

HYDROCHLORIC ACID

HCL

<p>Common Synonyms Muriatic Acid</p>		<p>Watery liquid Colorless Sharp, irritating odor</p>
<p>Sinks and mixes with water. Irritating vapor is produced.</p>		
<p>AVOID CONTACT WITH LIQUID AND VAPOR Keep people away Wear chemical protective suit with self-contained breathing apparatus Stop discharge if possible Stay upwind and use water spray to "knock down" vapor Isolate and remove discharged material Notify local health and pollution control agencies</p>		
<p>Fire</p>	<p>Not flammable. Flammable gas may be produced on contact with metals. Wear chemical protective suit with self-contained breathing apparatus</p>	
<p>Exposure</p>	<p>CALL FOR MEDICAL AID</p> <p>VAPOR Irritating to eyes, nose and throat. If inhaled, will cause coughing or difficult breathing Move to fresh air If breathing has stopped, give artificial respiration If breathing is difficult, give oxygen.</p> <p>LIQUID Will burn skin and eyes Harmful if swallowed. Remove contaminated clothing and shoes Flush affected areas with plenty of water IF IN EYES, hold eyelids open and flush with plenty of water IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk. DO NOT INDUCE VOMITING</p>	
<p>Water Pollution</p>	<p>Dangerous to aquatic life in high concentrations. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes</p>	
<p>1. RESPONSE TO DISCHARGE (See Response Methods Handbook) Issue warning-corrosive Restrict access Disperse and flush</p>		<p>2. LABEL</p> <p>2.1 Category: Corrosive 2.2 Class: 8</p>
<p>3. CHEMICAL DESIGNATIONS</p> <p>3.1 CG Competibility Class: Non-oxidizing mineral acid</p>		<p>4. OBSERVABLE CHARACTERISTICS</p> <p>4.1 Physical State (as shipped): Liquid 4.2 Color: Colorless to light yellow</p>

<p>6. FIRE HAZARDS</p> <p>6.1 Flash Point: Not flammable 6.2 Flammable Limits in Air: Not flammable 6.3 Fire Extinguishing Agents: Not pertinent 6.4 Fire Extinguishing Agents Not to be Used: Not pertinent 6.5 Special Hazards of Combustion Products: Toxic and irritating vapors are generated when heated 6.6 Behavior in Fire: Not pertinent 6.7 Ignition Temperature: Not flammable 6.8 Electrical Hazard: Not pertinent 6.9 Burning Rate: Not flammable 6.10 Adiabatic Flame Temperature: Data not available 6.11 Stoichiometric Air to Fuel Ratio: Data not available 6.12 Flame Temperature: Data not available</p>	<p>7. CHEMICAL REACTIVITY</p> <p>7.1 Reactivity With Water: No reaction 7.2 Reactivity with Common Materials: Corrosive to most metals with evolution of hydrogen gas, which may form explosive mixtures with air. 7.3 Stability During Transport: Stable 7.4 Neutralizing Agents for Acids and Caustics: Flush with water; apply powdered limestone, slaked lime, soda ash, or sodium bicarbonate. 7.5 Polymerization: Not pertinent 7.6 Inhibitor of Polymerization: Not pertinent 7.7 Molar Ratio (Reactant to Product): Data not available 7.8 Reactivity Group: 1</p>	<p>8. WATER POLLUTION</p> <p>8.1 Aquatic Toxicity: 282 ppm/96 hr/mosquito fish/TL₅₀/fresh water 100-330 ppm/48 hr/shrimp/LC50/salt water 8.2 Waterfowl Toxicity: Data not available 8.3 Biological Oxygen Demand (BOD): None 8.4 Food Chain Concentration Potential: None</p>
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<p>10. HAZARD ASSESSMENT CODE (See Hazard Assessment Handbook) A-P</p>	<p>11. HAZARD CLASSIFICATIONS</p> <p>11.1 Code of Federal Regulations: Corrosive material</p> <p>11.2 NAS Hazard Rating for Bulk Water Transportation:</p> <table border="1"> <thead> <tr> <th>Category</th> <th>Rating</th> </tr> </thead> <tbody> <tr> <td>Fire</td> <td>0</td> </tr> <tr> <td>Health</td> <td></td> </tr> <tr> <td>Vapor Irritant</td> <td>3</td> </tr> <tr> <td>Liquid or Solid Irritant</td> <td>3</td> </tr> <tr> <td>Poisons</td> <td>2</td> </tr> <tr> <td>Water Pollution</td> <td></td> </tr> <tr> <td>Human Toxicity</td> <td>2</td> </tr> <tr> <td>Aquatic Toxicity</td> <td>2</td> </tr> <tr> <td>Aesthetic Effect</td> <td>2</td> </tr> <tr> <td>Reactivity</td> <td></td> </tr> <tr> <td>Other Chemicals</td> <td>3</td> </tr> <tr> <td>Water</td> <td>0</td> </tr> <tr> <td>Self Reaction</td> <td>0</td> </tr> </tbody> </table> <p>11.3 NFPA Hazard Classification:</p> <table border="1"> <thead> <tr> <th>Category</th> <th>Classification</th> </tr> </thead> <tbody> <tr> <td>Health Hazard (Blue)</td> <td>3</td> </tr> <tr> <td>Flammability (Red)</td> <td>0</td> </tr> <tr> <td>Reactivity (Yellow)</td> <td>0</td> </tr> </tbody> </table>	Category	Rating	Fire	0	Health		Vapor Irritant	3	Liquid or Solid Irritant	3	Poisons	2	Water Pollution		Human Toxicity	2	Aquatic Toxicity	2	Aesthetic Effect	2	Reactivity		Other Chemicals	3	Water	0	Self Reaction	0	Category	Classification	Health Hazard (Blue)	3	Flammability (Red)	0	Reactivity (Yellow)	0
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<p>12. PHYSICAL AND CHEMICAL PROPERTIES</p> <p>12.1 Physical State at 15°C and 1 atm: Liquid</p> <p>12.2 Molecular Weight: 36.46</p> <p>12.3 Boiling Point at 1 atm: 123°F = 50.5°C = 323.8°K</p> <p>12.4 Freezing Point: Not pertinent</p> <p>12.5 Critical Temperature: Not pertinent</p> <p>12.6 Critical Pressure: Not pertinent</p> <p>12.7 Specific Gravity: 1.19 at 20°C (liquid)</p> <p>12.8 Liquid Surface Tension: Not pertinent</p> <p>12.9 Liquid Water Interfacial Tension: Not pertinent</p> <p>12.10 Vapor (Gas) Specific Gravity: Not pertinent</p> <p>12.11 Ratio of Specific Heats of Vapor (Gas): Not pertinent</p> <p>12.12 Latent Heat of Vaporization: 178 Btu/lb = 98.6 cal/g =</p>																																					

3000

HYDROCHLORIC ACID

HCL

<p>Common Synonyms Muretic Acid</p>	<p>Watery liquid Colorless Sharp, irritating odor</p> <p>Sinks and mixes with water. Irritating vapor is produced.</p>
<p>AVOID CONTACT WITH LIQUID AND VAPOR Keep people away Wear chemical protective suit with self-contained breathing apparatus Stop discharge if possible Stay upwind and use water spray to "knock down" vapor Isolate and remove discharged material Notify local health and pollution control agencies.</p>	
Fire	<p>Not flammable Flammable gas may be produced on contact with metals. Wear chemical protective suit with self-contained breathing apparatus</p>
Exposure	<p>CALL FOR MEDICAL AID</p> <p>VAPOR Irritating to eyes, nose and throat. If inhaled, will cause coughing or difficult breathing. Move to fresh air. If breathing has stopped, give artificial respiration. If breathing is difficult, give oxygen.</p> <p>LIQUID Will burn skin and eyes. Harmful if swallowed. Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk. DO NOT INDUCE VOMITING</p>
Water Pollution	<p>Dangerous to aquatic life in high concentrations. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Notify operators of nearby water intakes</p>
<p>1. RESPONSE TO DISCHARGE (See Response Methods Handbook) Issue warning-corrosive Restrict access Disperse and flush</p>	<p>2. LABEL</p> <p>2.1 Category: Corrosive 2.2 Class: 8</p>
<p>3. CHEMICAL DESIGNATIONS</p> <p>3.1 CG Competibility Class: Non-oxidizing mineral acid 3.2 Formula: HCl-H₂O 3.3 IMO/IUN Designation: 8.0/1789 3.4 DOT ID No.: 1789 3.5 CAS Registry No.: 7647-01-0</p>	<p>4. OBSERVABLE CHARACTERISTICS</p> <p>4.1 Physical State (as shipped): Liquid 4.2 Color: Colorless to light yellow 4.3 Odor: Pungent, sharp, pungent, irritating</p>
<p>5. HEALTH HAZARDS</p> <p>5.1 Personal Protective Equipment: Self-contained breathing equipment, air-line mask, or industrial canister-type gas mask; rubber or rubber-coated gloves, apron, coat, overalls, shoes.</p> <p>5.2 Symptoms Following Exposure: Inhalation of fumes results in coughing and choking sensation, and irritation of nose and lungs. Liquid causes burns.</p> <p>5.3 Treatment of Exposure: INHALATION remove person to fresh air; keep him warm and quiet and get medical attention immediately; start artificial respiration if breathing stops. INGESTION: have person drink water or milk; do NOT induce vomiting. EYES: immediately flush with plenty of water for at least 15 min. and get medical attention; continue flushing for another 15 min. if physician does not arrive promptly. SKIN: immediately flush skin while removing contaminated clothing; get medical attention promptly; use soap and wash area for at least 15 min.</p> <p>5.4 Threshold Limit Value: 5 ppm 5.5 Short Term Inhalation Limit: 5 ppm for 5 min. 5.6 Toxicity by Ingestion: Data not available 5.7 Late Toxicity: None 5.8 Vapor (Gas) Irritant Characteristics: Vapor is moderately irritating such that personnel will not usually tolerate moderate or high vapor concentrations. 5.9 Liquid or Solid Irritant Characteristics: Fairly severe skin irritant; may cause pain and second-degree burns after a few minutes' contact. 5.10 Odor Threshold: 1-5 ppm 5.11 IDLH Value: 100 ppm</p>	

<p>6. FIRE HAZARDS</p> <p>6.1 Flash Point: Not flammable 6.2 Flammable Limits in Air: Not flammable 6.3 Fire Extinguishing Agents: Not pertinent 6.4 Fire Extinguishing Agents Not to be Used: Not pertinent 6.5 Special Hazards of Combustion Products: Toxic and irritating vapors are generated when heated. 6.6 Behavior in Fire: Not pertinent 6.7 Ignition Temperature: Not flammable 6.8 Electrical Hazard: Not pertinent 6.9 Burning Rate: Not flammable 6.10 Adiabatic Flame Temperature: Data not available 6.11 Stoichiometric Air to Fuel Ratio: Data not available 6.12 Flame Temperature: Data not available</p>	<p>10. HAZARD ASSESSMENT CODE (See Hazard Assessment Handbook) A-P</p>																																				
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<p>9. SHIPPING INFORMATION</p> <p>9.1 Grades of Purity: Food processing or technical: 18° Be-27.8%, 20 Be-31.5%, 22° Be-35.2%; Reagent, ACS, and USP: 23° Be-37.1% 9.2 Storage Temperature: Ambient 9.3 Inert Atmosphere: No requirement 9.4 Venting: Open</p>	<p>NOTES</p>																																				

Exposure	Remove contaminated clothing and shoes. Flush affected areas with plenty of water. IF IN EYES, hold eyelids open and flush with plenty of water. IF SWALLOWED and victim is CONSCIOUS, have victim drink water or milk. DO NOT INDUCE VOMITING.	
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