

# SAFETY DATA SHEET (SDS)

according to Hazardous Products Regulations (SOR/2015-17)

Hydrochloric Acid, 25-38% w/w

Revision date: 08/09/2022 (mm/dd/yyyy)

Revision number: 3.1

## SECTION 1 Identification

### 1.1. Product identifier

<b>Product name:</b>	Instrument Quality Hydrochloric Acid	<b>Product number(s):</b>	S010401
	Instrument Quality Hydrochloric Acid, 30% (w/w)		S010402
	BASELINE Hydrochloric Acid		S020401
	Instrument Quality Hydrochloric Acid, 26.5% (w/w)		S050406
<b>EU Index number:</b>	017-002-01-X		
<b>Synonyms:</b>	Chlorohydric acid; Hydrogen chloride; Muriatic acid; Spirits of salt		
<b>Chemical names:</b>	FR Acide chlorhydrique; DE Salzsäure; NL Zoutzuur; ES Ácido clorhídrico; IT Acido cloridrico		

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

**Identified uses:** For laboratory use only. Not for drug, food, or household use.

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

**Manufacturer:**

SEASTAR CHEMICALS ULC  
2061 Henry Avenue West, Sidney, BC V8L 5Z6 CANADA  
1-250-655-5880

**Email:** SCI-QA&RegulatoryAffairs@seastarchemicals.com

### 1.4. Emergency telephone number

**CAN (CANUTEC):** 1-613-996-6666 (24-hour)

## SECTION 2 Hazard identification

### 2.1. Classification of the substance or mixture

**Classification in accordance 29 CFR 1910 (OSHA HCS) / WHMIS HPR / Regulation (EC) No 1272/2008**

Skin corrosion, category 1B

Specific target organ toxicity, single exposure, category 3

Corrosive to metals, category 1

### 2.2. Label elements

**Pictograms:**



**Signal word:** Danger

**Hazard statements:** **H314:** Causes severe skin burns and eye damage.

**H335:** May cause respiratory irritation.

**H290:** May be corrosive to metals.

**Precautionary statements:** **P260:** Do not breathe fume/gas/mist/vapours/spray.

**P280:** Wear protective gloves/protective clothing/eye protection/face protection.

**P310:** Immediately call a POISON CENTER or doctor.

**P301+P330+P331:** IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

**P303+P361+P353:** IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with 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.

### 2.3. Other hazards

For the full text of the H-Statement(s) and P-Statement(s) mentioned in this Section, see Section 16.

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## SECTION 3 Composition/Information on ingredients

### 3.2. Mixtures

Chemical name	Chemical formula	Weight percent <sup>1</sup>	CAS №	EINECS №
Hydrochloric acid	HCl	25-38% w/w	7647-01-0	231-595-7
Water	H <sub>2</sub> O	Balance	7732-18-5	231-791-2

<sup>1</sup>Weight Percent or percentage by mass (%): 100x (mass solute/mass total solution after mixing). Expressed as % w/w

## SECTION 4 First-aid measures

### 4.1. Description of first aid measures

**Inhalation:** Take proper precautions to ensure your own safety before attempting rescue (e.g., wear appropriate protective equipment, use the "buddy" system). Remove source of contamination or move victim to fresh air. If breathing is difficult, trained personnel should administer emergency oxygen. DO NOT allow victim to move about unnecessarily. Symptoms of pulmonary edema can be delayed up to 48 hours after exposure. If breathing has stopped, trained personnel should begin artificial respiration (AR) or, if the heart has stopped, cardiopulmonary resuscitation (CPR) or automated external defibrillation (AED) immediately. Avoid mouth-to-mouth contact by using mouth guards or shields. Quickly transport victim to an emergency care facility.

**Skin:** Avoid direct contact. Wear chemical protective clothing, if necessary. As quickly as possible, remove contaminated clothing, shoes, and leather goods. Immediately flush with lukewarm, gently flowing water for at least 30 minutes. If irritation persists, repeat flushing. DO NOT INTERRUPT FLUSHING. If necessary and it can be done safely, continue flushing during transport to emergency care facility. Quickly transport victim to an emergency care facility. Double bag, seal, label and leave contaminated clothing, shoes, and leather goods at the scene for safe disposal.

