

## Safety Data Sheet

### 1. IDENTIFICATION

|                                |   |
|--------------------------------|---|
| <b>Product Identifier:</b>     | Hydrochloric Acid, 35-38% w/w   |
| <b>Product Code(s):</b>        | H1017, H1029, H1035, H1039, H1055, H1076  |
| <b>Synonyms:</b>               | Muriatic Acid; Hydrogen Chloride, Aqueous; Chlorohydric Acid; Spirits of Salt.  |
| <b>Recommended Use:</b>        | For manufacturing, industrial, and laboratory use only. Use as a catalyst or as a laboratory reagent.                 |
| <b>Uses Advised Against:</b>   | Not for food, drug, or household use.   |
| <b>Supplier:</b>               | Rocky Mountain Reagents, Inc.<br>4621 Technology Drive, Golden, CO 80403<br>Phone: (303) 762-0800 Fax: (303) 762-1240 |
| <b>Emergency Phone Number:</b> | (800) 255-3924 (VelocityEHS)  |

### 2. HAZARDS IDENTIFICATION

|                                |   |             |
|--------------------------------|---|-------------|
| <b>Hazard Classifications:</b> | Acute Toxicity – Oral:                            | Category 4  |
|                                | Acute Toxicity – Inhalation:                      | Category 4  |
|                                | Skin Corrosion/Irritation:                        | Category 1A |
|                                | Eye Damage/ Irritation:                           | Category 1  |
|                                | Specific Target Organ Toxicity (Single Exposure): | Category 3  |

**Signal Word:** DANGER

**Hazard Statements:** Harmful if swallowed.  
Harmful if inhaled.  
Causes severe skin burns and serious eye damage.  
May cause respiratory irritation.

**Pictograms:**



**Precautionary Statements:**

**Prevention:** Wash thoroughly after handling.  
Do not eat, drink, or smoke when using this product.

Do not breathe fumes, mists, vapors, or spray.  
Use only outdoors or in a well-ventilated area.  
Wear protective gloves, protective clothing, eye protection, and face protection.

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

**Storage:** Store locked up.  
Store in a well ventilated place. Keep container tightly closed.

**Disposal:** Dispose of contents and container in accordance with local, regional, national, and international regulations.

**Hazards Not Otherwise Classified:** Not applicable.

**Toxicity Statement:** Not applicable.

**HMIS Ratings:** Health: 3 Flammability: 0 Reactivity: 0

PPE: Goggles, face shield, gloves, protective clothing (apron or suit), respirator (if exposures exceed limits - see section 8)

### 3. COMPOSITION AND INFORMATION ON INGREDIENTS

| Component         | Common Name / Synonyms           | CAS#      | Chemical Formula | % by Weight |
|-------------------|----------------------------------|-----------|------------------|-------------|
| Hydrochloric Acid | Muriatic Acid; Hydrogen Chloride | 7647-01-0 | HCl              | 35.0 – 38.0 |
| Water             | Water                            | 7732-18-5 | H <sub>2</sub> O | 62.0 – 65.0 |

**Trade Secret Statement:** Not applicable.

### 4. FIRST AID MEASURES

#### First Aid Procedures:

**Inhalation:** Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious, or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required. Call a physician immediately.

**Ingestion:** Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head low so that vomit does not enter lungs. Never give anything by mouth to an unconscious person. Immediate medical attention is required. Call a physician or poison control center immediately.

**Skin Contact:** Wash skin with soap and plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Immediate medical attention is required. Call a physician immediately.

**Eye Contact:** Check for and remove contact lenses, if present and easy to do. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Immediate medical attention is required. Call a physician immediately.

**General Advice:** Poison information centers in each state can provide additional assistance for scheduled poisons. Ensure that those providing first aid and medical personnel are aware of the material(s) involved and take precautions to protect themselves.

**Symptoms and Effects:** Severe skin and eye irritation or burns, irritation of respiratory system, burning sensation of the respiratory tract, coughing, hoarseness, choking sensation, dyspnea (shortness of breath and difficulty breathing), shallow respiration, salivation, burning of mouth, throat, and stomach, thirst, difficulty swallowing, abdominal pain, nausea, vomiting, diarrhea, weak and rapid pulse or rapid heart rate (tachycardia), shock.

