



HYDROCHLORIC ACID (10% - 22%)  
Material Safety Data Sheet

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Emergency Telephone Number  
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Effective Date: 10-21-85

**PRODUCT IDENTIFICATION:**

Synonyms: Muriatic acid  
Formula CAS No.: 7647-01-0  
Molecular Weight: 36.46  
Hazardous Ingredients: Chemical Formula: HCl  
Not Applicable

**PRECAUTIONARY MEASURES**

**DANGER! CORROSIVE. CAUSES SEVERE BURNS.  
MAY BE FATAL IF SWALLOWED. HARMFUL IF INHALED.**  
Do not get in eyes, on skin, or on clothing.  
Avoid breathing mist.  
Keep container closed.  
Use with adequate ventilation.  
Wash thoroughly after handling.  
This substance is classified as a POISON under the Federal Caustic Poison Act.

**EMERGENCY/FIRST AID**

If swallowed, DO NOT INDUCE VOMITING! Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush skin or eyes with plenty of water for at least 15 minutes. In all cases call a physician.  
SEE SECTION 5.

DOT Hazard Class: Corrosive Material

**Physical Data SECTION 1**

Appearance: Clear, colorless liquid.  
Odor: Odorless.  
Solubility: Infinitely soluble in water.  
Boiling Point: 101-103°C (214-217°F).  
Vapor Density (air=1): No information found.  
Melting Point: ca -5 - -11°C (23-12°F).  
Vapor Pressure (mm Hg): No information found.  
Specific Gravity: ca 1.15-1.10  
Evaporation Rate: No information found.

**Fire and Explosion Information**

**SECTION 2**

Fire: Not considered to be a fire hazard.

May react with metals to release flammable hydrogen gas.

Explosion: Not considered to be an explosion hazard.

Fire Extinguishing Media: Water or water spray. Neutralize with soda ash or slaked lime.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

**Reactivity Data SECTION 3**

Stability: Stable under ordinary conditions of use and storage

Hazardous Decomposition Products: Emits toxic fumes of hydrogen chloride when heated to decomposition.

Hazardous Polymerization: Will not occur.

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

**Leak/Spill Disposal Information SECTION 4**

Clean-up personnel should wear protective clothing and respiratory equipment suitable for toxic or corrosive fluids or vapors. Isolate or enclose the area of the leak or spill.  
Small Spills: Neutralize with alkaline material (soda ash, lime, etc.) and flush with water.  
Larger spills and lot sizes: Provide forced ventilation to dissipate fumes. Neutralize with alkaline material, pick up with absorbent material (sand, earth, vermiculite). Dispose in a RCRA-approved waste facility.

Reportable Quantity (RQ) (CWA/CERCLA) : 5000 lbs.  
Ensure compliance with local, state and federal regulations.

Hydrochloric Acid

# Health Hazard Information

## SECTION 5

### A. Exposure/Health Effects

#### Inhalation:

Corrosive! Inhalation of vapors can cause coughing, choking, inflammation of the nose, throat, and upper respiratory tract.

#### Ingestion:

Corrosive! Swallowing hydrochloric acid can cause immediate pain and burns of the mouth, throat, esophagus and gastrointestinal tract. May cause nausea, vomiting, and diarrhea.

#### Skin Contact:

Corrosive! Can cause redness, pain, and severe skin burns. Concentrated solutions cause deep ulcers and discolor skin.

#### Eye Contact:

Corrosive! Vapors are irritating and may cause damage to the eyes. Splashes may cause severe burns and permanent eye damage.

#### Chronic Exposure:

Long-term exposure to concentrated vapors may cause erosion of teeth. Long term exposures seldom occur due to the corrosive properties of the acid.

### Aggravation of Pre-existing Conditions:

Persons with pre-existing skin disorders or eye disease may be more susceptible to the effects of this substance.

## B. FIRST AID

#### Inhalation:

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

#### Ingestion:

DO NOT INDUCE VOMITING! Give large quantities of water or milk if available. Never give anything by mouth to an unconscious person. Get medical attention immediately.

#### Skin Exposure:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

#### Eye Exposure:

Wash eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

## C. TOXICITY DATA (RTECS, 1982)

Hydrochloric acid:  
Inhalation rat LC50: 3124 ppm/1H  
Oral rabbit LD50: 900 mg/kg  
Mutation references cited.

# Occupational Control Measures

## SECTION 6

### Airborne Exposure Limits:

- OSHA Permissible Exposure Limit (PEL):  
5 ppm (TWA) Ceiling
- ACGIH Threshold Limit Value (TLV):  
5 ppm (TWA) Ceiling

### Ventilation System:

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

### Personal Respirators (NIOSH Approved)

If the TLV is exceeded a full facepiece chemical cartridge respirator may be worn. In general, up to 10 times the TLV or the maximum use concentration specified by the respirator supplier, whichever is less. Alternatively, a supplied air full facepiece respirator or airtight hood may be worn.

### Skin Protection:

Rubber or neoprene gloves and additional protection including impervious boots, apron, or coveralls, as needed in areas of unusual exposure to prevent skin contact.

### Eye Protection:

Use chemical safety goggles and/or a full face shield where splashing is possible. Contact lenses should not be worn when working with this material.

Maintain eye wash fountain and quick-drench facilities in work area.

## Storage and Special Information SECTION 7

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Isolate from incompatible substances.

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