NOTE: Any skin contact will also involve significant inhalation exposure.

**Eye:** Avoid direct contact. Wear chemical protective gloves, if necessary. Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for at least 30 minutes, while holding the eyelid(s) open. If a contact lens is present, DO NOT delay irrigation or attempt to remove the lens. Neutral saline solution may be used as soon as it is available. DO NOT INTERRUPT FLUSHING. If necessary, continue flushing during transport to emergency care facility. Take care not to rinse contaminated water into the unaffected eye or onto the face. Quickly transport victim to an emergency care facility. NOTE: Any eye contact will also involve significant inhalation exposure.

**Ingestion:** NEVER give anything by mouth if victim is rapidly losing consciousness, is unconscious or convulsing. Have victim rinse mouth thoroughly with water. DO NOT INDUCE VOMITING. If vomiting occurs naturally, have victim rinse mouth with water again. Quickly transport victim to an emergency care facility.

**First Aid Comments:** Provide general supportive measures (comfort, warmth, rest). Consult a doctor and/or the nearest Poison Control Centre for all exposures. Some first aid procedures recommended above require advanced first aid training. Protocols for undertaking advanced procedures must be developed in consultation with a doctor and routinely reviewed. All first aid procedures should be periodically reviewed by a doctor familiar with the material and its conditions of use in the workplace.

### 4.2. Most important symptoms and effects, both acute and delayed

Inhalation of low concentrations is irritating and can cause coughing, pain, inflammation and swelling in the upper respiratory tract. A severe exposure can result in a potentially fatal accumulation of fluid in the lungs (pulmonary edema). Symptoms of pulmonary edema (chest pain and shortness of breath) can be delayed for up to 24 or 48 hours after exposure.

### 4.3. Indication of any immediate medical attention and special treatment needed

Consult a doctor and/or the nearest Poison Control Centre for all exposures.

## SECTION 5 Fire-fighting measures

### 5.1. Extinguishing media

Hydrochloric acid does not burn. Use extinguishing agent compatible with hydrochloric acid and appropriate for the surrounding fire. Hydrochloric acid will react with most foams and release corrosive/toxic gases.

### 5.2. Special hazards arising from the substance or mixture

Hydrochloric acid is not combustible, but it is extremely corrosive and toxic. Decomposes under intense fire conditions to form

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extremely flammable and potentially explosive hydrogen gas and very toxic and corrosive chlorine gas. Contact with common metals produces extremely flammable hydrogen gas. Heat from a fire can cause a rapid build-up of pressure inside closed containers, which may cause explosive rupture and a sudden release of large amounts of flammable and corrosive gases.

**Hazardous combustion products:** Chlorine gas, hydrogen chloride, hydrogen gas.

### 5.3. Advice for firefighters

Firefighter's normal protective clothing (Bunker Gear) will not provide adequate protection. A full body encapsulating chemical protective suit with positive pressure self-contained breathing apparatus (NIOSH approved or equivalent) may be necessary.

## SECTION 6 Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

Evacuate all downwind, unprotected personnel. Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. Wear adequate personal protective equipment. Ventilate area.

### 6.2. Environmental precautions

Notify government occupational health and safety and environmental authorities.

### 6.3. Methods and material for containment and cleaning up

Do not touch spilled material. Keep upwind and out of low areas. Prevent material from entering sewers, waterways, or confined spaces. Stop or reduce leak if it can be done without risk. Water fog or spray may be necessary to knock down vapours. Recover spilled hydrochloric acid if feasible. Contain spill with earth, sand, or absorbent material which does not react with spilled material.

**SMALL SPILLS:** Contain and soak up spill with absorbent material that does not react with spilled chemical. Put material in suitable, covered, labelled containers. Flush area with water. Do not get water inside containers. Contaminated absorbent material may pose the same hazards as the spilled product.

