



SAFETY DATA SHEET

PRODUCT NAME: HYDROCHLORIC ACID

Issue Date: 19 September 2022

IDENTIFICATION

Product Name: Hydrochloric Acid
Other Names: Muriatic Acid, Spirits of Salts, Hydrogen chloride solution
Product Code: CHA, ZHYDA, PHA
Uses: pH decrease in pools, concrete etching, cleaning metal and removing scale from boilers and heat exchange equipment.
Supplier: HamChem Hamilton Chemicals Ltd, 75 Ruffell Rd, Hamilton
Phone: 079744971 Web: www.hamchem.nz Email: sales@hamchem.nz

- In emergency dial 111, and then ask for Fire, Ambulance or Police as necessary.
- In case of poisoning phone National Poisons Centre – 0800 764 766

HAZARD IDENTIFICATION



GHS Classifications

Corrosive to Metals – Category 1
Acute Oral Toxicity – Category 4
Acute Dermal Toxicity – Category 4
Acute Inhalation Toxicity – Category 2
Skin Corrosion – Category 1B
Serious Eye Damage – Category 1

Signal Word: DANGER

Hazard Statements:

H290 - May be corrosive to metals.
H302 - Harmful if swallowed.
H312 - Harmful in contact with skin.
H314 - Causes severe skin burns and eye damage.
H318 - Causes serious eye damage.
H330 - Fatal if inhaled.

Precautionary statement - Prevention:

P234 - Keep only in original packaging.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P264 - Wash contaminated skin thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P284 - In case of inadequate ventilation, wear respiratory protection.

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Precautionary statement - Response:

P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTRE or Doctor/physician if you feel unwell.

P302+P352 - IF ON SKIN: Wash with plenty of soap and water.

P312 - Call a POISON CENTRE or doctor/physician if you feel unwell.

P362 + P364 – Take off contaminated clothing and wash it before reuse.

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

P363 - Wash contaminated clothing before reuse.

P304+P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P310 - Immediately call a POISON CENTRE or Doctor/physician.

P320 - Specific treatment is urgent. Treat with 100% oxygen initially. Immediate dilution (milk or water) recommended within 30 min post ingestion is recommended.

P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 – Immediately call a POISON CENTRE or Doctor

P390 - Absorb spillage to prevent material damage.

Precautionary statement - Storage:

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

P405 - Store locked up.

P406 - Store in corrosive resistant container/container with a resistant inner liner.

Precautionary statement - Disposal:

P501 - Dispose of contents/container in accordance with any local, national, and international regulations.

COMPOSITION & INFORMATION ON INGREDIENTS

Chemical Entity	CAS No.	Proportion (%)
Hydrochloric Acid	7647-01-0	30-40
Water	7732-18-5	Remainder

FIRST AID MEASURES

24 Hour Emergency Contact: 0800 CHEMCALL (0800 243 622)

Poison Information Centre: 0800 POISON (0800 764 766)

Emergency Services: 111

If swallowed: For advice, contact the National Poisons Centre at 0800 764 766 (0800 POISON) or +64 3 479 7248 or a doctor (at once). If swallowed, do not induce vomiting.

If on skin: If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

If inhaled: Remove from contaminated area. To protect rescuer, use a Full-face Type B (inorganic and acid gas) respirator or and Air-line respirator (in poorly ventilated areas). Apply artificial respiration if not breathing.

If in eyes: Hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Note to Physician: *Most important Symptoms and Effects, Both Acute and Delayed:* Over exposure may result in severe skin, eye and respiratory burns with permanent lung and tissue damage. Strong inorganic acid mists containing sulphuric acid are classified as carcinogenic to humans.

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1. Immediate medical attention and special treatment needed:

- Treat symptomatically.

For acute or short-term repeated exposures to strong acids:

- Airway problems may arise from laryngeal oedema and inhalation exposure. Treat with 100% oxygen initially.
- Respiratory distress may require cricothyroidotomy if endotracheal intubation is contraindicated by excessive swelling.
- Intravenous lines should be established immediately in all cases where there is evidence of circulatory compromise.
- Strong acids produce a coagulation necrosis characterized by formation of a coagulum (eschar) as a result of the desiccating action of the acid on proteins in specific tissues.

