre de conformité internationale.

Not available

Other Special Considerations

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