**LARGE SPILLS:** Evacuate and ventilate the area. Contact fire and emergency services and supplier for advice.

### 6.4. Reference to other sections

See Section 7 for information on handling. See Section 8 for information on personal protection. See Section 13 for information on disposal.

## SECTION 7 Handling and storage

### 7.1. Precautions for safe handling

**Do not use this product once the expiration date is reached. The expiration date defines both the end of the product shelf life and its certification. The expiration date is conditional; products must be stored and transported according to SEASTAR™'s Product Integrity Guidelines.**

Plastic bottles should be inspected regularly, specifically HDPE bottles, for any evidence of change to the plastic bottle's ability to deform. The ability to deform is defined by its ductility/plasticity/malleability/embrittlement, or hardening/compressibility. If any change is noticed, carefully and safely transfer or dispose of the product according to your safe handling practices and procedures. Any product disposal must be done according to applicable regulations governing the disposal of the hazardous product.

Hydrochloric acid is TOXIC (may be fatal if inhaled). It is also a SKIN CONTACT HAZARD and CORROSIVE to the eyes and skin. Before handling, it is very important that engineering controls are operating, and that protective equipment requirements and personal hygiene measures are being followed. People working with this chemical should be properly trained regarding its hazards and its safe use.

Avoid generating hydrogen chloride vapours or mists. Prevent the release of vapours/mist into workplace air. Consider using closed handling systems for processes involving this material. If a closed handling system is not possible, use in the smallest possible amounts in a well-ventilated area, separate from the storage area. In case of leaks or spills, escape-type respiratory protective equipment should be available in the work area. If hydrochloric acid is released, immediately put on a suitable respirator, and leave the area until the severity of the release is determined. Immediately report leaks, spills, or ventilation failures.

Be aware of typical signs and symptoms of poisoning and first aid procedures. Any signs of illness should be reported immediately to supervisory personnel. Seek medical attention for all exposures even if an exposure did not seem excessive. Symptoms of a severe

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exposure can be delayed.

Do not use with incompatible materials such as oxidizing agents, reducing agents, metals, bases, sulfuric acid, perchloric acid and many more. See Section 10 for more information. Do not use near welding operations, flames, or hot surfaces. Do not perform any welding, cutting, soldering, drilling or other hot work on an empty vessel, container or piping until all liquid and vapours have been cleared.

Inspect containers for leaks before handling. Prevent damage to containers. Label containers. Open containers carefully on a stable surface. Keep containers tightly closed when not in use. Assume that empty containers contain residues which are hazardous. To avoid splashing, carefully dispense into sturdy containers made of compatible materials. Secondary protective containers must be used when this material is being carried. Use corrosion resistant transfer equipment when dispensing. Whenever possible, use self-closing, portable containers for dispensing small amounts of this material. Never transfer liquid by pressurizing original container with air or inert gas.

Never add water to a corrosive. Always add corrosives to water. When mixing with water, stir small amounts in slowly. Use cold water to prevent excessive heat generation. Maintain handling equipment. Comply with applicable regulations. Have suitable emergency equipment for fires, spills, and leaks readily available.

### 7.2. Conditions for safe storage, including any incompatibilities

Store in a cool, dry, well-ventilated area, out of direct sunlight and away from heat sources. Keep quantity stored as small as possible. Store away from incompatible materials, such as oxidizing agents, reducing agents, bases, and metals. See Section 10 for more information.

Use corrosion-resistant structural materials and lighting and ventilation systems in the storage area. Storage area should be clearly identified, clear of obstruction and accessible only to trained and authorized personnel. Keep storage area separate from work areas, eating areas and protective equipment storage. Post warning signs. Inspect periodically for damage or leaks. Consider leak detection system with an alarm. Provide raised sills or ramps at doorways or create a trench which drains to a safe location. Floors should not allow liquids to penetrate.

