

ALLIANCE CHEMICAL

Manufacturers of ACS Reagents and Semiconductor Grade Chemicals

SAFETY DATA SHEET

Hydrochloric Acid, 37%, ACS REAGENT GRADE

1. Identification

Product Identifier: Hydrochloric Acid, 37%, Reagent (ACS)

Trade Name: Hydrochloric Acid (HCl) aqueous all grades

Synonyms: Muriatic Acid, HCl Solution, Aqueous hydrogen chloride

Product Use: Process chemical, Laboratory reagent, and scientific research and Development

Restrictions on use: None known.

Company Identification: Alliance Chemical
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For More Information: 512-365-6838 (Monday-Friday 8:00-4:00)
www.alliancechemical.com

In Case of Emergency Call: CHEMTEL - 800-255-3924
(24 Hours/Day, 7 Days/Week)

SDS Date of Preparation: 08/12/2022

2. Hazard(s) identification

Classification of the Substance or Mixture:

Corrosive to Metals Category 1

Eye Damage Category 1

Skin Corrosion Category 1B

Specific Target Organ Toxicity Single Exposure Category 3 (Irritant)

Label Elements:

Danger!



Hazard Statements:

H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H335 May cause respiratory irritation.

Precautionary Statements:

P234 Keep only in original container.
P260 Do not breathe mist or vapors.
P264 Wash thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves, protective clothing, eye protection and face protection.
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P310 Immediately call POISON CENTER or doctor.
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.
P310 Immediately call POISON CENTER or doctor.
P363 Wash contaminated clothing before reuse.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do so. Continue rinsing.
P310 Immediately call POISON CENTER or doctor.
P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P310 Immediately call POISON CENTER or doctor.
P390 Absorb spillage to prevent material damage.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P406 Store in corrosive resistant container with a resistant inner liner.
P501 Dispose of contents and container in accordance with local and national regulations.

Other Hazards: None known

3. Composition/information on ingredients

Ingredient	CAS Number	Percent	Hazardous Chemical
Water	7732-18-5	63%	No
Hydrogen Chloride	7647-01-0	37%	Yes

4. First-aid measures

Inhalation: Immediately remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing has stopped, administer artificial respiration. Do not use mouth-to-mouth method if victim 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. Call a physician or poison control center immediately.

Skin contact: Immediately flush skin with plenty of water for 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Launder clothing before re-use. (Discard contaminated shoes).

Eye contact: Immediately flush thoroughly with water for at least 20 minutes, while holding the eye lids open to be sure the material is washed out. Remove contact lenses if present and easy to do. Get immediate medical attention.

Ingestion: Do NOT induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious or convulsing person. Keep the victim calm and warm. Get immediate medical attention.

Most important symptoms/effects, acute and delayed: Corrosive effects. May cause severe eye, skin, respiratory tract irritation and burns. May cause temporary blindness and severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision.

Indication of immediate medical attention and special treatment, if necessary: Immediate medical attention is required for all routes of exposure.

5. Fire-fighting measures

Suitable (and unsuitable) extinguishing media: Use any means suitable for extinguishing surrounding fire. Water spray may be used to keep fire exposed containers cool.

Specific hazards arising from the chemical: Not considered to be a fire hazard. Irritating, corrosive and/or toxic gases or fumes will be released during a fire. Hydrochloric acid may react with metals to liberate flammable hydrogen gas.

Special protective equipment and precautions for fire-Fighters: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures: Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8.

Methods and materials for containment and cleaning up: Contain and recover liquid when possible. Residues from spills can be diluted with water, neutralized with lime or soda ash. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal. Do not let product enter drains. Do not flush caustic residues to the sewer. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and storage

Precautions for safe handling: Do not breathe mist or vapor. Use with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Prevent contact with the eye, skin, and clothing. Always wear impervious gloves, chemical safety goggles, and protective clothing when handling this material. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Keep containers closed when not in use.

When diluting, always add acid to water- not water to acid. Adding water to acid generates heat and will cause dangerous boiling and splashing.

Conditions for safe storage, including any incompatibilities: Store in a cool, dry, well-ventilated location out of direct sunlight. Store in a corrosive resistant container with a resistant inner liner. Keep the container tightly closed. Keep out of the reach of children.

8. Exposure controls / personal protection

Chemical Name	Exposure Limits
Water	None Established
Hydrogen Chloride	2 ppm Ceiling ACGIH TLV 5 ppm Ceiling OSHA PEL

Appropriate Engineering Controls: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Personal Protective Equipment:

Respiratory Protection: In operations where the occupational exposure limits are exceeded, an approved respirator with applicable cartridges or supplied air respirator should

be used. Respirator selection and use should be based on contaminant type, form and concentration. Follow applicable regulations and good Industrial Hygiene practice.

Eye Protection: Use chemical safety goggles and full face shield where splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

9. Physical and chemical properties

Appearance: Clear liquid

Physical state: Liquid

Form: Aqueous solution

Color: Colorless

Odor: Pungent

Odor threshold: Not available

pH for Hcl solutions: 0.1 (1.0 N), 1.1 (0.1N), 2.02 (0.01 N)

% Volatiles by volume @ 21°C (70°F): 100

Melting Point/Freezing Point: -74°C (101°F)

Boiling point / Boiling range: 53°C (127°F) Azoetrope (20.2%) boils at 109°C (228°F)

Flash point: Not available

Evaporation rate (BuAC=1): Not determined

Flammability (solid, gas): Not applicable

Upper / Lower flammability or Explosive Limits: Not applicable

Vapor Pressure (mm Hg): 190 @ 25°C (77°F)

Vapor Density (Air=1): No information found

Relative Density: 1.2g/cm³ at 25°C (77°F)

Solubility: Soluble

Partition Coefficient: n-octanol water: No data available

Auto-ignition Temperature: No data available

Decomposition Temperature: No data available

Viscosity: 2.3 mPa.s at 15°C (59°F)

10. Stability and reactivity

Reactivity: Not available.

