

### Section 1: Product and Company Identification

**Middlesex Gases & Technologies**

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Product Code: Hydrogen Chloride

### Section 2: Hazards Identification



**Danger**

**Hazard Classification:**

Acute Gas Inhale Toxicity (Category 3)  
Gases Under Pressure  
Skin Corrosion (Category 1.A)

**Hazard Statements:**

Causes severe skin burns and eye damage  
Contains gas under pressure; may explode if heated  
Toxic if inhaled

**Precautionary Statements**

**Prevention:**

Wash thoroughly after handling.  
Use only outdoors or in a well-ventilated area.  
Do not breathe dust/fume/gas/mist/ vapors/spray..  
[In case of inadequate ventilation] wear respiratory protection.  
Wear protective gloves, protective clothing, eye protection and face protection.

**Response:**

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
If swallowed: Rinse mouth. Do NOT induce vomiting.  
If inhaled: Remove person to fresh air and keep comfortable for breathing.  
Immediately call a poison center or doctor.

**Storage:**

Store in a well-ventilated place. Keep container tightly closed.  
 Protect from sunlight.  
 Store locked up.

**Disposal:**  
 Dispose of contents and/or container in accordance with applicable regulations.

## Section 3: Composition/Information on Ingredients

|              |
|--------------|
| <b>CAS #</b> |
| 7647-01-0    |

| Chemical Substance           | Chemical Family  | Trade Names   |
|------------------------------|------------------|---|
| HYDROGEN CHLORIDE, ANHYDROUS | halogenated, gas | HYDROCHLORIC ACID, ANHYDROUS; HYDROGEN CHLORIDE; SPIRITS OF SALT; MURIATIC ACID; HYDROCHLORIC ACID; HYDROCHLORIC ACID GAS; ANHYDROUS HYDROCHLORIC ACID; HYDROGEN CHLORIDE (HCl); UN 1050; CIH |

## Section 4: First Aid Measures

| Skin Contact  | Eye Contact  | Ingestion   | Inhalation  | Note to Physicians   |
|---|--|---|---|--|
| Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Thoroughly clean and dry contaminated clothing before reuse. Destroy contaminated shoes. | Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention. | Contact local poison control center or physician immediately. Never make an unconscious person vomit or drink fluids. Give large amounts of water or milk. Allow vomiting to occur. When vomiting occurs, keep head lower than hips to help prevent aspiration. If person is unconscious, turn head to side. Get medical attention immediately. | If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention. Avoid mouth-to-mouth contact by using mouth guards or shields. | For inhalation, consider oxygen. Avoid gastric lavage or emesis. |

## Section 5: Fire Fighting Measures

| Suitable Extinguishing Media  | Products of Combustion   | Protection of Firefighters   |
|---|--|--|
| Hydrogen chloride does not burn. Use extinguishing agents compatible with hydrogen chloride and appropriate for the surrounding fire. | Decomposes under intense fire conditions to form extremely flammable and potentially explosive hydrogen gas and very toxic and corrosive chlorine gas. | <ul style="list-style-type: none"> <li>▪ Any self-contained breathing apparatus with a full facepiece.</li> <li>▪ Any self-contained breathing apparatus with a full facepiece.</li> </ul> |

## Section 6: Accidental Release Measures

| Personal Precautions | Environmental Precautions | Methods for Containment |
|----------------------|---------------------------|-------------------------|
|                      |                           |                         |

| Personal Precautions   | Environmental Precautions                             | Methods for Containment  |
|--|---|--|
| Keep unnecessary people away, isolate hazard area and deny entry. Stay upwind and keep out of low areas. Ventilate closed spaces before entering. Evacuation radius: 150 feet. | Prevent contamination of the surrounding environment. | Stop leak if possible without personal risk. Reduce vapors with water spray. Do not get water directly on material. Do not get water inside container. Dig holding area such as lagoon, pond or pit for containment. |

| Methods for Cleanup   | Other Information   |
|---|---|
| Small spills: Flood with water. Large spills: Dike for later disposal. Collect runoff for disposal as potential hazardous waste. Absorb with sand or other non-combustible material. Add an alkaline material (lime, crushed limestone, sodium bicarbonate, or soda ash). | Notify Local Emergency Planning Committee and State Emergency Response Commission for release greater than or equal to RQ (U.S. SARA Section 304). If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA). |