Inspect all incoming containers to make sure they are properly labelled and not damaged. Store containers at a convenient height for handling, below eye level if possible. Avoid stacking. Keep containers tightly closed when not in use and when empty. Protect from damage. Keep empty containers in separate storage area. Empty containers may contain hazardous residues. Keep closed. Contain spills or leaks by storing in trays made from compatible materials. Keep absorbents for leaks and spills readily available.

### 7.3. Specific end use(s)

No information available.

## SECTION 8 Exposure controls/Personal protection

### 8.1. Control parameters

Chemical name	Limit value type	Exposure limit value	Source
Hydrochloric acid	TLV-C PEL-C, REL-C IDLH	2 ppm 5 ppm (7 mg/m <sup>3</sup> ) 50 ppm	USA ACGIH USA OSHA, USA NIOSH USA NIOSH
Water	None listed.	None listed.	Not applicable

### 8.2. Exposure controls

NOTE: Exposure to this material can be controlled in many ways. The measures appropriate for a particular worksite depend on how this material is used and on the extent of exposure. This general information can be used to help develop specific control measures. Ensure that control systems are properly designed and maintained. Comply with occupational, environmental, fire, and other applicable regulations.

**Engineering Controls:** Engineering methods to control hazardous conditions are preferred. Methods include mechanical ventilation (dilution and local exhaust), process or personnel enclosure, control of process conditions, and process modification (e.g., substitution of a less hazardous material). Administrative controls and personal protective equipment may also be required. Because of the high potential hazard associated with this substance, stringent control measures such as enclosure or isolation are recommended when dealing with large quantities.

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Use corrosion-resistant ventilation systems separate from other exhaust ventilation systems. Consider down-draft general exhaust ventilation in potential high concentration areas such as unloading stations, cylinder, drum or carboy filling stations, treatment vats, and waste disposal areas. Exhaust directly to the outside. Local exhaust ventilation is usually required. Supply sufficient replacement air to make up for air removed by exhaust system. Cleaning of contaminated exhaust air before release to the outdoors is usually necessary.

**Personal Protective Equipment:** If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection. Have appropriate equipment available for use in emergencies such as spills or fire. If respiratory protection is required, institute a complete respiratory protection program including selection, fit testing, training, maintenance, and inspection.

**Eye / Face protection:** Wear gas-tight chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166. A face shield may also be necessary.

**Skin protection:** Wear impervious gloves and appropriate protective clothing. Choose body protection according to the amount and concentration of the substance at the workplace. A chemical protective acid-resistant full-body encapsulating suit and respiratory protection may be required in some operations. Have a safety shower/eye-wash fountain readily available in the immediate work area.

**Resistance of Materials for Protective Clothing:** Guidelines for Hydrochloric acid, 37%:

RECOMMENDED (resistance to breakthrough longer than 8 hours): Butyl rubber; Neoprene rubber; Viton®; Viton®/Butyl rubber; Barrier® - PE/PA/PE; Saranex®; ChemMAX® 3; Frontline® 500; Microchem® 4000; Trellchem® HPS and VPS; Tychem® CPF3, F, Thermopro, BR/LV, Responder® CSM, TK, and Reflector; Zytron® 300 and 500.

RECOMMENDED (resistance to breakthrough longer than 4 hours): Natural rubber; Nitrile rubber; Polyvinyl chloride (PVC); Silver Shield® - PE/EVAL/PE.

NOT RECOMMENDED for use (resistance to breakthrough less than 1 hour and/or poor degradation rating): Polyvinyl alcohol (PVAL).

**Inhalation / Ventilation:** NIOSH/OSHA RECOMMENDATIONS FOR HYDROGEN CHLORIDE CONCENTRATIONS IN AIR:

Up to 50 ppm: Any air-purifying, full facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister providing protection against the compound of concern; or Any self-contained breathing apparatus with a full facepiece.

Emergency or planned entry into unknown concentrations or IDLH conditions: Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode; or Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus.

Escape: Any air-purifying, full facepiece respirator (gas mask) with a chin-style, front- or back-mounted acid gas canister; or Any appropriate escape-type, self-contained breathing apparatus.