Ingestion:

- Immediate dilution (milk or water) within 30 minutes post ingestion is recommended.
- DO NOT attempt to neutralize the acid since exothermic reaction may extend the corrosive injury.
- Be careful to avoid further vomit since re-exposure of the mucosa to the acid is harmful. Limit fluids to one or two glasses in an adult.
- Charcoal has no place in acid management.
- Some authors suggest the use of lavage within 1 hour of ingestion.

Skin:

- Skin lesions require copious saline irrigation. Treat chemical burns as thermal burns with non-adherent gauze and wrapping.
- Deep second-degree burns may benefit from topical silver sulfadiazine.

Eye:

- Eye injuries require retraction of the eyelids to ensure thorough irrigation of the conjunctival cul-de-sacs. Irrigation should last at least 20-30 min.
- DO NOT use neutralizing agents or any other additives. Several litres of saline are required.
- Cycloplegic drops (1% cyclopentolate for short-term use or 5% homatropine for longer term use), antibiotic drops, vasoconstrictive agents or artificial tears may be indicated dependent on the severity of the injury.
- Steroid eye drops should only be administered with the approval of a consulting ophthalmologist.

FIRE FIGHTING MEASURES

Extinguishing media: Water spray or fog, carbon dioxide (CO₂), foam, dry chemical powder, BCF (where regulations permit).

Specific hazards: Non combustible. Not considered to be a significant fire risk. Acids may react with metals to produce hydrogen, a highly flammable and explosive gas. Heating may cause expansion or decomposition leading to violent rupture of containers. May emit corrosive and poisonous fumes. May emit acrid smoke. Decomposes on heating and produces toxic fumes of: Hydrogen chloride. Contains low boiling substance: Closed containers may rupture due to pressure build-up under fire conditions.

Special protective precautions & equipment: Wear full body protective clothing and breathing apparatus. Prevent by any means available, spillage from entering drains and waterways. Use fire fighting procedures suitable for surrounding area. Do not approach containers suspected to be hot. Cool fore exposed containers with water spray from a protected location. If safe to do so, remove containers from path of fire. Equipment should be thoroughly decontaminated after use.

Fire incompatibility: None known.

Decomposition temperature: Not available.

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ACCIDENTAL RELEASE MEASURES

Emergency procedures: Wear appropriate protective equipment and clothing during clean-up. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained.

Clean-up methods – Small Spillages: Drains for storage or use areas should have retention basins for pH adjustments and dilution of spills before discharge or disposal of material. Check regularly for spills and leaks. Clean up all spills immediately. Avoid breathing vapours and contact with skin and eyes.

Clean-up methods – Large Spillages: Clear area of personnel and move upwind. Alert fire Brigade and tell them location and nature of hazard. Wear full body protective clothing with breathing apparatus. Prevent, by any means available, spillage from entering drains or water course.

Environmental Precautions: Prevent product from entering waterways. If contamination has occurred advise local emergency services.

HANDLING & STORAGE

Procedure for safe handling: Contains low boiling substance: storage in sealed containers may result in pressure buildup causing violent rupture of containers not rated appropriately. Check for bulging containers. Vent periodically. Always release caps or seals slowly to ensure slow dissipation of vapours. DO NOT allow wet material to stay in contact with skin. Avoid all personal contact, including inhalation. Wear protective clothing when risk of exposure occurs. Use in a well-ventilated area. WARNING: To avoid violent reaction, ALWAYS add material to water and NEVER water to material.

Suitable container: DO NOT use aluminum or galvanized containers. Check regularly for spills and leaks. Lined metal can, lined metal pail/can. Plastic pail. Poly-liner drum. Packing as recommended by manufacturer (For low viscosity materials). Drums and jerrycans must be of the non-removable head type. Where a can is to be used as an inner package, the can must have a screwed enclosure.