## Section 7: Handling and Storage

| Handling   | Storage                                      |
|--|--|
| Store and handle in accordance with all current regulations and standards. Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Protect from physical damage. Store in a cool, dry place. Store in a well-ventilated area. Notify State Emergency Response Commission for storage or use at amounts greater than or equal to the TPQ (U.S. EPA SARA Section 302). SARA Section 303 requires facilities storing a material with a TPQ to participate in local emergency response planning (U.S. EPA 40 CFR 355.30). | Keep separated from incompatible substances. |

## Section 8: Exposure Controls/Personal Protection

| Exposure Guidelines   |
|---|
| HYDROGEN CHLORIDE, ANHYDROUS: HYDROGEN CHLORIDE (HYDROCHLORIC ACID): 5 ppm (7 mg/m <sup>3</sup> ) OSHA ceiling 2 ppm ACGIH ceiling 5 ppm (7 mg/m <sup>3</sup> ) NIOSH recommended ceiling |

### Engineering Controls

Handle only in fully enclosed systems.

| Eye Protection  | Skin Protection                               | Respiratory Protection  |
|---|---|---|
| Wear splash resistant safety goggles with a face shield. Provide an emergency eye wash fountain and quick drench shower in the immediate work area. | Wear appropriate chemical resistant clothing. | Any self-contained breathing apparatus with a full facepiece. |

### General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

## Section 9: Physical and Chemical Properties

| Physical State | Appearance | Color     | Change in Appearance | Physical Form | Odor            | Taste |
|----------------|------------|-----------|----------------------|---------------|-----------------|-------|
| Gas            | Colorless  | Colorless | N/A                  | Gas           | Irritating odor | N/A   |

| Flash Point                        | Flammability  | Partition Coefficient | Autoignition Temperature | Upper Explosive Limits | Lower Explosive Limits |
|------------------------------------|---------------|-----------------------|--------------------------|------------------------|------------------------|
| Non-flammable gas (does not burn). | Not available | Not available         | Nonflammable             | Nonflammable           | Nonflammable           |

| Boiling Point  | Freezing Point  | Vapor Pressure      | Vapor Density | Specific Gravity | Water Solubility | pH                 | Odor Threshold | Evaporation Rate | Viscosity     |
|----------------|-----------------|---------------------|---------------|------------------|------------------|--------------------|----------------|------------------|---------------|
| -121 F (-85 C) | -175 F (-115 C) | 30400 mmHg @ 17.8 C | 1.268 (Air=1) | 1.187 @ -85 C    | 82.3% @ 0 C      | Acidic in solution | 1-5 ppm        | Not applicable   | Not available |

| Molecular Weight | Molecular Formula | Density                  | Weight per Gallon | Volatility by Volume | Volatility     | Solvent Solubility                         |
|------------------|-------------------|--------------------------|-------------------|----------------------|----------------|--|
| 36.46            | H-Cl              | 0.095 lb/ft <sup>3</sup> | Not available     | 100%                 | Not applicable | Soluble: Alcohol, ether, benzene, methanol |

## Section 10: Stability and Reactivity

| Stability   | Conditions to Avoid                                     | Incompatible Materials   |
|---|---|--|
| May react with evolution of heat on contact with water. | May react with evolution of heat on contact with water. | Cyanides, metals, amines, bases, metal carbide, oxidizing materials, acids, halo carbons, combustible materials, halogens, metal salts, formaldehyde, fluorine, alcohols |

| Hazardous Decomposition Products | Possibility of Hazardous Reactions |
|----------------------------------|------------------------------------|
| Chlorine                         | Will not polymerize.               |

