1. **IDENTIFICATION OF SUBSTANCE**

   Name: HYDROCHLORIC ACID INJECTION 1N  
   Manufacturer: Department of Pharmacy  
   Duke University Medical Center  
   Box 3089  
   Durham, NC 27710  
   919-684-5125

   **Information Department:**  
   Occupational and Environmental Safety Office  
   Duke University Medical Center  
   Box 3914  
   Durham, NC 27710  
   919-684-5996

   **Emergency Information:**  
   Regional Poison Control Center  
   800-848-6946

2. **COMPOSITION/INFORMATION ON INGREDIENTS**

   **Chemical Characterization/Description:** Hydrochloric acid solution  
   **Synonym(s):** Hydrogen chloride, muriatic acid

   **Dangerous Components (CAS#, Hazardous Chemical, Percent):**  
   7647-01-0 Hydrochloric acid 3-4%  
   7732-18-5 Water 96-97%

3. **HAZARDS IDENTIFICATION**

   **Hazard Description:**  
   Hydrochloric acid is classified as highly corrosive to the eyes, skin, and mucous membranes. It can cause irreversible tissue damage and is mildly toxic by inhalation. (Hazard description based on concentrated constituents; this product is an aqueous solution.)

   **NFPA Ratings (scale 0-4):**  
   Health: 2  
   Fire: 0  
   Reactivity: 0
## 4. FIRST AID MEASURES

**Inhalation:**

Remove victim to fresh air. Give oxygen or artificial respiration if necessary.

**Skin Contact:**

IMMEDIATELY flood affected skin with water while removing and isolating all contaminated clothing. Gently wash all affected skin areas thoroughly with soap and water. Seek medical attention if warranted.

**Eye Contact:**

First check the victim for contact lenses and remove if present. Flush victim's eyes with water or normal saline solution for 20 to 30 minutes while simultaneously calling a hospital or poison control center. Do not put any ointments, oils, or medication in the victim's eyes without specific instructions from a physician. IMMEDIATELY transport the victim after flushing eyes to a hospital even if no symptoms (such as redness or irritation) develop.

**Ingestion:**

DO NOT INDUCE VOMITING. Corrosive chemicals will destroy the membranes of the mouth, throat, and esophagus, and may be aspirated into the victim’s lungs during vomiting.

If the victim is conscious and not convulsing, give 1 or 2 glasses of water to dilute the chemical and IMMEDIATELY call a hospital or poison control center. IMMEDIATELY transport the victim to a hospital.

If the victim is convulsing or unconscious, do not give anything by mouth, ensure that the victim's airway is open, and lay the victim on his/her side with the head lower than the body. Transport the victim IMMEDIATELY to a hospital.
### 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Agents:**

Use appropriate extinguishing media for surrounding fire.

**Protective Equipment:**

Self-contained breathing apparatus and protective equipment for fire fighting.

### 6. ACCIDENTAL RELEASE MEASURES

**Personnel Precautions:**

Wear gloves (neoprene, nitrile, natural rubber, PVC, butyl, or Viton) and eye protection (chemical splash goggles).

**Environmental Precautions:**

None necessary under normal conditions of use.

**Measures for Cleaning/Collection:**

Cover with soda ash, scoop up and place in suitable container. Another option is to use absorbent paper to pick up all liquid spill material. Seal the absorbent paper, as well as contaminated clothing, in a vapor-tight plastic bag for eventual disposal. Wash all contaminated surfaces with a soap and water solution.

### 7. HANDLING AND STORAGE

**Handling:**

Wear PPE when handling this material. Wash hands after handling.

**Storage:**

Store in a cool, dry, well-ventilated location away from oxidizing materials and incompatible substances.
TRADE NAME: HYDROCHLORIC ACID INJECTION 1N

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Engineering Controls:
None necessary under conditions of normal use.

Control Parameters:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Limit</th>
<th>Reference</th>
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<tbody>
<tr>
<td>Hydrochloric acid (hydrogen chloride)</td>
<td>5 ppm</td>
<td>ACGIH TLV-Ceiling</td>
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Personal Protective Equipment:

Respiratory Protection
None necessary under conditions of normal use.

Skin Protection
Wear gloves (neoprene, nitrile, natural rubber, PVC, butyl, or Viton) when using this chemical. If this chemical comes into contact with your gloves, or if a tear/puncture develops, remove gloves at once and wash hands.

Eye Protection
Splash-proof safety goggles should be worn while handling this chemical.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid
pH: 0.1
Boiling/Freezing Points (°C):
Approx. same as water.
Flashpoint (°C): N/A
Autoignition Temperature (°C): N/A
Explosion Properties: N/A
Vapor Pressure (mm Hg/70°F): 14
Vapor Density (air = 1): N/A
Specific Gravity (water = 1): Approx. same as water.
Solubility: Completely soluble in water.
TRADE NAME: HYDROCHLORIC ACID INJECTION 1N

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<th>10. STABILITY AND REACTIVITY</th>
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<td><strong>General:</strong> This product is hygroscopic.</td>
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<td><strong>Materials to Avoid:</strong> Metals, acetic anhydride, and strong oxidizers. Potentially dangerous reaction with sulfuric acid releases HCl gas. Product may attack some forms of plastics, rubber, and coatings.</td>
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<td><strong>Hazardous Decomposition Products:</strong> When heated to decomposition, product may emit toxic fumes of Cl⁻.</td>
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<th>11. TOXICOLOGICAL INFORMATION</th>
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<td><strong>Acute Toxicity:</strong> Hydrochloric acid a corrosive irritant to the skin, eyes, and mucous membranes and is toxic by inhalation. Strong acids can cause irreversible tissue damage. Eye irritation tests in rabbits resulted in a “mild” rating at 5 mg per 30 second rinse.</td>
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<td><strong>Signs/Symptoms of Overexposure:</strong> Corrosion and extreme destruction of tissue. Burning sensations, teeth erosion, and GI tract disturbances have been reported. A concentration of 35 ppm causes irritation of the throat after short exposure.</td>
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<td><strong>Chronic Toxicity:</strong> This product is not considered a carcinogen by NTP, IARC or OSHA. An experimental teratogen.</td>
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<th>12. ECOLOGICAL EFFECTS</th>
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<td>None anticipated under normal conditions of use.</td>
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<th>13. DISPOSAL CONSIDERATIONS</th>
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<tr>
<td>Dispose of all waste and contaminated materials associated with this chemical as specified by existing local, state and federal regulations concerning hazardous waste disposal. Contact the Occupational and Environmental Safety Office for specific guidance.</td>
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<th>14. TRANSPORT INFORMATION</th>
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<tr>
<td><strong>Proper shipping name (DOT):</strong> Hydrochloric acid, solution</td>
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<tr>
<td><strong>UN/ID number:</strong> UN1789</td>
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<td><strong>Hazard class:</strong> 8</td>
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<td><strong>Packing group:</strong> II</td>
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<td><strong>Labels required:</strong> Corrosive</td>
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<th>15. REGULATORY INFORMATION</th>
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<td>Reported in EPA Extremely Hazardous Substances List, Community Right-To-Know List, TSCA Inventory, and Genetic Toxicology Program.</td>
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<th>16. OTHER INFORMATION</th>
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<td>This information is based on our present knowledge; however this shall not constitute a guarantee for any specific product features. No toxicity data are available on this specific formulation; this health hazard assessment is based on information that is available for its components.</td>
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