**Immediate Medical Care/  
Special Treatment:** Immediate medical attention is required. Call a physician or poison center immediately. Treat symptomatically.

## 5. FIREFIGHTING MEASURES

**Suitable Extinguishing Media:** Water spray, dry powder, alcohol resistant foam, carbon dioxide.

**Unsuitable Extinguishing Media:** Do not use a solid (straight) water stream, as it may scatter and spread fire.

**Hazardous Combustion  
Products:** Hydrogen.

**Specific Hazards:** Contact with metals may produce hydrogen gas.

**Special Protective Equipment/  
Precautions for Firefighters:** As in any fire, wear MSHA/NIOSH approved (or equivalent), self-contained, positive-pressure or pressure-demand breathing apparatus and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal Precautions and  
Protective Equipment:** Ventilate area of leak or spill. Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Keep upwind. Wear appropriate personal protective equipment (see Section 8). Avoid contact with eyes, skin, and clothing.

**Emergency Procedures:** Evacuate surrounding personnel as necessary. In case of chemical emergency, or if unsure how to address an accidental release, consult a professional (see Section 1).

**Methods for Containment:** Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements, or confined areas. Dike the spilled material, where this is possible. Product should not be released to the environment. Contain and recover liquid when possible.

**Methods for Cleanup:** Absorb spill with an inert material (e.g. vermiculite, dry sand, earth, cloth, or fleece) and place in a non-combustible container for reclamation or disposal. Do not flush to sewer. Clean contaminated surface thoroughly. Residues from spills can be diluted with water and neutralized with alkaline material such as soda ash or lime. Never return spills in original containers for reuse. Clean up in accordance with all applicable regulations.

## 7. HANDLING AND STORAGE

**Handling:** Wear personal protective equipment (see Section 8). Use only in well-ventilated areas. Provide sufficient air exchange and/or exhaust in work rooms. Avoid contact with skin, eyes, and clothing. Do not breathe vapors or spray mist. Do not ingest. When using, do not eat,

drink, or smoke. Keep away from incompatible materials (see Section 10). Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Containers of this material may be hazardous when empty, as they retain product residues. Observe all warnings and precautions listed for this product. As with all acids, never add water directly to this product. Instead, add acids to water to prevent violent eruption of the solution.

**Storage:** Store in a cool, dry, ventilated area. Store in a segregated and approved area away from heat and incompatible materials (see Section 10). Store in original container. Do not store in metallic containers. Keep containers tightly closed and upright. Keep away from food, drink, and animal foodstuffs. Keep out of the reach of children. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of this product.

## 8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

**Exposure Limits:** Hydrochloric Acid, 37%: OSHA (PEL): 5 ppm  
ACGIH (TLV): 2 ppm

**Engineering Controls:** Ensure adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

### Personal Protective Measures:

**Eye/Face Protection:** Wear safety glasses with side shields or goggles. Wear a face shield. Maintain approved eye wash station and accessible rinse facilities in work area.

**Skin Protection:** Wear appropriate chemical resistant clothing (with long sleeves) and appropriate chemical resistant gloves.

**Respiratory Protection:** An air-purifying, NIOSH-approved respirator with appropriate cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Use a positive-pressure, air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are unknown, or if any other circumstances exist where air-purifying respirators may not provide adequate protection.

**Specific Requirements for Personal Protective Equipment:** Ensure that glove material is compatible with this product. This information is available from glove manufacturers.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

*Unless otherwise indicated, all properties are given at 25 °C and standard pressure.*

