Hydrochloric Acid

J.T. BAKER INC., 222 Red School Lane, Phillipsburg, NJ 08865

SECTION I - PRODUCT IDENTIFICATION

Product Name: Hydrochloric Acid
Common Synonyms: Muriatic Acid; Chlorohydric Acid; Hydrogen Chloride, Aqueous
Chemical Family: Inorganic Acids
Formula: HCl
Formula Wt.: 36.46
CAS No.: 7647-01-0
NIOSH/RTECS No.: MW4025000
Product Use: Laboratory Reagent
Product Codes: 9532, 9537, 9535, 4800, 9542, 9534, 5537, 9549, 9529, 9547, 9546, 6900
9536, 9540, 9539, 9548, 5367, 9544, 5800, 5214, 5575, 9543, 9530

PRECAUTIONARY LABELING

BAKER SAF-T-DATA® System

HEALTH

3 SEVERE

FLAMMABILITY

0 NONE

REACTIVITY

2 MODERATE

CONTACT

3 SEVERE

Laboratory Protective Equipment

GUANDLES & SHIELD
LAB CORN & APRON
VENT HOOD
PROPER GLOVES

U.S. Precautionary Labeling

POISON! DANGER!

CAUSES SEVERE BURNS. MAY BE FATAL IF SWALLOWED OR INHALED.
Do not get in eyes, on skin, on clothing. Do not breathe vapor. Causes damage to Respiratory system (lungs), eyes and skin. Keep in tightly closed container. Loosen closure cautiously. Use with adequate ventilation. Wash thoroughly after handling. In case of spill neutralize with soda ash or lime and place in dry container.
H3880 -03  
Effective: 05/01/89  

Hydrochloric Acid  

Page: 2  
Issued: 08/18/91  

================================================================================  
PRECAUTIONARY LABELING (CONTINUED)  
================================================================================  

International Labeling  

Irritating to eyes and skin.
Keep out of reach of children. In case of contact with eyes, rinse immediately  
with plenty of water and seek medical advice.  

SAF-T-DATA: Storage Color Code: White (corrosive)  

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SECTION II - COMPONENTS  
================================================================================  

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS No.</th>
<th>Weight %</th>
<th>OSHA/PEL</th>
<th>ACGIH/TLV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochloric Acid</td>
<td>7647-01-0</td>
<td>33-40</td>
<td>5 ppm</td>
<td>N/E</td>
</tr>
<tr>
<td>Water</td>
<td>7732-18-5</td>
<td>60-67</td>
<td>N/E</td>
<td>5 ppm</td>
</tr>
</tbody>
</table>

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SECTION III - PHYSICAL DATA  
================================================================================  

Boiling Point: 149°C (300°F)  
(at 760 mm Hg)  

Melting Point: -25°C (-13°F)  
(at 760 mm Hg)  

Specific Gravity: 1.18  
(H2O=1)  

Solubility(H2O): Complete (100%)  

% Volatiles by Volume: 100  
(21°C)  

pH: 1.0  
(0.1M solution)  

Odor Threshold (ppm): N/A  

Coefficient Water/Oil Distribution: N/A  


Vapor Pressure (mmHg): N/A  

Vapor Density (air=1): 1.3  

Evaporation Rate: N/A  

Continued on Page: 3
Section IV - Fire and Explosion Hazard Data

Flash Point (Closed Cup): N/A  
NFPA 704M Rating: 3-0-0

Autoignition Temperature: N/A

Flammable Limits: Upper - N/A  Lower - N/A

Fire Extinguishing Media
Use extinguishing media appropriate for surrounding fire.

Special Fire-Fighting Procedures
Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in positive pressure mode. Move containers from fire area if it can be done without risk. Use water to keep fire-exposed containers cool. Do not get water inside containers.

Unusual Fire & Explosion Hazards
May emit hydrogen gas upon contact with metal.

Toxic Gases Produced
hydrogen chloride, hydrogen

Explosion Data-Sensitivity to Mechanical Impact
None identified.

Explosion Data-Sensitivity to Static Discharge
None identified.

Section V - Health Hazard Data

Threshold Limit Value (TLV/TWA): 7 mg/m³  (5 ppm)

TLV (Ceiling) is for Hydrogen chloride.

Short-Term Exposure Limit (STEL): Not Established

Permissible Exposure Limit (PEL): 7 mg/m³  (5 ppm)

PEL (Ceiling) is for Hydrogen chloride.

Toxicity of components
SECTION V - HEALTH HAZARD DATA (CONTINUED)

Intraperitoneal Mouse LD₅₀ for Hydrochloric Acid 10 mg/kg
Oral Rabbit LD₅₀ for Hydrochloric Acid 900 mg/kg
Inhalation-1Hr Rat LC₅₀ for Hydrochloric Acid 3124 ppm
Intraperitoneal Mouse LD₅₀ for Water 190 g/kg
Intravenous Mouse LD₅₀ for Water 25 g/kg

Carcinogenicity: NTP: No IARC: No Z List: No OSHA Reg: No

Carcinogenicity
None identified.

Reproductive Effects
None identified.