## Section 11: Toxicology Information

### Acute Effects

| Oral LD50                  | Dermal LD50   | Inhalation |
|----------------------------|---------------|------------|
| 900 mg/kg oral-rabbit LD50 | Not available | Burns      |

| Eye Irritation | Skin Irritation | Sensitization  |
|----------------|-----------------|--|
| Burns          | Burns           | Respiratory tract burns, skin burns, eye burns, mucous membrane burns. The gas absorbs moisture from the air and can form an acid fog in damp air. |

### Chronic Effects

| Carcinogenicity   | Mutagenicity | Reproductive Effects | Developmental Effects |
|---|--------------|----------------------|-----------------------|
| IARC: Human Inadequate Evidence, Animal Inadequate Evidence, Group 3; ACGIH: A4 -Not Classifiable as a Human Carcinogen | Available.   | Available.           | No data               |

## Section 12: Ecological Information

### Fate and Transport

| Eco toxicity  | Persistence / Degradability | Bioaccumulation / Accumulation | Mobility in Environment |
|---|-----------------------------|--------------------------------|-------------------------|
| Fish toxicity: Acute LC50 282000 ug/L Fresh water Fish - Western mosquitofish - Gambusia affinis - Adult 96 hours; 21900 ug/L 96 hour(s) LC50 (Mortality) Fathead min<br>Invertebrate toxicity: 560 ug/L 48 hour(s) EC50 (Immobilization) Water flea (Daphnia magna)<br>Algal toxicity: 800 ug/L 1600 week(s) EC50 (Population Size Reduction) Green algae (Chlorella pyrenoidosa)<br>Phyto toxicity: 1000 ug/L 4-48 week(s) (Residue) Water-hyacinth (Eichhornia crassipes)<br>Other toxicity: Not available | Not available               | Not available                  | Not available           |

## Section 13: Disposal Considerations

Subject to disposal regulations: U.S. EPA 40 CFR 262. Hazardous Waste Number(s): D002. Dispose in accordance with all applicable regulations.

## Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

| Proper Shipping Name         | ID Number | Hazard Class or Division | Packing Group  | Labeling Requirements | Passenger Aircraft or Railcar Quantity Limitations | Cargo Aircraft Only Quantity Limitations | Additional Shipping Description |
|------------------------------|-----------|--------------------------|----------------|-----------------------|--|--|---------------------------------|
| Hydrogen chloride, anhydrous | UN1050    | 2.3                      | Not applicable | 2.3; 8                | Forbidden  | Forbidden                                | Toxic-Inhalation Hazard Zone C  |

### Canadian Transportation of Dangerous Goods

| Shipping Name                | UN Number | Class  | Packing Group / Risk Group |
|------------------------------|-----------|--------|----------------------------|
| Hydrogen chloride, anhydrous | UN1050    | 2.3; 8 | Not applicable             |

## Section 15: Regulatory Information

### U.S. Regulations

| CERCLA Sections      | SARA 355.30       | SARA 355.40       |
|----------------------|-------------------|-------------------|
| 5000 LBS RQ (liquid) | 500 LBS TPQ (gas) | 5000 LBS RQ (gas) |

### SARA 370.21

| Acute | Chronic | Fire | Reactive | Sudden Release |
|-------|---------|------|----------|----------------|
| Yes   | No      | No   | Yes      | Yes            |

### SARA 372.65

HYDROGEN CHLORIDE (HYDROCHLORIC ACID): except non-aerosol forms

### OSHA Process Safety

5000 LBS TQ (gas)

### State Regulations

**CA Proposition 65**  
Not regulated.

### Canadian Regulations

**WHMIS Classification**  
A, D1A, E

### National Inventory Status

| US Inventory (TSCA)  | TSCA 12b Export Notification | Canada Inventory (DSL/NDSL) |
|----------------------|------------------------------|-----------------------------|
| Listed on inventory. | Not listed.                  | Not determined.             |

## Section 16: Other Information

**NFPA Rating**  
HEALTH=3 FIRE=0 REACTIVITY=1

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard