

Common Name: HYDROGEN CHLORIDE

Synonyms: Anhydrous Hydrogen Chloride; Muriatic Acid

CAS No: 7647-01-0

Molecular Formula: HCl

RTK Substance No: 1012

Description: Colorless gas with a pungent odor that fumes in air, and is often found as a compressed, liquefied gas or in a water solution

HAZARD DATA

Hazard Rating	Firefighting	Reactivity
<p>3 - Health 0 - Fire 1 - Reactivity DOT#: UN 1050 (Anhydrous) UN 1789 (Solution)</p> <p>ERG Guide #: 125 (Anhydrous) 157 (Solution)</p> <p>Hazard Class: 2.3 (Toxic Gas) (Anhydrous) 8 (Corrosive) (Solution)</p>	<p>Extinguish fire using an agent suitable for type of surrounding fire. Hydrogen Chloride itself does not burn.</p> <p>POISONOUS GASES ARE PRODUCED IN FIRE, including <i>Chlorine</i>.</p> <p>Use water spray to keep fire-exposed containers cool, but DO NOT get water into containers.</p>	<p>Hydrogen Chloride may react explosively with ALCOHOLS; HYDROGEN CYANIDE; POTASSIUM PERMANGANATE; SODIUM; and TETRASELENIUM TETRANITRIDE, and may ignite on contact with FLUORINE; HEXALITHIUM DISILICIDE; METAL ACETYLIDES and CARBIDES.</p> <p>Hydrogen Chloride reacts with OXIDIZING AGENTS (such as PERCHLORATES, PEROXIDES, PERMANGANATES, CHLORATES, NITRATES, CHLORINE, BROMINE and FLUORINE) to form toxic <i>Chlorine gas</i> and reacts violently with STRONG BASES (such as SODIUM HYDROXIDE and POTASSIUM HYDROXIDE).</p> <p>Hydrogen Chloride will attack many METALS (such as COPPER, BRASS and ZINC) to release flammable and explosive <i>Hydrogen gas</i>.</p> <p>Hydrogen Chloride will react with ALDEHYDES and EPOXIDES to cause violent polymerization (self-reaction).</p>

SPILL/LEAKS

Isolation Distance:
Small Spill: 30 meters (100 feet)
Large Spill: 60 meters (200 feet)
Fire: 800 meters (1/2 mile)

Cover **Hydrogen Chloride** in solution with dry lime, sand or soda ash and place into sealed containers for disposal.

Stop flow of gas. If source of leak is a cylinder and the leak cannot be stopped in place, remove the leaking cylinder to a safe place in the open air, and repair leak or allow cylinder to empty.

DO NOT SPRAY water on leaking cylinder.

Turn leaking cylinder with leak up to prevent escape of gas in liquid state.

PHYSICAL PROPERTIES

Odor Threshold: 0.255 to 10.06 ppm

Flash Point: Nonflammable

Vapor Density: 1.3 (air = 1)

Vapor Pressure: >760 mm Hg at -120°F (-84°C)

Specific Gravity: 1.27 (liquid) (water = 1)

Water Solubility: Soluble

Boiling Point: -121°F (-85°C)

Freezing Point: -174°F (-114°C)

Ionization Potential: 12.74 eV

Molecular Weight: 36.47

EXPOSURE LIMITS

OSHA: 5 ppm, Ceiling
NIOSH: 5 ppm, Ceiling
ACGIH: 2 ppm, Ceiling
IDLH: 50 ppm

The Protective Action Criteria values are:
PAC-1 = 1.8 ppm PAC-2 = 22 ppm PAC-3 = 100 ppm

PROTECTIVE EQUIPMENT

Gloves: Butyl, Neoprene and Viton (>8-hr breakthrough)

Coveralls: Tychem® BR, Responder® and TK; ONESuit®TEC; Trelchem® HPS and VPS (>8-hr breakthrough)

Respirator: >2 ppm - full facepiece APR with *Acid gas* filters
>20 ppm - SCBA

HEALTH EFFECTS

Eyes: Severe irritation, burns and possible eye damage

Skin: Severe irritation and burns
Contact with liquid causes frostbite

Inhalation: Nose, throat and lung irritation with coughing and severe shortness of breath (pulmonary edema)

FIRST AID AND DECONTAMINATION

Remove the person from exposure.

Flush eyes with large amounts of water for at least 30 minutes. Remove contact lenses if worn. Seek medical attention immediately.

Quickly remove contaminated clothing and wash contaminated skin with large amounts of water. Seek medical attention.

Immerse affected part in warm water. Seek medical attention.

Begin artificial respiration if breathing has stopped and CPR if necessary.

Transfer promptly to a medical facility.

Medical observation is recommended as symptoms may be delayed.