Effects of Overexposure

INHALATION: pulmonary edema, circulatory failure, respiratory system damage, collapse, coughing, difficult breathing

SKIN CONTACT: severe burns

EYE CONTACT: severe burns

SKIN ABSORPTION: none identified

INGESTION: is harmful and may be fatal, severe burns to mouth, throat, and stomach, nausea, vomiting

CHRONIC EFFECTS: may cause teeth damage

Target Organs
respiratory system, eyes, skin

Medical Conditions Generally Aggravated by Exposure
none identified

Primary Routes of Entry
ingestion, inhalation, skin contact, eye contact
SECTION V - HEALTH HAZARD DATA (CONTINUED)

Emergency and First Aid Procedures

INGESTION: CALL A PHYSICIAN. If swallowed, do NOT induce vomiting. If conscious, give water, milk, or milk of magnesia.

INHALATION: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

SKIN CONTACT: 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 re-use.

EYE CONTACT: In case of eye contact, immediately flush with plenty of water for at least 15 minutes.

SARA/TITLE III HAZARD CATEGORIES and LISTS

Acute: Yes Chronic: Yes Flammability: No Pressure: No Reactivity: No

Extremely Hazardous Substance: Yes Contains Hydrogen Chloride (RQ = 1 LB, TPQ = 500 LBS)

CERCLA Hazardous Substance: Yes Contains Hydrochloric Acid (RQ = 5000 LBS)

SARA 313 Toxic Chemicals: Yes Contains Hydrochloric Acid

Generic Class: C16

TSCA Inventory: Yes

SECTION VI - REACTIVITY DATA

Stability: Stable Hazardous Polymerization: Will not occur

Conditions to Avoid: heat, moisture

Incompatibles: most common metals, water, amines, metal oxides, acetic anhydride, propiioletane, vinyl acetate, mercuric sulfate, calcium phosphide, formaldehyde, alkalies, carbonates, strong bases, sulfuric acid, chlorosulfonic acid

Decomposition Products: hydrogen chloride, hydrogen, chlorine

Continued on Page: 6
SECTION VII - SPILL & DISPOSAL PROCEDURES

Steps to be Taken in the Event of a Spill or Discharge
Wear self-contained breathing apparatus and full protective clothing.
Stop leak if you can do so without risk. Ventilate area. Neutralize spill with soda ash or lime. With clean shovel, carefully place material into clean, dry container and cover; remove from area. Flush spill area with water.

J. T. Baker NEUTRASORB® or TEAM® 'Low Na+' acid neutralizers are recommended for spills of this product.

Disposal Procedure
Dispose in accordance with all applicable federal, state, and local environmental regulations.

EPA Hazardous Waste Number: D002 (Corrosive Waste)

SECTION VIII - INDUSTRIAL PROTECTIVE EQUIPMENT

Ventilation: Use general or local exhaust ventilation to meet TLV requirements.

Respiratory Protection: Respiratory protection required if airborne concentration exceeds TLV. At concentrations up to 100 ppm, a chemical cartridge respirator with acid cartridge is recommended. Above this level, a self-contained breathing apparatus is advised.

Eye/Skin Protection: Safety goggles and face shield, uniform, protective suit, neoprene gloves are recommended.

SECTION IX - STORAGE AND HANDLING PRECAUTIONS

SAF-T-DATA® Storage Color Code: White (corrosive)

Storage Requirements
Keep container tightly closed. Store in corrosion-proof area. Isolate from incompatible materials. Do not store near oxidizing materials.
氢氯酸

国内（D.O.T.）
- 货物名称：氢氯酸
- 危险类别：腐蚀性物质（液体）
- UN/NA：UN1789 报告量：5000 LBS.
- 标签：腐蚀
- 监管参考：49CFR 172.101；173.263

国际（I.M.O.）
- 货物名称：氢氯酸溶液
- 危险类别：8
- UN：UN1789 海洋污染物：否
- 标签：腐蚀
- 监管参考：49CFR 172.102；Part 176；IMO

空气（I.C.A.O.）
- 货物名称：氢氯酸溶液
- 危险类别：8
- UN：UN1789
- 标签：腐蚀
- 监管参考：49CFR 172.101；173.6；Part 175；ICAO/IATA
- 美国海关协调化编号：2806100000

N/A = 不适用或不可用
N/E = 不确定

在本材料安全数据表中，根据美国职业安全与健康法和其后颁布的规定（29 CFR 1910.1200 et. seq.）以及加拿大工作场所危险材料信息系统的实施，该信息仅作为对材料安全信息系统的适用程序和应急处理方法的一种指导。用户必须根据使用情况和防护装备（如面罩和呼吸器）来确定材料的安全处理方法。本化学品可能与其它物质发生反应。根据潜在的用途，Baker不能保证所有使用此化学品的危险。Baker对此化学品或材料的潜在危险性保证。
the chemical meets the specifications set forth on the label.

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The user should recognize that this product can cause severe injury and even death, especially if improperly handled or the known dangers of use are not heeded. READ ALL PRECAUTIONARY INFORMATION. As new documented general safety information becomes available, Baker will periodically revise this Material Safety Data Sheet.

Note: CHEMTREC, CANUTEC, and NATIONAL RESPONSE CENTER emergency telephone numbers are to be used ONLY in the event of CHEMICAL EMERGENCIES involving a spill, leak, fire, exposure, or accident involving chemicals. All non-emergency questions should be directed to Customer Service (1-800-JTBAKER) for assistance.

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Approved by Quality Assurance Department.