**Personal Hygiene:** Remove contaminated clothing immediately. Keep contaminated clothing in closed containers. Discard or launder before re-wearing. Inform laundry personnel of contaminant's hazards. Do not eat or drink in work areas.

### SECTION 9 Physical and chemical properties

#### 9.1. Information on basic physical and chemical properties

<b>Physical state:</b>	Liquid	<b>Vapour pressure:</b>	30% w/w: 1.41 kPa (10.6 mmHg)
<b>Colour:</b>	Clear, colourless	<b>(partial pressure at 20 °C)</b>	36% w/w: 14.1 kPa (105.5 mmHg)
<b>Molecular weight:</b>	HCl: 36.46 g/mol H <sub>2</sub> O: 18.02 g/mol	<b>Vapour density:</b>	38% w/w: 28.0 kPa (210 mmHg)
<b>Odour:</b>	Strong – pungent odour		1.3 (approx. 36%) (air = 1)
<b>Odour threshold:</b>	1-5 ppm (detection)	<b>Density: (at 20 °C)</b>	30% w/w: 1.1493 g/mL
<b>pH:</b>	1.1 (0.1 M); 0.1 (1 M) at 25 °C		36% w/w: 1.1789 g/mL
<b>Melting/freezing point:</b>	31.24% w/w: -46.2 °C (-51.2 °F) 35.2% w/w: -35 °C (-31 °F)	<b>Solubility:</b>	38% w/w: 1.1885 g/mL
			Soluble in water in all proportions. Very soluble in ethanol, methanol, dioxane,

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<b>Boiling point:</b>	20.2% w/w: 108.6 °C (227.4 °F)		tetrahydrofuran; insoluble in hydrocarbons, e.g., n-hexane.
<b>Flash point:</b>	Not combustible (does not burn).		
<b>Evaporation rate:</b>	Hydrochloric acid solutions of greater than 28% are very volatile and can readily release high concentrations of hydrogen chloride gas.	<b>Partition coefficient:</b>	36% w/w: Log P(oct) = 0.3
		<b>Auto-ignition temperature:</b>	No information available.
		<b>Decomposition temperature:</b>	No information available.
<b>Flammability (solid, gas):</b>	Not applicable.		
<b>Flammable (explosive) limits:</b>	Lower (LFL/LEL): Not applicable Upper (UFL/UEL): Not applicable	<b>Viscosity: (dynamic, at 20 °C)</b>	30% w/w: 1.71 mPa.s (1.71 centipoises) 36% w/w: 2.0 mPa.s (2.0 centipoises) 38% w/w: 2.11 mPa.s (2.11 centipoises)

### 9.2. Other information

No information available.

## SECTION 10 Stability and reactivity

### 10.1. Reactivity

Large amounts of heat can be released when concentrated hydrochloric acid is mixed with water or with organic solvents. See Section 10.5 for incompatible materials.

### 10.2. Chemical stability

Normally stable.

### 10.3. Possibility of hazardous reactions

Does not polymerize, but reaction with aldehydes or epoxides can cause polymerization. See Section 10.5 for incompatible materials.

### 10.4. Conditions to avoid

High temperatures, light, incompatible materials.

### 10.5. Incompatible materials

NOTE: Chemical reactions that could result in a hazardous situation (e.g., generation of flammable or toxic chemicals, fire, or detonation) are listed here. Many of these reactions can be done safely if specific control measures (e.g., cooling of the reaction) are in place. Although not intended to be complete, an overview of important reactions involving common chemicals is provided to assist in the development of safe work practices.

METALS (e.g., steel, copper, brass, or zinc) - extremely flammable hydrogen gas is released on reaction with many common metals.

SODIUM - explodes on contact.

BASES (e.g., sodium hydroxide, potassium hydroxide, ammonium hydroxide, amines, 2-aminoethanol or ethyleneimine) - react violently generating heat and pressure.

FORMALDEHYDE - can react to form the potent human carcinogen, bis(chloromethyl) ether.

