APEX Chemical Corporation
10105 E. Via Linda, Suite 103 - PMB 400, Scottsdale, AZ. 85258
(480) 483.2288

MATERIAL SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: Sun Up to Sun Down Pool Acid, 29.0% **Product Code:** HCL01

Synonyms: Hydrogen chloride solution

Product Use: pH adjustment, industrial acidizing.

Date of MSDS Preparation: 1/28/08 **Issued To: T. Tempfer**

Date of Revision: 09/19/07 **c/o: Conely Company**

Manufacturer's Name/Address: Apex Chemical Corporation
10105 E. Via Linda,
Suite 103 – PMB 400,
Scottsdale, AZ 85258

24-Hour Emergency Phone Numbers [U.S.A.]:
480.483.2288

CHEMTREC: 800-424-9300

SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Formula: HCl

Component	CAS#	% (by weight)	Baumé	Exposure Limits
Water	7732-18-5	71.0%		5 ppm (7 mg/m³) ceiling
Hydrogen chloride	7647-01-0	29.0%	18.6'	Not Applicable

OSHA: This material is classified as hazardous under current OSHA regulations.

SECTION 3 HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Colorless to light yellow liquid that fumes in air.

Highly corrosive! Contact can cause eye burns and permanent tissue damage. Fumes corrosive to eyes and respiratory tract. Highly toxic to fish and other water organisms.

Potential Health Effects:

EYE: Low concentrations of mists or vapors can be irritating, causing redness. Concentrated mists, vapors or splashed liquid can cause severe irritation, burns and possibly permanent blindness.

SKIN: Contact may produce severe irritation or corrosive skin damage, depending upon the length of contact and amount of acid. Effects range from dermatitis, redness, swelling, pain, and permanent scarring, to death.

INHALATION: Inhalation of acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size causes irritation of the upper respiratory tract with coughing and discomfort. High or prolonged inhalation exposure may lead to corrosion of mucus membranes with temporary lung irritation and cough, difficulty in breathing, shortness of breath and/or pulmonary edema (fluid accumulation in the lungs). Prolonged inhalation may also lead to dental erosion. Fatality may occur from gross overexposure.

INGESTION: Ingestion may cause severe acid burns to the mouth, throat, esophagus, and stomach. Gross ingestion may cause death.

CHRONIC (CANCER) INFORMATION: Not known to cause cancer. Not listed as carcinogen by IARC, NTP, OSHA or ACGIH.

TERATOLOGY (BIRTH DEFECT) INFORMATION: No data available.

REPRODUCTION INFORMATION: No data available.

POTENTIAL ENVIRONMENTAL EFFECTS: Extremely toxic to aquatic life on an acute basis.

SECTION 4 FIRST AID MEASURES

EYES: Immediately flush eyes with clean water for at least 15 minutes, lifting eyelids to thoroughly flush. DO NOT try to neutralize the acid. **Contact Physician immediately** (contacting medical help during flushing expedites process). Apply cool packs on eyes while transporting victim to medical facility.

SKIN: Immediately flush affected area with water for at least 15 minutes, removing all contaminated clothing while flushing. **Contact Physician immediately** (contacting medical help during flushing expedites process). Keep affected area cool.

INHALATION: Remove to fresh air. **Contact Physician immediately**. Check for breathing and pulse. If breathing is difficult, give oxygen (6 liters per minute). If breathing has stopped, give artificial respiration. Keep victim warm and at rest.

INGESTION: **DO NOT induce vomiting**. **Contact Physician immediately**. Give large quantities of water **only** if victim is conscious. Keep victim warm and at rest.

NOTES TO PHYSICIAN*

Eye Contact:

- Rewash with physiological solution.
- Lower exposure:
  - Consider applying a local anesthetic only before eye examination is done.
  - Assess extent of damage. Fluorescein stain for corneal damage and vision test is needed.
  - Provide prophylactic antibiotic treatment for infection and apply eye patch.
  - Follow-up within 24 hours is needed.
- Higher exposure:
  - Consider applying a local anesthetic only before eye examination is done.
  - Immediate referral to Ophthalmologist.
  - Cover eye with patch.

Skin Contact:

- Rewash affected area. Cool down small burns with cold water or ice packs.
- Evaluate exposed area and determine if irritation or pain persists. Consider pain medication.
- If integrity of skin is compromised, use prophylactic measures such as 1% Silvadene Cream or other topical antibacterial treatment.
- Apply dressing to protect affected area from contamination or further trauma.
- Evaluate need for referral to hospital or local specialist based on extent of damage and skills available.
- Follow-up is needed, especially to detect delayed infection or any complications.