Chemical stability: Stable under ordinary conditions of use and storage.

Possibility of hazardous reactions: Hazardous polymerization does not occur.

Hydrochloric acid may react with metals to liberate flammable hydrogen gas. Hydrochloric acid may also corrode some metals.

Conditions to avoid: None under normal conditions.

Incompatible materials: A strong mineral acid, concentrated hydrochloric acid is highly reactive with strong bases, metals, metal oxides, hydroxides, amines, carbonates and other alkaline materials. Incompatible materials also include cyanides, sulfides, sulfites, and formaldehyde.

Hazardous decomposition products: Thermal oxidative decomposition produces toxic chlorine fumes and explosive hydrogen gas.

11. Toxicological information

Potential Health Effects:

Inhalation: Inhalation of mists or vapors may cause severe irritation and burns of the nose, throat and upper respiratory tract. Higher concentrations can cause burns, pulmonary edema and death.

Skin Contact: Causes severe skin irritation and burns with redness, ulceration, pain, dermatitis, and scarring. Concentrated solutions cause deep ulcers and discolor skin.

Eye Contact: Vapors cause irritation. Splashes cause severe pain, eye damage, and permanent blindness.

Ingestion: Swallowing Hydrochloric Acid can cause immediate pain and burns of the mouth, throat, esophagus and gastrointestinal tract. May cause nausea, vomiting, and diarrhea. Swallowing may be fatal.

Chronic Exposure: Prolonged inhalation may cause lung damage. Repeated exposure may cause damage to the tissues of the mucous membranes, upper respiratory tract, eyes and skin.

Aggravation of Pre-existing Conditions: Persons with pre-existing eye and skin disorders or impaired respiratory function may be more susceptible to the effects of this material.

Carcinogenicity: None of the components of this product are listed as a carcinogen or suspected carcinogen by OSHA, IARC, and NTP.

Reproductive Effects: Reproductive harm is not expected from this product.

Mutagenic Effects: Not expected to cause mutagenic activity.

Acute Toxicity:

Hydrochloric Acid: Inhalation rat LC50- 588 ppm/4hr (for hydrochloric gas)

12. Ecological information

Exotoxicity:

Product	Species	Test Results
Hydrochloric acid	Lepomis macrochirus	30.9 mg/L 96 hr LC50

This product may be hazardous for the environment due to its low pH. Releases to the environment should be avoided.

Persistence and Degradability: This material is not expected to biodegrade.

Bioaccumulative Potential: No further relevant information available.

Mobility in Soil: When released into the soil, this material may leach into groundwater.

Other adverse effects: None known.

13. Disposal considerations

Whatever cannot be saved for recovery or recycling should be handled as hazardous waste and sent to a RCRA approved waste facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state, and local requirements.

14. Transport information

	UN Number	Proper shipping name	Hazard Class	Packing Group	Environmental Hazard
US DOT	UN1789	Hydrochloric Acid	8	II	Not applicable
IMDG	UN1789	Hydrochloric Acid	8	II	Not applicable
IATA	UN1789	Hydrochloric Acid	8	II	Not applicable

* **Hazardous Substance (49CFR172.101):** Hydrochloric Acid (RQ5,000 lbs)- (13,513 lbs. product)

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

Special Precautions for User: Not applicable

15. Regulatory information

US federal regulations:

TSCA Section 12(b) Export Notification (40 CFR, Subpt. D)

Not regulated

US OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list

CERCLA Hazardous Substance List (40 CFR 302.4)

This product has a Reportable Quantity (RQ) of 13,513 lbs. (based on the RQ for Hydrochloric acid of 5,000 lbs present at 37%). Releases above the RQ must be reported to the National Response Center. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories:

SARA 311/312

Refer to Section 2 for OSHA Hazard Classification.

Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: None

SARA 302 Extremely hazardous substance

None

Other federal regulations:

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

HYDROGEN CHLORIDE (CAS 7647-01-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

HYDROGEN CHLORIDE (CAS 7647-01-0)

Safe Drinking Water Act (SDWA):

Not regulated

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

HYDROGEN CHLORIDE (CAS 7647-01-0) 6545

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c)

HYDROGEN CHLORIDE (CAS 7647-01-0) 20 % WV

DEA Exempt Chemical Mixtures Code Number

HYDROGEN CHLORIDE (CAS 7647-01-0) 6545

Food and Drug Administration (FDA) - Not regulated

US state regulations - California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This product does not contain chemicals known in the State of California to cause cancer and/or reproductive harm.

State Right To Know Act – Rhode Island (RTK), Massachusetts (substance list), Pennsylvania (Hazardous Substances), and New Jersey (Worker and Community Right-to-know Act) – 500 LBS

HYDROGEN CHLORIDE (CAS 7647-01-0)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

16. Other information

Date of Current Revision: 08/12/2022

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