

## Material Safety Data Sheet

### SECTION 1 – CHEMICAL PRODUCT AND COMPANY INFORMATION

**Product Name:** Acid Cleaning Solution

**Part Number:** none

**Chemical Family:** Hydrochloric acid solution

**Manufacturer's Name:** Siemens Industry, Inc. - Water Technologies Business Unit

**Address:** 10 Technology Drive, Lowell, MA 01851

**Product/Technical Information Phone Number:** (978) 614-7242

**Medical/Handling Emergency Phone Number:** CHEMTREC (800) 424-9300

**Transportation Emergency Phone Number:** CHEMTREC (800) 424-9300

**Issue Date:** January 8, 2004

**Revision Date/Revision Number:** April 11, 2011 / Revision 2

### SECTION 2 – COMPOSITION INFORMATION

| <u>Chemical Name</u>  | <u>Percent by Weight</u> | <u>CAS#</u> |
|-----------------------|--------------------------|-------------|
| Hydrochloric Acid 1-5 |                          | 7647-01-0   |
| Water Remainder       |                          | 7732-18-5   |

### SECTION 3 – HAZARDS IDENTIFICATION

**Appearance & Odor:** Colorless, clear liquid with pungent odor.

#### Emergency Overview:

- ◆ Danger! Corrosive.
- ◆ Causes eye and skin burns.
- ◆ May cause severe respiratory and digestive tract irritation with possible burns.
- ◆ May be harmful if swallowed.
- ◆ May cause fetal effects based upon animal studies.
- ◆ Possible sensitizer.

**Fire & Explosion Hazards:** During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Not flammable, but reacts with most metals to form flammable Hydrogen gas.

**Primary Route(s) of Exposure:** skin and eye contact

**Inhalation – Acute Effects:** May cause severe irritation and burns of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Inhalation of a mist of this material may cause respiratory tract irritation. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema. Exposure to the mist and vapor may erode exposed teeth.

**Skin Contact – Acute Effects:** Contact with liquid is corrosive and causes severe burns and ulceration. May be absorbed through the skin in harmful amounts. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

## Material Safety Data Sheet

**Eye Contact – Acute Effects:** Vapor or mist may cause eye irritation and severe burns. Contact with liquid is corrosive to the eyes and causes severe burns. May cause irreversible eye injury. May cause painful sensitization to light.

**Ingestion – Acute Effects:** Causes severe digestive tract burns with abdominal pain, vomiting, and possible death. May cause corrosion and permanent tissue destruction of the esophagus and digestive tract. May cause circulatory system failure. May be harmful if swallowed.

### SECTION 4 – FIRST AID MEASURES

**Inhalation First Aid:** Get medical aid immediately. Remove from exposure to fresh air immediately. If breathing is difficult, give oxygen. DO NOT use mouth-to-mouth respiration. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

**Skin Contact First Aid:** Get medical aid immediately. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing and contaminated shoes before reuse.

**Eye Contact First Aid:** Get medical aid immediately. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Do NOT allow victim to rub or keep eyes closed. SPEEDY ACTION IS CRITICAL!

**Ingestion First Aid:** Get medical aid immediately. Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person.

**Medical Conditions Aggravated:** None known.

**Note to Physician:** Treat symptomatically and supportively.

### SECTION 5 – FIRE FIGHTING MEASURES

**Flash Point/Method:** Not applicable

**Auto Ignition Temperature:** Not applicable

**Upper/Lower Explosion Limits:** Not available

**Extinguishing Media:** Substance is nonflammable; use agent most appropriate to extinguish surrounding fire. Do NOT use straight streams of water. Most foams will react with the material and release corrosive/toxic gases. Cool containers with flooding quantities of water until well after fire is out. Water runoff can cause environmental damage. Dike and collect water used to fight fire.

**Fire Fighting Procedures:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Containers may explode when heated.

## Material Safety Data Sheet

**Fire & Explosion Hazards:** During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Not flammable, but reacts with most metals to form flammable Hydrogen gas.

**Hazardous Products of Decomposition and/or Combustion:** Hydrogen chloride, chlorine, carbon monoxide, carbon dioxide, hydrogen gas.

**NFPA Ratings:**

HEALTH-3    FLAMMABILITY-0    REACTIVITY-2    OTHER-none

### SECTION 6 – ACCIDENTAL RELEASE MEASURES

**Spill/Leak Procedures:** Clean up spills immediately, wearing proper personal protective equipment as indicated in Section 8.

**Cleanup:** Provide ventilation. Absorb spill with inert material, (e.g., dry sand or earth), then place into a chemical waste container. Large spills may be neutralized with dilute alkaline solutions of soda ash or lime. Remove all sources of ignition.

**Disposal:** Avoid runoff into storm sewers and ditches which lead to waterways.

### SECTION 7 – HANDLING AND STORAGE

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and shoes and wash before reuse. Use only in a well-ventilated area. Do not breathe vapor or mist. Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Keep container tightly closed. Contents may develop pressure upon prolonged storage. Use caution when opening.

**Storage:** Do not store in direct sunlight. Store in a tightly closed container in a cool, dry, well-ventilated area away from incompatible substances. Corrosives area. Do not store in metal containers. Do not store near flammable or oxidizing substances (especially nitric acid or chlorates).

**General Comments:** Containers of this material may be hazardous when empty since they retain product residue; observe all warnings and precautions listed for the product.

### SECTION 8 – PERSONAL PROTECTION/ EXPOSURE CONTROL

**Respiratory Protection:** A respiratory protection program that meets OSHA's requirements must be followed whenever workplace conditions warrant a respirator's use.

**Skin Protection:** Wear neoprene or polyvinyl chloride gloves and appropriate protective clothing to prevent skin exposure.

**Eye Protection:** Wear appropriate protective eyeglasses or chemical safety goggles.

**Ventilation Protection:** Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

## Material Safety Data Sheet

**Other Protection:** Safety showers and eye wash fountains should be readily available in all areas where this material is handled or stored. Water should be supplied through insulated and heat-traced lines to prevent freeze-ups in cold weather.

### Exposure Limits:

For Hydrochloric acid: OSHA PEL-TWA: 7 mg/m<sup>3</sup>; 5 ppm Ceiling

ACGIH TLV-TWA: 7.5 mg/m<sup>3</sup>; 5 ppm Ceiling

NIOSH IDLH: 50ppm

## SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

**Appearance & Odor:** Colorless, clear liquid with pungent odor.

**Vapor Pressure:** Not determined

**Vapor Density (Air=1):** Not determined

**Boiling Point:** Not determined

**Melting Point:** Not applicable

**Specific Gravity:** Not determined

**Solubility in Water:** Complete

**Volatile Percentage:** Not determined

**pH:** Not determined

## SECTION 10 – STABILITY AND REACTIVITY

**Stability:** Stable under normal temperatures and pressures.

**Incompatibilities:** Bases, acetic anhydride, alkali metals, aluminum, amines, copper, copper alloys, fluorine, iron, sodium hydroxide, steel, sulfuric acid, vinyl acetate, zinc, potassium permanganate, cesium acetylene carbide, rubidium acetylene carbide, rubidium carbide, sodium, chlorosulfonic acid, oleum, carbonates, perchloric acid, calcium phosphide, metal oxides, acetates, cesium carbide, beta-propiolactone, ethyleneimine, propylene oxide, lithium silicides, alcohols + hydrogen cyanide, 2-aminoethanol, ammonium hydroxide, calcium carbide, 1,1-difluoroethylene, ethylene diamine, magnesium boride, mercuric sulfate, silver perchlorate + carbon tetrachloride, uranium phosphide.