Ingestion:

- Irrigate mouth with large quantities of water. Determine presence or absence of burns. If severe burns occur in the mouth then esophageal burns may exist. Hospital should provide standard treatment for ingestion of corrosives.

Inhalation:

- Individuals with pre-existing lung conditions may have increased susceptibility to the toxicity of excessive exposure.
- Persons exposed by inhalation to large concentrations of the material should be given 100% humidified oxygen (6 liters per minute).
- Assess patient while continuing oxygen treatment. Evaluate for respiratory tract irritation, bronchitis, and pneumonia. Evaluate for nasopharyngeal burns.
- Symptoms may vary from mild chest discomfort and slight cough to wheezing and extreme shortness of breath. Physical examination may be normal or may reveal mild rhonchi, wheezes or moist rales. Chest x-rays are usually normal at first than changes may develop over 24-48 hours showing pulmonary edema or infiltrates.
- Give oxygen for 15 minutes and reevaluate, if asymptomatic observe for 15-30 minutes.
- If symptomatic, give oxygen for another 15 minutes.
- If patient is still symptomatic, transport to hospital.
- If patient is not referred to hospital, closely monitor respiratory function for 12-24 hours to assure that pulmonary edema does not develop.
- Keep patient calm and warm, give reassurance. Ask the patient to breath slow and deep.
- If exposure was severe or if patient is symptomatic, consider providing Dexamethasone (or equivalent) 8 mg IM.
- If patient has extreme anxiety or severe nausea, consider providing Hydroxyzine (or equivalent).
- For laryngeal spasm or bronchospasm, provide bronchodilators.
- If pulmonary edema develops, Positive End Expiratory Pressure (PEEP) therapy should b e instituted. Blood gases and cardiopulmonary function should be monitored. Diuretics should be given as needed.

* DuPont Chemicals

SECTION 5 FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES: Not applicable. Material will not burn.

FLAMMABLE LIMITS: Not applicable. Material is non-combustible.

EXTINGUISHING MEDIA: Use extinguishing media compatible with acid and appropriate for the burning fire.

HAZARDOUS COMBUSTION PRODUCTS: May generate flammable, potentially explosive hydrogen gas on contact with most metals. Explosive concentrations of hydrogen may accumulate inside metal equipment. Hydrochloric acid fumes may be released from heating under fire conditions.

FIRE FIGHTING INSTRUCTIONS: Keep personnel removed and upwind of fire. Use water spray to cool containers and control vapors. Runoff from fire control may cause pollution. Neutralize with sodium bicarbonate or soda ash to prevent corrosion of metals and formation of hydrogen. For potential exposure to acid or fumes, wear full protective clothing with hood and breathing air supply.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Reportable Quantity (RQ): ≥ 1450 gallons of 22° Bé or ≥ 1830 gallons of 18.6° Bé

LAND SPILL: Evacuate personnel. Keep upwind of released material. Wear proper personal protective clothing. Respiratory protection is required where vapors are present. Stop leak at source. Contain released material to stop spreading. Reclaim material if possible. Pump to non-metallic container. Neutralize remaining material and surfaces with sodium bicarbonate or soda ash. Direct wash water to local sanitary sewer if permissible.

WATER SPILL: Material is extremely toxic to aquatic life on an acute basis. If water is isolated or can be contained, neutralize with sodium bicarbonate or soda ash.

In all instances, notify appropriate authorities if required by regulations.

SECTION 7 HANDLING AND STORAGE

HANDLING: Avoid adding water to this acid. Slowly add acid to water to prevent spattering or boiling. Do not get in eyes, on skin or on clothing. Avoid breathing vapors. Wear all recommended personal protective clothing when handling. Wash thoroughly with soap and water after handling.

STORAGE: Keep containers tightly closed. Store in a cool, dry, well-ventilated place. Keep away from heat, sparks or flames. Protect containers from damage. DO NOT store or mix with cyanides, amines, sulfides, oxidizers, or formaldehyde.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Provide general and/or local exhaust ventilation to control airborne concentrations below recommended exposure guidelines.

RESPIRATORY PROTECTION: When exposure levels could exceed 5 ppm, a NIOSH approved air-purifying respirator with acid gas cartridge(s) in combination with a high-efficiency particulate filter is recommended. When exposure levels could exceed 50 ppm, a self-contained breathing apparatus with a full facepiece is recommended.

SKIN PROTECTION: Use protective clothing impervious to acid such as neoprene or polyvinyl chloride (PVC). Use precautions to ensure all potentially affected body parts are covered such as taping sleeves and pant legs to gloves and boots, respectively, and buttoning clothing to the neck. Selection of specific items such as gloves, coats, pants, boots, aprons, or full-body suits will depend on operations to be performed. Launder contaminated clothing before reuse. Dispose of contaminated leather articles. Safety shower should be located in immediate work area.

EYE PROTECTION: Contact lenses should not be worn; they could contribute to severe eye damage. Wear close fitting chemical splash goggles as a minimum. Where splash hazard to face is present, also wear a full-length transparent face shield.

GENERAL HYGIENE CONSIDERATIONS: Follow good industrial hygiene practices including but not limited to: (1) wash hands after use and before eating; (2) avoid breathing vapors; (3) wear appropriate safety equipment; and (4) launder contaminated clothing before reuse.

EXPOSURE GUIDELINES:

Hydrochloric acid solutions

PEL (OSHA): 5 ppm, 7 mg/m^3, ceiling

TLV (ACGIH): 5 ppm, 7.5 mg/m^3, ceiling

IDLH (NIOSH): 50 ppm

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

pH: <1

MOLECULAR FORMULA: HCl

MOLECULAR WEIGHT: 36.46

PERCENT VOLATILE: 100%

SOLUBILITY IN WATER: 100%

EVAPORATION RATE (Butyl acetate = 1): >1

SPECIFIC GRAVITY (water = 1): 18.6° Bé: 1.1471

VAPOR PRESSURE: 18.6° Bé: 35 mmHg @ 77° F (25° C)

BOILING POINT (water = 212° F): 18.6° Bé: 183° F (84° C) @ 760 mmHg

FREEZING POINT (water = 32° F): 18.6° Bé: -40.0° F (-40.0° C) @ 760 mmHg

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Stable.

CONDITIONS TO AVOID: Keep away from heat, sparks or flames. DO NOT store or mix with incompatible materials.

INCOMPATIBILITY: Incompatible with most metals, hydroxides, amines, alkalis, cyanides, sulfides, strong oxidizers, carbonates, hypochlorites and formaldehyde. May react violently with incompatible substances, releasing toxic and/or flammable gases. Considerable amounts of heat may be evolved.

HAZARDOUS DECOMPOSITION PRODUCTS: Heat can cause evolution of gaseous hydrogen chloride.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

REPORTED HUMAN EFFECTS: Full destruction of tissue with prolonged contact.

REPORTED ANIMAL EFFECTS: Oral – LD_{50} (rabbit) 900 mg/kg @ 100% HCl.

Inhalation – LC_{50} (rat, 1 hour) 3124 ppm @ 100% HCl.

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION:

Aquatic Toxicity

96 hour LC_{50} – Mosquito fish: 282 mg/l (slightly toxic)

48 hour LC_{50} – Bluegill: 3.6 mg/l

SECTION 13 DISPOSAL CONSIDERATIONS

If this product as supplied becomes a waste, it meets the criteria of a hazardous waste (corrosivity, EPA hazardous waste number D002) as defined under the Resource Conservation and Recovery Act (RCRA), 40 CFR Part 261. Dispose of in accordance with local, Provincial/State and Federal laws and regulations.

SECTION 14 TRANSPORT INFORMATION

Domestic (Land, Department of Transportation) & International (Water, IMO)

Proper shipping name: Hydrochloric acid Hazard Class: 8 (Corrosive)

Identification Number: UN1789 Packing Group: II

Shipment in Canada

Hazard Class: 8 (9.2) UN Number: 1789 Packing Group: II

International (Air, ICAO & IATA): Cargo aircraft quantity limitations – 30 L

SECTION 15 REGULATORY INFORMATION

OSHA: This product is classified as corrosive by definition of Hazard Communication Standard (29 CFR 1910.1200).

HMIS Rating: Health – 3; Flammability – 0; Reactivity – 0; Protective Equipment – X

Anhydrous hydrochloric acid is listed by OSHA as a highly hazardous chemical. A process that involves anhydrous hydrochloric acid at or above the specified threshold quantity may be subject to OSHA's Process Safety Management requirements (29 CFR 1910.119).

NFPA Rating: Health – 3; Flammability – 0; Reactivity – 0; Special Precautions – Corrosive

US EPA: Hydrochloric acid is designated as a Hazardous Air Pollutant under the Clean Air Act Amendments of 1990. Threshold quantities of hydrochloric acid in concentrations of 37% or greater may be subject to Accidental Release Prevention requirements under Section 112(r) of the Clean Air Act.

If this product as supplied becomes a waste, it meets the criteria of a hazardous waste (corrosivity, EPA hazardous waste number D002) as defined under the Resource Conservation and Recovery Act (RCRA), 40 CFR Part 261.

TSCA: Listed in U.S. TSCA Section 8(b) Inventory.

CERCLA (RQ): This product is a hazardous substances listed in 40 CFR Part 302. The current Reportable Quantity (RQ) for anhydrous hydrogen chloride is 5000 pounds.

SARA Title III: Section 311/312 Hazard Class – Acute, Chronic.

This product does not contain any toxic chemicals subject to the reporting requirements of Section 313 (40 CFR Part 372). However, if you manufacture, process or otherwise use *hydrochloric acid aerosols*, including mists, vapors, gas, fog, and other airborne forms of any particle size, in excess of regulatory thresholds, you may be subject to these reporting requirements.

California Proposition 65: This product may contain one or more chemicals in trace quantities known to the State of California to cause cancer or reproductive toxicity as listed under the Safe Drinking Water and Toxic Enforcement Act of 1986.

Cal/OSHA exposure limits (PEL) – 5 ppm, 7 mg/m³, ceiling

Idaho: Limits for air contaminants – 5 ppm, 7 mg/m³, ceiling

Massachusetts: Ambient air guidelines – 7 ppm (TEL); 7 mg/m³ (AAL). Listed as a Massachusetts extraordinarily hazardous substance.

New Jersey: Department of Health RTK List – sn 1012; sn 2909 (gas only). Special Hazardous Substances – Corrosive

New York: Reporting of Releases Part 597 – Air RQ = 5000 lbs; Land/Water RQ = 100 lbs.

North Carolina: Control of Toxic Air Pollutants – 0.7 mg/m³ (acute irritant)(d)

Pennsylvania: Right-to-Know List – Environmental Hazard

Rhode Island: Hazardous Substance List – Toxic, Flammable

South Carolina: Regulated Toxic Substances and Threshold Quantities – 15,000 lbs. (concentration 37% or greater); 5,000 lbs. (anhydrous).

Tennessee: Hazardous Right-to-Know Ceiling – 5 ppm, 7 mg/m³

Wisconsin: Table 1 HAPs with Acceptable Ambient Concentrations – less than 25 feet is 0.3552(c) lbs/hr; greater than 25 feet is 1.368(c) lbs/hr.

Brazil: Workplace exposure limits – 4 ppm, 5.5 mg/m³ (ceiling)

Canada – WHMIS: Controlled Product Hazard Class D1B and Class E. This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

Canada (Alberta, British Columbia, Ontario, Quebec) exposure limits – 5 ppm, 7.5 mg/m³, ceiling

Canada – CEPA: All components of this product are on the Domestic Substances List (DSL), and acceptable for use under the provisions of CEPA.

Mexico: Instruction No. 10 TWAs – 5 ppm, 7 mg/m³

Inventories: Australian Inventory of Chemical Substances; European Inventory of Existing Commercial Chemical Substances; Japan Existing and New Chemical Substances; Korea Existing and Evaluated Chemical Substances; Philippines Inventory of Chemicals and Chemical Substances.

SECTION 16 OTHER INFORMATION

DISCLAIMER

The information provided herein relates only to the specific material described herein and does not relate to its use by customer whether alone or in combination with any other material in any process. The information set forth herein is furnished free of charge and is based on technical data that Apex Chemical Co. believes to be reliable, but Apex Chemical Co. does not make any representation or warranty as to the accuracy or completeness of this information. This information is intended for use by persons having technical skill and at their own discretion and risk. Customer is responsible for determining whether the information included herein is appropriate for customer's use, and customer assumes full responsibility for conclusions it derives from this information. Neither Apex Chemcial Co. nor any of its officers, employees, directors, agents or other representatives shall have any liability to customer or any of its officers, employees, directors, agents or other representatives resulting from customer's use of this information. Inasmuch as Apex Chemical Co. has no reason to know how customer intends to use the information provided herein, and since conditions of use are outside of our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. Nothing herein is to be taken as a license to operate under or a recommendation to infringe any patents.