Storage incompatibility: Reacts vigorously with alkalis. Reacts with mild steel, galvanized steel/zinc producing hydrogen gas which may form an explosive mixture with air. Inorganic acids are generally soluble in water with the release of hydrogen ions. The resulting solutions have pH's of less than 7.0 Inorganic acids neutralize chemical bases (for example: amines and inorganic hydroxides) to form salts – neutralization can generate dangerously large amounts of heat in small spaces. The dissolution of inorganic acids in water or the dilution of their concentrated solutions with additional water may generate significant heat. The addition of water to inorganic acids often generates sufficient heat in the small region of mixing to cause some of the water to boil explosively. The resulting "bumping" can spatter the acid.

Storage requirements: Store in original containers. Keep containers securely sealed. Store in a cool, dry, well-ventilated area. Store away from incompatible materials and foodstuff containers.

EXPOSURE CONTROLS & PERSONAL PROTECTION

Occupational exposure limit values:

Material	TWA	STEL	Peak
Hydrogen chloride	not available	not available	5 ppm / 7.5 mg/m ³

Engineering controls:

Use in a well-ventilated area. Local exhaust ventilation may be required for safe working i.e., to keep exposures below required standards, otherwise PPE is required.

Personal protective equipment:

Respiratory: If risk of overexposure exists, wear approved respirator with appropriate filter that has sufficient capacity.

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Eye/face: Safety glasses with unperforated side shields may be used where continuous eye protection is desirable, as in laboratories; spectacles are not sufficient where complete eye protection is needed such as when handling bulk quantities, where there is a danger of splashing, or if the material may under pressure. Chemical goggles. Whenever there is a danger of the material coming in contact with the eyes; goggles must be properly fitted. Full face shield (20cm, 8 in minimum) may be required for supplementary, but never for primary protection of eyes. Alternatively, a gas mask may replace splash goggles and face shields.

Hands: Elbow length PVC gloves. Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: frequency and duration of contact, chemical resistance of glove material, glove thickness and dexterity.

Feet/body: When handling corrosive liquids, wear trousers or overalls outside of boots, to avoid spills entering boots.

PHYSICAL & CHEMICAL PROPERTIES

Form	Liquid
Appearance	Liquid
Colour	Clear to pale yellow
Odour	Strong acidic odour
Decomposition Temperature	Not available
Melting Point	Not applicable
Boiling point	91-98°C
Solubility in water	Miscible
Specific gravity	1.18
pH (1% solution)	Not available
pH (as supplied)	<1
Vapour pressure	Not available
Vapour density (air=1)	Not available
Evaporation rate	Not available
Viscosity	Not available
Volatile Component	100
Flash Point	Not applicable
Auto-Ignition Temperature	Not applicable
Explosion Limit – Upper	Not applicable
Explosion Limit – Lower	Not applicable
Molecular Weight	Not applicable

STABILITY & REACTIVITY

Reactivity: Reacts with alkalis

Chemical Stability: Corrosive to many metals with the liberation of extremely flammable hydrogen gas.

Conditions to avoid: Avoid contact with foodstuffs.

Incompatible materials: Incompatible with alkalis, oxidising agents, sodium hypochlorite, cyanides, and many metals.

Hazardous Decomposition Products: Hydrogen Chloride

Possibility of hazardous reactions: Reacts with oxidising agents and sodium hypochlorite liberating toxic gas.

Conditions to avoid: Avoid storage with metals, metal oxides, hydroxides, amines, carbonates, alkaline materials, acetic anhydride, cyanides, sulphides, sulphites, phosphides, acetylides, borides, carbides,

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silicides, vinyl acetate, formaldehyde and potassium permanganate. Reacts with zinc, brass, galvanized iron, aluminium and copper.

TOXICOLOGICAL INFORMATION

Toxicity data:

Unreported (human) LDLo:	81mg/kg
Inhalation (human) LCLo:	1300ppm/30min
Inhalation (human) LCLo:	3000ppm/5min
Oral (rat) LD50:	900mg/kg
Irritation eye (rabbit):	5mg/30s – Mild

Toxicology information: No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label. The symptoms or effects that may arise if the product is mishandled and if overexposure occurs are:

Acute Toxicity

Inhalation: Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Breathing in mists or aerosols will produce respiratory irritation.

Dermal: The material can produce chemical burns following direct contact with the skin.

Ingestion: The material can produce chemical burns within the oral cavity and gastrointestinal tract following ingestion.

