



Product Safety Summary for Hydrochloric Acid, 32-36%

Chemical Identity

Name: Hydrochloric Acid
CAS number: 7647-01-0
Synonyms: Hydrogen Chloride, Muriatic Acid
Chemical Formula: HCl

Product Uses

Hydrochloric acid is a strong inorganic acid used in a wide variety of applications. It is used primarily within industry as a pH regulator in water and wastewater treatment, food production, and during the manufacture of various other chemicals. Hydrochloric acid is also used to regenerate ion-exchange resins and in steel pickling (removal of rust and impurities from steel before processing or shaping). The most common public use of hydrochloric acid is as a component of cleaning products to remove lime scale (i.e. sanitary cleaners for households). Hydrochloric acid may also be referred to as muriatic acid.

Physical/Chemical Properties

Hydrochloric acid is a clear, colorless, fuming and corrosive liquid that has a strong pungent odor. Some additional physical and chemical properties are listed below for the 32% solution:

Color	Clear to light yellow
Odor	Pungent, irritating (strong)
pH	<1
Relative Density	9.657 @ 20°C (32%) 9.979 @ 20°C (36%)
Freezing Point	-43°C (-45.4°F)
Boiling Temperature	84°C (183.2°F) @ 760 mmHg
Vapor Pressure	23.5 mmHg (3.13 kPa) @ 25°C
Vapor Density	1.267
Solubility in Water	100% in all proportions

Additional physical and chemical property information is available on the Hydrochloric Acid Safety Data Sheet (SDS).

Human Health Information

Hydrochloric acid is a very strong acid and is therefore extremely corrosive to human tissue. Exposure to hydrochloric acid will cause severe burns to unprotected eyes and skin. Inhalation of the gas and mist can cause irritation and, in serious cases, can lead to pulmonary edema and possible death.

Additional data on acute and chronic health effects can be found on the product Safety Data Sheet (SDS).

Environmental Information

Persistence & Degradability	Rapidly hydrolyzes when exposed to water
Bio-concentration Factor	3.162 estimated from log Kow 0.54
Aquatic Life	Expected to be toxic to aquatic life primarily associated with pH

For more data, see product Safety Data Sheet (SDS).

Potential Exposure

The most likely ways exposures can occur are:

- **Manufacturing or Industrial Workplace Exposure:** Although hydrochloric acid is handled in enclosed systems in industrial and manufacturing settings, exposure could occur during maintenance, sampling, loading, unloading, or testing activities. Where possible, control exposure hazards through engineered and administrative controls. Vapors should be monitored and controlled below the applicable occupational exposure limits.
- **Consumer Exposure:** Oltrin Solutions, LLC does not sell hydrochloric acid in retail stores, though it may be an ingredient in some consumer products. Exposure to these products is deemed safe if used in accordance with the label instructions.
- **Environmental Exposure:** As a liquid, hydrochloric acid released to the environment may lower the pH of water into which it flows and potentially become harmful to aquatic animals and plants. If a spill occurs, emergency personnel should wear protective equipment to minimize exposures. Gaseous hydrochloric acid releases do not normally occur since HCl gas is used only by industry within closed and controlled systems.

More information on prevention and mitigation of potential exposures is available in the product Safety Data Sheet (SDS).

Risk Management

Hydrochloric acid is non-flammable, non-explosive, and non-toxic. It is, however, an acidic material and poses hazards to the skin and eyes. Hydrochloric acid can react with certain materials of construction. *Prior to using hydrochloric acid, carefully read and understand the Safety Data Sheet.*

The following are some risk management measures that are effective against these hazards:

- Provide eyewash fountains and safety showers in areas where hydrochloric acid is used or handled. Flush areas of the body that have come in contact with hydrochloric acid with large amounts of water, and then seek medical attention. DO NOT use any kind of neutralizing solution, particularly in the eyes, without direction from a physician.
- To prevent eye contact during use or handling, protective eye wear (such as splash goggles, a full face shield, or safety glasses with side shields) must be worn.
- Work areas where hydrochloric acid is used should be well-ventilated to maintain concentrations below exposure limits. If exposures exceed accepted limits or if respiratory discomfort is experienced, use a NIOSH approved air purifying respirator with acid gas cartridges.
- Wear chemical resistant clothing to prevent contact with the body.
- When handling hydrochloric acid, wear rubber gloves to protect the hands and rubber boots to protect the feet. Gloves should be long enough to come well above the wrist, and sleeves should be positioned over the glove wrists. Wear the bottom of trouser legs outside the boots. DO NOT tuck the trouser legs into the boots.
- Residues that dry on equipment can cause irritation. Keep equipment clean by washing off any accumulation.
- When making solutions, always add the hydrochloric acid slowly to the surface of the water with constant agitation. Never add the water to the hydrochloric acid. Dangerous boiling or splattering can occur if hydrochloric acid is added too rapidly, or allowed to concentrate in one area, or added to hot or cold liquids. Care must be taken to avoid these situations.
- Equipment used for hydrochloric acid storage or processing should be constructed of the proper materials. More detailed information regarding materials of construction can be found in the product Safety Data Sheet or requested from Oltrin Solutions, LLC. See contact information below.
- Personnel involved with hydrochloric acid handling operations should be properly trained.

Product Stewardship

Additional technical assistance regarding physical property data and specific information for storing, unloading, and using hydrochloric acid, can be requested from Oltrin Solutions, LLC. See contact information below.

Regulatory Information

The following is a summary of regulations and guidelines that pertain to hydrochloric acid (additional regulations and guidelines may apply):

- Hydrochloric acid is designated as a hazardous substance under Section 311(b) (2) of the Clean Water Act. See 40 CFR 116.4.
- Under the Comprehensive Environmental Resource and Conservation Liability Act (CERCLA) any release of 5000 pounds or more of hydrochloric acid to the environment within a 24-hour period, not specifically allowed by a permit, must be reported to the National Response Center (NRC).
- Hydrochloric acid is regulated by the Department of Transportation (DOT). The DOT identification number is UN 1789.
- The Occupational Safety and Health Administration has established a Permissible Exposure Limit for hydrochloric acid. The limit is 5 parts per million (ppm) as a ceiling limit.
- The American Conference of Governmental Industrial Hygienists has established a Threshold Limit Value for hydrochloric acid. The guideline is 2 ppm as a ceiling limit.
- The National Institute for Occupational Safety and Health has established an Immediately Dangerous to Life and Health concentration for hydrochloric acid. The concentration is 50 ppm.

More regulatory information is available in the product Safety Data Sheet.

Contact Information

For additional information, call Oltrin Customer Service at (910) 419-6551.

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This Product Safety Summary is intended to provide a general overview of the chemical substance. The information on the Summary is basic information and is not intended to provide emergency response information, medical information, or treatment information. For in-depth safety and health information, refer to the product's Safety Data Sheet (SDS), the product's label, and other safe use and handling literature for the chemical substance.