**Polymerization:** Hazardous polymerization has not been reported.

**Decomposition:** Hydrogen chloride, chlorine, carbon monoxide, carbon dioxide, hydrogen gas.

**Conditions to Avoid:** Mechanical shock, incompatible materials, metals, excess heat, bases.

## SECTION 11 – TOXICOLOGICAL INFORMATION

**Inhalation – Acute:** May cause severe irritation and burns of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Inhalation of a mist of this material may cause respiratory tract irritation. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis and pulmonary edema.

**Inhalation – Chronic:** Exposure to the mist and vapor may erode exposed teeth.

## Material Safety Data Sheet

**Skin Contact – Acute:** Contact with liquid is corrosive and causes severe burns and ulceration. May be absorbed through the skin in harmful amounts.

**Skin Contact – Chronic:** May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.

**Eye Contact – Acute:** Vapor or mist may cause eye irritation and severe burns. Contact with liquid is corrosive to the eyes and causes severe burns. May cause irreversible eye injury. May cause painful sensitization to light. Prolonged exposure may cause conjunctivitis, photosensitization, and possible blindness.

**Ingestion – Acute:** Causes severe digestive tract burns with abdominal pain, vomiting, and possible death. May cause corrosion and permanent tissue destruction of the esophagus and digestive tract. May cause circulatory system failure. May be harmful if swallowed.

**Ingestion – Chronic:** Repeated exposure may cause erosion of teeth.

**Carcinogenicity/Mutagenicity:** Laboratory experiments have resulted in mutagenic effects. Hydrochloric acid is *not classifiable as to its carcinogenicity to humans (Group 3)*.

**Reproductive Effects:** May cause fetal effects.

**Neurotoxicity:** There are no known neurotoxic effects.

**Other Effects:** There are no other known toxic effects.

**Target Organs:** Circulatory system, teeth.

### SECTION 12 – ECOLOGICAL INFORMATION

Rapidly hydrolyzes when exposed to water. Will exhibit extensive evaporation from soil surfaces. Upon transport through the soil, hydrochloric acid will dissolve some of the soil materials (especially those with carbonate bases) and the acid will neutralize to some degree.

### SECTION 13 – DISPOSAL CONSIDERATIONS

**Spill/Leak Procedures:** Material that cannot be used or chemically reprocessed and empty containers should be disposed of in accordance with all applicable regulations.

**Cleanup:** Product containers should be thoroughly emptied before disposal.

**Regulatory Requirements:** Generators of waste material are required to evaluate all waste for compliance with RCRA and any local disposal procedures and regulations. NOTE: State and local regulations may be more stringent than federal regulations.

### SECTION 14 – TRANSPORTATION INFORMATION

**DOT Proper Shipping Name:** Hydrochloric Acid Solution.

**ID Number:** UN 1789

## Material Safety Data Sheet

**Hazard Class or Division:** 8

**DOT Packaging Group:** II

**DOT Label:** Corrosive

### SECTION 15 – REGULATORY INFORMATION

CERCLA SECTION 103 (40CFR302.4) RQ: [CAS# 7647-01-0] 5,000 lbs.

SARA SECTION 302 (40CFR355.30): no

Acid Cleaning Solution, Page 6 of 6

SARA SECTION 304 (40CFR355.40): no

SARA SECTION 313 (40CFR372.65): no

OSHA PROCESS SAFETY (29CFR1910.119): no

CALIFORNIA PROPOSITION 65: no

### SECTION 16 – OTHER INFORMATION

**Disclaimer:** The information contained herein is based on data considered accurate.

However, no warranty is expressed or implied regarding the accuracy of these data or the results to be obtained from the user thereof. It is the buyer's responsibility to ensure that its activities comply with federal, state, provincial and local laws.

**Revision Indicator:** April 2011, Revised Section 1 (Updated manufacturer's name)

# SIEMENS

Material Safety Data Sheet

Siemens Industry, Inc.  
Water Technologies Business Unit