OXIDIZING AGENTS (e.g., hydrogen peroxide, chlorates, or chlorites) - may react generating heat and very toxic and corrosive chlorine gas.

REDUCING AGENTS (e.g., metal hydrides) - reaction may produce extremely flammable hydrogen gas, heat, and fire.

PERCHLORIC ACID - decomposes spontaneously and violently.

SULFURIC ACID - dehydrates concentrated hydrochloric acid to release some 250 volumes of hydrogen chloride gas. In a closed tank, sufficient gas may be formed to cause the tank to burst violently.

POTASSIUM PERMANGANATE - a sharp explosion may be produced on adding concentrated hydrochloric acid to potassium permanganate.

ALDEHYDES or EPOXIDES - hydrochloric acid may catalyze violent polymerization, generating heat and pressure.

FLUORINE - incandesces on contact. Aqueous solutions produce flame.



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ACETYLIDES (e.g., cesium acetylide or rubidium acetylide), BORIDES (e.g., magnesium boride), CARBIDES (e.g., rubidium carbide), PHOSPHIDE (e.g., uranium phosphide) or SILICIDES (e.g., lithium silicide) - react producing spontaneously flammable gases (e.g., acetylene, borane, phosphine, or silane, respectively).

HEXALITHIUM DISILICIDE - incandesces in concentrated acid; flammable silanes (silicon hydrides) are evolved on contact with dilute acid.

OTHER - Mixing 36% hydrochloric acid with acetic anhydride or chlorosulfonic acid or oleum or propiolactone or propylene oxide or vinyl acetate in a closed container caused the temperature and pressure to increase.

### 10.6. Hazardous decomposition products

Chlorine gas, hydrogen chloride, hydrogen gas.

### 10.7. Corrosivity to metals:

Hydrochloric acid (20-38%) is corrosive to most metals, including stainless steels (e.g. 300 series, 400 series, 17-4 PH and Carpenter 20 Cb-3), aluminum (e.g. types 3003, 5052 and Cast B-356), carbon steel (e.g. types 1010, 1020, 1075 and 1076), unalloyed cast iron, zinc, the nickel-base alloys, Monel, Hastelloy D and Incoloy 800, copper, copper-nickel alloy, bronze, silicon bronze, aluminum bronze, brass, naval brass, admiralty brass and titanium. Hydrochloric acid (20-38%) is not corrosive to the nickel-base alloys, Hastelloy B/B-2, Hastelloy C/C-276, Hastelloy G, Monel 625 and Monel 825 and high-silicon cast irons. High-nickel austenitic cast irons offer some resistance to all hydrochloric acid concentrations at room temperature.

Dilute hydrochloric acid (up to 10%) is corrosive to stainless steels (e.g., 300 series, 400 series and 17-4 PH), aluminum (e.g., types 3003, 5052 and Cast B-356), carbon steel (e.g., types 1010, 1020, 1075 and 1076), unalloyed cast iron, zinc, Monel, copper, copper-nickel, bronze, silicon bronze, brass, naval brass, and admiralty brass. Dilute hydrochloric acid (up to 10%) is not corrosive to the nickel-base alloys, Hastelloy B/B-2, Hastelloy C/C-276, Hastelloy D and Incoloy 825, nickel, high-silicon irons, high-nickel cast irons, the stainless steel, Carpenter 20 Cb-3 (containing 32-38% nickel), titanium and zirconium.