**Appearance:** Colorless, transparent liquid.

**Odor:** Pungent. Irritating.

**Odor Threshold:** 0.25 – 10 ppm

**Formula Weight:** 36.46 (as HCl)

**pH:** < 1 at 20 °C

**Melting/Freezing Point:** -25.4 °C

**Boiling Point/Range:** 50.5 °C

**Decomposition Temperature:** No information found.

**Flash Point:** Not applicable.

|   |                             |
|---|-----------------------------|
| <b>Auto-ignition Temperature:</b>               | Not applicable.             |
| <b>Flammability:</b>                            | Not flammable.              |
| <b>Flammability/Explosive Limits:</b>           | Not applicable.             |
| <b>Solubility:</b>                              | Miscible with water, ether. |
| <b>Vapor Pressure:</b>                          | 17.3 mmHg at 20°C           |
| <b>Vapor Density (Relative):</b>                | 1.267                       |
| <b>Specific Gravity:</b>                        | 1.18 (Water = 1)            |
| <b>Evaporation Rate:</b>                        | No information found.       |
| <b>Viscosity:</b>                               | No information found.       |
| <b>Partition Coefficient (n-octanol/water):</b> | No information found.       |

## 10. STABILITY AND REACTIVITY

|  |  |
|--|--|
| <b>Reactivity Data:</b>                    | Corrosive. See Section 11.   |
| <b>Chemical Stability:</b>                 | Stable under normal conditions.  |
| <b>Conditions to Avoid:</b>                | Excessive heat, excessive ambient moisture, incompatible materials.  |
| <b>Incompatible Materials:</b>             | Oxidizing agents, metals, alkalis, organic materials, water, cyanides, sulfides, sulfites, aldehydes.  |
| <b>Hazardous Decomposition Products:</b>   | Hydrogen chloride vapor, hydrogen.   |
| <b>Possibility of Hazardous Reactions:</b> | May react vigorously, violently, or explosively with the incompatible materials listed above. Excess thermal conditions may yield hazardous hydrogen chloride vapor. Contact with metals may produce hazardous concentrations of hydrogen gas. |
| <b>Hazardous Polymerization:</b>           | Will not occur.  |

## 11. TOXICOLOGICAL INFORMATION

|                              |   |                    |                             |           |  |                                  |              |  |                                   |               |        |                       |  |
|------------------------------|---|--------------------|-----------------------------|-----------|--|----------------------------------|--------------|--|-----------------------------------|---------------|--------|-----------------------|--|
| <b>Routes of Exposure:</b>   | Inhalation, ingestion, skin contact, eye contact.   |                    |                             |           |  |                                  |              |  |                                   |               |        |                       |  |
| <b>Acute Effects:</b>        | Harmful if swallowed, inhaled, or absorbed through the skin. Causes irritation of the eyes, skin, respiratory tract, and gastrointestinal tract. May enter lungs if swallowed or vomited. Liquid and vapors are corrosive. May cause tissue damage.   |                    |                             |           |  |                                  |              |  |                                   |               |        |                       |  |
| <b>Chronic Effects:</b>      | Prolonged or repeated exposure may affect liver function, respiratory function, kidney function, and behavioral/central nervous system function. Prolonged or repeated exposure may also cause tooth decay, dermatitis, and conjunctivitis.   |                    |                             |           |  |                                  |              |  |                                   |               |        |                       |  |
| <b>Toxicological Data:</b>   | <table> <tr> <td>Hydrochloric Acid:</td> <td>LD<sub>50</sub> Oral, Rat:</td> <td>700 mg/kg</td> </tr> <tr> <td></td> <td>LD<sub>50</sub> Dermal, Rabbit:</td> <td>&gt; 5010 mg/kg</td> </tr> <tr> <td></td> <td>LC<sub>50</sub> Inhalation, Rat:</td> <td>2.32 mg/L 4 h</td> </tr> <tr> <td>Water:</td> <td colspan="2">No information found.</td> </tr> </table> | Hydrochloric Acid: | LD <sub>50</sub> Oral, Rat: | 700 mg/kg |  | LD <sub>50</sub> Dermal, Rabbit: | > 5010 mg/kg |  | LC <sub>50</sub> Inhalation, Rat: | 2.32 mg/L 4 h | Water: | No information found. |  |
| Hydrochloric Acid:           | LD <sub>50</sub> Oral, Rat:   | 700 mg/kg          |                             |           |  |                                  |              |  |                                   |               |        |                       |  |
|                              | LD <sub>50</sub> Dermal, Rabbit:  | > 5010 mg/kg       |                             |           |  |                                  |              |  |                                   |               |        |                       |  |
|                              | LC <sub>50</sub> Inhalation, Rat:   | 2.32 mg/L 4 h      |                             |           |  |                                  |              |  |                                   |               |        |                       |  |
| Water:                       | No information found.   |                    |                             |           |  |                                  |              |  |                                   |               |        |                       |  |
| <b>Symptoms of Exposure:</b> | Irritation, burning, ulceration, coughing, sneezing, choking sensation, hoarseness, chest pains, headache, palpitations, dyspnea, bronchitis, gastric infection, nausea, vomiting,  |                    |                             |           |  |                                  |              |  |                                   |               |        |                       |  |