Eye: The material may be irritating to the eye, with prolonged contact causing inflammation. Repeated or prolonged exposure to irritants may produce conjunctivitis.

The material can produce chemical burns to the eye following direct contact. Vapours or mists may be extremely irritating. When applied to the eye(s) of animals, the material produces severe ocular lesions which are present 24-hours or more after instillation. Direct eye contact with acid corrosives may produce pain, lachrymation, photophobia and burns. Mild burns of the epithelia generally recover rapidly and completely.

Chronic effects: Repeated or prolonged exposure to acids may result in the erosion of teeth, inflammatory and ulcerative changes in the mouth and necrosis (rarely) of the jaw. Bronchial irritation, with cough, and frequent attacks of bronchial pneumonia may ensue. Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems. On the basis, primarily, of animal experiments, concern has been expressed by at least one classification body that the material may produce carcinogenic or mutagenic effects; in respect of the available information, however, there presently exists inadequate data for making a satisfactory assessment. Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems. Chronic minor exposure to hydrogen chloride (HCl) vapour or fume may cause discolouration or erosion of the teeth, bleeding of the nose and gums; and ulceration of the nasal mucous membranes. Repeated exposures of animals to concentrations of about 34 ppm HCl produced no immediate toxic effects. Workers exposed to hydrochloric acid suffered from gastritis and a number of cases of chronic bronchitis have also been reported. Repeated or prolonged exposure to dilute solutions of HCl may cause dermatitis.

ECOLOGICAL INFORMATION

Ecotoxicity (Aquatic & Terrestrial):

Fish (trout) LC100:	10mg/L (24hr)
Mosquito fish (fresh water) TLm:	282ppm (96hr)

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Goldfish LC50:	178mg/L
Shrimp (salt water) LC50:	100-330ppm (48hr)
Starfish LC50:	100-330mg/L
Cockle LC50:	330-1000mg/L

Persistence & degradability: Low. Hydrogen chloride in water dissociates almost completely, releasing hydrogen and chlorine ions; the hydrogen ions are captured by water to produce hydronium ions.

Mobility in soil: High. Hydrochloric acid infiltrates soil, the rate dependant on moisture content. During soil transport, hydrochloric acid dissolves soil components.

Bio accumulative potential: Low.

Other adverse effects: Hazardous air pollutant.

DISPOSAL CONSIDERATIONS

Recycle wherever possible. Consult manufacturer for recycling options or consult local or regional waste management authority for disposal if no suitable treatment or disposal facility can be identified. Treat and neutralize at an approved treatment plant. Treatment should involve: Neutralization with soda-ash or soda-lime followed by: burial in a land-fill specifically licensed to accept chemical and/or pharmaceutical wastes or incineration in a licensed apparatus (after admixture with suitable combustible material). Decontaminate empty containers with 5% aqueous sodium hydroxide or soda ash, followed by water. Observe all label safeguards until containers are cleaned and destroyed. Containers may still present a chemical hazard/danger when empty. Return to supplier for reuse/recycling if possible. Otherwise: if container cannot be cleaned sufficiently well to ensure that residuals do not remain or if the container cannot be used to store the same product, then puncture containers, to prevent re-use, and bury at an authorized landfill. Where possible retain label warnings and MSDS and observe all notices pertaining to the product.

TRANSPORT INFORMATION

UN Number:	1789
Proper Shipping name:	Hydrochloric Acid Solution
Dangerous Goods Class:	Class 8 - Corrosive
Subsidiary Risk:	None
Packing group:	II
Hazchem Code:	2R

REGULATORY INFORMATION

HSNO Classifications: 8.1A, 6.1D (O), 6.1D (D), 6.1B (I), 8.2B, 8.3A

EPA Approval Number: HSR001557

Restrictions: Hydrochloric Acid >25% is Restricted to Workplace only, due to the Acute Toxicity – Category 2 classification under the Hazardous Substances (Hazardous Property Controls) Notice 2017

Exemptions: Hydrochloric Acid >25% is exempt from the requirement to have a Certified Handler certificate as per the Health and Safety at Work (Hazardous Substances — Additional and Modified Requirements for Specified Class 6 and 8 Substances) Safe Work Instrument 2017

OTHER INFORMATION

End of SDS.

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