### 10.8. Corrosivity to non-metals:

Hydrochloric acid (up to 38%) attacks plastics, such as nylon and polyacetal homopolymer (Delrina); and elastomers, such as, chlorinated polyethylene (CM), styrene-butadiene (SBR) and polysulfone. Hydrochloric acid (up to 38%) does not attack plastics, such as Teflon, and other fluorocarbons, like ethylene tetrafluoroethylene (Tefzel), ethylene chlorotrifluoroethylene (Halar) and polyvinylidene fluoride (Kynar), polyvinylidene chloride (Saran), chlorinated polyvinyl chloride (CPVC), polyvinyl chloride (PVC), polypropylene, acrylonitrile-butadiene-styrene (ABS), styrene-acrylonitrile (SAN), polybutylene terephthalate, high-density polyethylene (LDPE), ultra high molecular weight polyethylene (UHMWPE), crosslinked polyethylene (XLPE), thermoset polyesters (bisphenol A fumarate and isophthalic acid), polystyrene, and ethylene vinyl acetate (EVA); and elastomers, such as ethylene-propylene, Viton A and other fluorocarbons, like Chemraz, Kalrez and Teflon, isoprene, natural rubber, Nitrile Buna N (up to 35% hydrochloric acid), chlorosulfonated polyethylene (Hypalon), flexible polyvinyl chloride, ethylene vinyl acetate (EVA) and low-density polyethylene (LDPE).

## SECTION 11 Toxicological information

### 11.1. Information on toxicological effects

RTECS#: MW4025000

#### Acute toxicity:

**Oral LD50:** No information available.

**Dermal LD50:** No information available.

**Inhalation LC50:** 2.3 mg/L/4H (rat, exposure to hydrogen chloride) (reported as 3,124 ppm/1H)

**Other information:** No information available.

#### Exposure routes:

**Inhalation:** May be fatal if inhaled. Hydrochloric acid solutions can readily release high concentrations of hydrogen chloride gas, which is very toxic and corrosive and poses a serious inhalation hazard. Inhalation of even low concentrations is irritating and can cause coughing, pain, inflammation and swelling in the upper respiratory tract. Higher concentrations can cause constriction of the larynx and bronchi, closure of the glottis, and severe exposure can result in a potentially fatal accumulation of fluid in the lungs (pulmonary edema). Symptoms of pulmonary edema (chest pain and shortness of breath) can be delayed for up to 24 or 48 hours after exposure.

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**Skin:** Hydrochloric acid is corrosive and can cause severe burns, blisters, ulcers, and permanent scarring, depending on the concentration of the solution and the duration of contact. Any skin contact is likely to involve significant inhalation exposure. Skin absorption is not expected to occur to a significant extent.

**Eye:** Hydrochloric acid is corrosive and can cause severe eye burns and permanent injury, including blindness, depending on the concentration of the solutions and duration of contact. Any eye contact may also involve significant inhalation exposure.

**Ingestion:** May be fatal if swallowed. Hydrochloric acid solutions are corrosive and can cause burns to the lips, tongue, throat, and stomach; abdominal pain; nausea; vomiting; diarrhea and death. Immediate effects include burning of the mouth throat and stomach followed by vomiting with loss of blood. Difficulty swallowing and ulceration and narrowing of the esophagus are often seen following ingestion.

**Germ Cell Mutagenicity:** Hydrochloric acid is not known to be a mutagen.

**Carcinogenicity:** Hydrochloric acid is not known to be a carcinogen. The International Agency for Research on Cancer (IARC) has concluded that this chemical is not classifiable as to its carcinogenicity to humans (Group 3). The American Conference of Governmental Industrial Hygienists (ACGIH) has designated this chemical as not classifiable as a human carcinogen (A4). The US National Toxicology Program (NTP) has not listed this chemical in its report on carcinogens.

**Reproductive toxicity:** Hydrochloric acid is not known to cause reproductive toxicity.

**Additional information:** A single, high-level exposure may cause long-term airways hypersensitivity (RADs). Prolonged or repeated inhalation may cause nosebleeds, nasal congestion, erosion of the teeth, perforation of the nasal septum, chest pains, and bronchitis. Repeated exposure may cause conjunctivitis or dermatitis. To the best of our knowledge the chronic toxicity of this substance has not been fully investigated.

### SECTION 12 Ecological information

#### 12.1. Toxicity

Shrimp: LC50 = 100-330 ppm/48H (salt water); Shore crab (*Carcinus maenas*): LC50 = 240 mg/L/48H (salt water, 15 °C)

#### 12.2. Persistence and degradability

Persistent. Hydrogen chloride dissociates readily in water to chloride and hydronium ions, decreasing the pH of the water.