diarrhea, thirst, difficulty swallowing, salivation, chills, fever, uneasiness, shock, strictures, stenosis, excited behavior, weak rapid pulse.

**Carcinogenic Effects:** This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

**ACGIH:** A4 - Not classifiable as a human carcinogen

**IARC:** 3 – Not classifiable for human

## 12. ECOLOGICAL INFORMATION

**Ecotoxicological Data:** Hydrochloric Acid:  
LC<sub>50</sub>, Western Mosquitofish (*Gambusia affinis*): 282 mg/L 96 h

**Persistence and Degradability:** No information found.

**Environmental Effects:** Very toxic to aquatic life. May leach into groundwater.

## 13. DISPOSAL INFORMATION

**Disposal Instructions:** All wastes must be handled in accordance with local, state, and federal regulations. Minimize exposure to product waste (see Section 8). Do not dispose unused waste down drains or into sewers.

**Contaminated Packaging:** Because emptied containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

**Waste Codes:** D002: Waste Corrosive Material (pH ≤ 2 or pH ≥ 12.5 or corrosive to steel)

## 14. TRANSPORT INFORMATION

**DOT:**

**UN Number:** UN1789

**Proper Shipping Name:** Hydrochloric Acid

**Hazard Class:** 8

**Packing Group:** II

**ERG Number:** 157

**Environmental Hazard Regulations:** No information found.

**Other Transport Precautions:** IMDG Number: UN1789

## 15. REGULATORY INFORMATION

**U.S. Federal Regulations:**

**OSHA:** This product is considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**TSCA Inventory:** All components of this product are on the U.S. TSCA Inventory.

**U.S. EPCRA (SARA Title III):**

**Section 302:** Hydrogen Chloride: Reportable Quantity: 5000 lb

**Sections 311/312:**

| Hazard Category                  | List (Yes/No) |
|----------------------------------|---------------|
| Section 311 – Hazardous Chemical | Yes           |
| Immediate Hazard                 | Yes           |
| Delayed Hazard                   | No            |
| Fire Hazard                      | No            |
| Pressure Hazard                  | No            |
| Reactivity Hazard                | No            |

**Section 313:** Hydrogen Chloride: 1.0% De Minimis Concentration

**CERCLA Reportable Quantities:** Hydrochloric Acid: 5000 lb

**International Inventories:**

| Country or Region | Inventory Name   | On Inventory (Yes/No)* |
|-------------------|--|------------------------|
| Australia         | Australian Inventory of Chemical Substances (AICS)                     | Yes                    |
| Canada            | Domestic Substances List (DSL)   | Yes                    |
| Canada            | Non-Domestic Substances List (NDSL)                                    | No                     |
| China             | Inventory of Existing Chemical Substances in China (IECSC)             | Yes                    |
| Europe            | European Inventory of Existing Commercial Chemical Substances (EINECS) | Yes                    |
| Europe            | European List of Notified Chemical Substances (ELINCS)                 | No                     |
| Japan             | Inventory of Existing and New Chemical Substances (ENCS)               | Yes                    |
| Korea             | Existing Chemicals List (ECL)  | Yes                    |
| Philippines       | Philippine Inventory of Chemicals and Chemical Substances (PICCS)      | Yes                    |

\*A "Yes" indicates that the listed components of this product comply with the inventory requirements administered by the governing country or region.

**16. OTHER INFORMATION**

**Disclaimer:**

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**Issue Date:**

November 14, 2024

**Reason for Revision:**

Update of Product Code(s) in Section 1. Supersedes 02/14/2022 version.