



Identification of the Substance and Company

Chemical name: Hydrochloric Acid

Synonyms: Hydrogen Chloride, Chlorohydric Acid

Chemical formula: HCl

CAS numbers:

Hydrogen chloride: 7647-01-0

Water: 7732-18-5

Chemical family: Inorganic acids

Molecular weight: 36.46 g/mol

Product category: Chemical raw material

Hazard Identification

Hydrochloric acid is a highly corrosive substance that can cause severe damage to the skin, eyes, and respiratory system. Contact with or inhalation of this material is dangerous and harmful to the environment.

This substance is not flammable; however, contact with metals may generate hydrogen gas, which is flammable and explosive in air.

Hazard Warnings

Eye contact: Causes severe burns, corrosion, and damage to eye tissues. Symptoms include redness, tearing, irritation, and itching.

Skin contact: Causes severe burns, corrosion, blistering, peeling, and skin inflammation.

Ingestion: Causes burns to the mouth and throat, tissue destruction, and severe gastrointestinal irritation.

Inhalation: Causes respiratory tract irritation, tissue damage, coughing,

choking, and in severe cases respiratory failure.

Fire hazard: This substance does not burn.

Environmental effects: Harmful to the environment.

First Aid Measures

Eye contact: Remove contact lenses immediately. Rinse eyes with plenty of water for at least 15 minutes, preferably with cold water, keeping eyelids open. Seek immediate medical attention.

Skin contact: Remove contaminated clothing immediately. Wash affected skin thoroughly with plenty of water. If extensive damage occurs, apply suitable treatment and seek medical attention promptly.

Ingestion: Do not induce vomiting. Seek immediate medical attention.

Inhalation: Move the affected person to fresh air immediately. Loosen tight clothing. If breathing has stopped, provide artificial respiration with caution. Administer oxygen if necessary and seek medical attention immediately.

Fire Fighting Measures

Hydrochloric acid is not flammable.

Contact with metals may produce hydrogen gas, creating a risk of fire or explosion.

Use water spray to cool containers exposed to heat.

Do not spray water directly on the leaking source. Use water mist to suppress vapors.

Exposure Controls and Personal Protection

Skin protection: Wear suitable corrosion resistant protective gloves.

Eye and face protection: Use safety goggles and face shield.

Respiratory protection: Use appropriate respiratory protection when vapors are present.

Body protection: Wear protective clothing resistant to corrosive materials.

Environmental Precautions

Prevent the substance from entering drains, surface waters, and waterways.

In case of small spills, dilute with water or absorb using inert materials such as dry sand or soil.

For large spills, restrict the area and perform cleanup only by trained personnel using proper protective equipment.

Disposal Considerations

Dispose of waste material and contaminated packaging in accordance with local regulations. Discharge into sewage systems without authorization is strictly prohibited.

Handling and Storage

Store in tightly closed containers in a cool, dry, and well ventilated area. Keep away from heat, moisture, water, organic materials, oxidizing agents, bases, amines, and metals.

Protect containers from impact, falling, pressure, and severe vibration.

Physical and Chemical Properties

Hydrochloric acid is a volatile liquid, colorless to pale yellow, with a strong pungent odor and strongly acidic pH.

It is completely soluble in cold and hot water and has high solubility in many organic solvents such as alcohols.

The substance is non flammable and has no flash point.

Stability and Reactivity

Stability: Stable under normal conditions.

Incompatible materials: Metals, organic substances, bases, aldehydes, epoxides, oxidizing agents, reducing agents.

Hazardous decomposition products: Chlorine gas and hydrogen gas.
Highly corrosive to most metals but does not corrode glass.

Toxicological Information

Inhalation toxicity:

LC50 rat 30 minutes: 8300 mg/m³

LC50 rat 5 minutes: 45600 mg/m³

Oral toxicity:

LD50 oral rabbit: 900 mg/kg

Prolonged skin contact causes severe burns and tissue damage.

Eye contact even at low concentrations may cause serious corneal injury.

Transport Information

DOT classification: Class 8 Corrosive material

Proper shipping name: Hydrochloric Acid Solution

UN number: 1789

Packing group: II

Transport is commonly carried out using heavy duty polyethylene tanks and tankers.

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