#### 12.3. Bioaccumulative potential

Bioaccumulation is not anticipated for inorganic compounds that are miscible with water.

#### 12.4. Mobility in soil

Hydrogen chloride dissociates into chloride and hydronium ions in moist soil.

#### 12.5. Results of PBT and vPvB assessment

Not applicable for inorganic substances.

#### 12.6. Other adverse effects

No information available.

### SECTION 13 Disposal considerations

#### 13.1. Waste treatment methods

Review local/regional/international regulations or requirements prior to disposal. Store material for disposal as indicated in Storage Conditions. **Contaminated packaging:** Dispose of as unused product.

### SECTION 14 Transport information

14.1. UN number	UN1789
14.2. UN proper shipping name	HYDROCHLORIC ACID
14.3. Transport hazard class(es)	8
Hazard label(s):	8
14.4. Packing group	II
14.5. Environmental hazards	
Marine pollutant:	No



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according to Hazardous Products Regulations (SOR/2015-17)

Hydrochloric Acid, 25-38% w/w

Revision date: 08/09/2022 (mm/dd/yyyy)

Revision number: 3.1

## 14.6. Special precautions for user

IMDG EMS number: F-A, S-B  
IMDG Category: C

## 14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.

## SECTION 15 Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

**OSHA Hazards:** CAS # 7647-01-0 meets criteria for hazardous material, as defined by 29 CFR 1910.1200.

#### SARA:

**302:** This material contains Hydrochloric acid (CAS# 7647-01-0), which is subject to the reporting requirement of 500 lbs RQ (Hydrogen chloride, gas only).

**313:** This material contains Hydrochloric acid (CAS# 7647-01-0), which is subject to the reporting requirements of Section 313 of SARA Title III in aerosol forms.

**311/312:** This material contains Hydrochloric acid (CAS# 7647-01-0).

#### Right To Know Lists:

**Massachusetts:** CAS# 7647-01-0 is listed, 100 lbs RQ.

**Pennsylvania:** CAS# 7647-01-0 is listed, E (environmental hazard).

**New Jersey:** CAS# 7647-01-0 is listed, RTK# 1012.

**California Prop. 65:** CAS# 7647-01-0 is not subject to this act. CAS# 7732-18-5 is not subject to this act.

#### Inventory Status:

**Canada DSL/NDL Inventory List:** CAS# 7647-01-0 is listed. CAS# 7732-18-5 is listed.

**US TSCA Inventory List:** CAS# 7647-01-0 is listed. CAS# 7732-18-5 is listed.

**EC Inventory List:** CAS# 7647-01-0 is listed, EC# 231-595-7. CAS# 7732-18-5 is listed, EC# 231-791-2.

### 15.2. Chemical safety assessment

Not applicable.

## SECTION 16 Other information

### Full text of H-Statement(s) and P-Statement(s):

H314: Causes severe skin burns and eye damage.

H335: May cause respiratory irritation.

H290: May be corrosive to metals.

P234: Keep only in original container.

P260: Do not breathe fume/gas/mist/vapours/spray.

P264: Wash thoroughly after handling.

P271: Use only in a well-ventilated area.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P310: Immediately call a POISON CENTER or doctor.

P301+P330+P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361+P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P363: Wash contaminated clothing before reuse.

P304+P340: IF INHALED: Remove person to fresh air and keep 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.

P390: Absorb spillage to prevent material damage.

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

P405: Store locked up.

P501: Dispose of contents/container according to federal, regional and local government requirements.

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*The statements contained herein are offered for informational purposes only and are based upon technical data. SEASTAR CHEMICALS ULC believes them to be accurate but does not purport to be all-inclusive. The above-stated product is intended for use only by persons having the necessary technical skills and facilities for handling the product at their discretion and risk. Since conditions and manner of use are outside our control, we (SEASTAR CHEMICALS ULC) make no warranty of merchantability or any such warranty, express or implied with respect to information and we assume no liability resulting from the above product or its use. Users should make their own investigations to determine suitability of information and product for their particular purposes.*