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SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT IDENTIFIER: HYDROCHLORIC ACID 32% SOLUTION

RECOMMENDED USAGE:

- Steel pickling and Scale Removal
- Ore Refining
- Hydrolyzing Agent
- Food Processing
- Activation of Petroleum Wells
- Catalyst in Organic Process
- Removal of Heavy metal from Carbon Black and Activated Carbon
- Leaching alumina from Crystalline Zeolites
- Manufacturing of Chlorine Dioxide
- Water Treatment

PRODUCT CONCENTRATION: Hydrochloric Acid, 32% ±1% Solution (w/w)

MANUFACTURER:

COMPANY INFORMATION Saudi Factory for Chlorine & Alkalies

Building #2101, Unit # 2, Riyadh 14545-8762, Kingdom of Saudi Arabia.

Contact # +966 11 810 1219 Email: Info@sachlo.com

EMERGENCY CONTACT DETAILS: +966554066597 +966550289633

SECTION 2: COMPOSITION, INFORMATION & SPECIFICATIONS

Synonyms: Muriatic acid; Chlorohydric acid; Hydrogen chloride; Spirits of salt

Hydrochloric Acid (HCl): 31–33% (CAS 7647-01-0)

Water: 67–69% (CAS 7732-18-5)

Risk Phrases: 34

Sr. #	Parameters	Unit	Limits
1	HCl	%	32.0 ±1
2	Free Cl_2	PPM	< 5.0
3	SO_4	PPM	< 100.0
4	Iron	PPM	< 2.0
5	Evaporation rest	PPM	< 100.0
6	Appearance	NA	Colorless

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SECTION 3: HAZARDS IDENTIFICATION

GHS (GLOBAL HARMONIZED SYSTEM) LABELING FOR CAUSTIC SODA SOLUTION:

Corrosive

Health Hazard

Code	Word	Hazard Statement
H314	Danger	Causes severe skin burns and eye damage.
H331	Danger	Toxic if inhaled.
H318	Danger	Causes serious eye damage
H290	Warning	May be corrosive to Metal.
H335	Warning	May cause respiratory irritation.

Precautionary Statements:

- **P260**: Do not breathe mist/vapors/spray.
- **P280**: Wear protective gloves/protective clothing/eye protection/face protection.
- **P261**: Avoid breathing dust/fume/gas/mist/vapors/spray.
- **P271**: Use only outdoors or in a well-ventilated area.
- **P284**: [For high concentrations] Wear respiratory protection.

Response (First Aid & Spill Control)

- **P301 + P330 + P331**: If swallowed: Rinse mouth. **Do NOT induce vomiting.**
- **P303 + P361 + P353**: If on skin: Immediately remove contaminated clothing. Rinse skin with water.
- **P305 + P351 + P338**: If in eyes: Rinse cautiously with water for **15+ minutes**. Remove contact lenses if present.
- **P310**: Immediately call a poison center or doctor.

Storage & Disposal

- **P405**: Store locked up in a corrosion-resistant container.
- **P501**: Dispose of contents/container per local regulations.

NFPA Rating:

Health Rating: 3 - Severe (Poison)
Flammability Rating: 0 - None
Reactivity Rating: 1 - Moderate
Contact Rating: 2 - (Corrosive)
Lab Protective Equip: GOGGLES; COAT; VENT HOOD; PROPER GLOVES

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SECTION 4: FIRST AID MEASURES

INHALATION: Get medical aid immediately. Remove from exposure to fresh air immediately. Move to fresh air. Administer **100% oxygen** if cyanosis (bluish skin) occurs. **Monitor for 48 hours** for delayed pulmonary edema. If breathing is difficult, give oxygen. Do NOT use mouth-to-mouth resuscitation. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask. Symptoms include coughing, choking, chest pain, shortness of breath, or pulmonary edema (delayed).

SKIN CONTACT: Get medical aid immediately. Immediately Rinse skin with **copious water (15–30 minutes)**. Remove contaminated clothing. **Apply calcium gluconate gel** for burns. Wash clothing before reuse. Destroy contaminated shoes. Symptoms include redness, severe burns, ulceration, or delayed pain.

EYE CONTACT: Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed. Flush with ANSI-compliant eye wash for 30+ minutes. Hold eyelids open. Urgent **ophthalmologic care** required. SPEEDY ACTION IS CRITICAL! Symptoms include severe pain, tearing, corneal opacity, or permanent vision loss.

INGESTION: Do NOT induce vomiting. Rinse mouth with water/milk. **Endoscopy within 2 hours** to assess esophageal damage. If victim is conscious and alert, give 2-4 cups of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately. Symptoms include mouth/throat burns, bloody vomiting, shock, or perforation of the digestive tract.

NOTES TO PHYSICIAN: Do NOT use sodium bicarbonate in an attempt to neutralize the acid.

Contraindicated: Sodium bicarbonate.

Recommended: Corticosteroids for lung edema, IV fluids for shock

ANTIDOTE: Do NOT use oils or ointments in eye.

NOTE TO PHYSICIAN: For inhalation, consider oxygen. Avoid gastric lavage or emesis.

SECTION 5: FIRE FIGHTING MEASURES

ressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. 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. Use water spray to keep fire-exposed containers cool. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Reaction with water may generate much heat which will increase the concentration of fumes in the air. Containers may explode when heated.

SUITABLE EXTINGUISTING MEDIA: For large fires, use water spray, fog, or alcohol-resistant foam. Substance is noncombustible; use agent most appropriate to extinguish surrounding fire. Do NOT get water inside containers. Do NOT use straight streams of water. Most foam will react with the material and release corrosive/toxic gases. Cool containers with flooding quantities of water until well after fire is out. For small fires, use carbon dioxide (except for cyanides), dry chemical, dry sand, and alcohol-resistant foam.

Fire Hazards:

Non-flammable, but reacts violently with:

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Metals (e.g., aluminum) → Flammable hydrogen gas
Bases (e.g., NaOH) → Exothermic reaction

Response:

Cool containers with water spray from maximum distance.
Evacuate 50 meters if hydrogen gas forms.
PPE: CBA (NIOSH-approved) + acid-resistant suit

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

Use proper personal protective equipment as indicated in Section 8.

METHODS & MATERIALS FOR CONTAINMENT & CLEANING UP

SPILLS / LEAKS: Large spills may be neutralized with dilute alkaline solutions of soda ash, or lime. Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Remove all sources of ignition. Provide ventilation. Do not get water inside containers. A vapor suppressing foam may be used to reduce vapors. Cover with dry earth, dry sand, or other non-combustible material followed with plastic sheet to minimize spreading and contact with water.

Small Spills:

Neutralize with 10% sodium carbonate solution. Absorb with vermiculite.

Large Spills:

Evacuate 100 meters. Dike with sandbags. Notify Saudi Civil Defense (998).

SECTION 7: HANDLING AND STORAGE

PRECAUTIONS FOR SAFE HANDLING:

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in well ventilated area. Contents may develop pressure upon prolonged storage. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Keep container tightly closed Do not ingest or inhale. Discard contaminated shoes. Use caution when opening. Keep from contact with moist air and steam.

PRECAUTIONS FOR SAFE STORAGE (including any incompatibilities):

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

SHELF LIFE: If properly stored, it has an infinite shelf-life & will remain intact until it is reacted with other materials.

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SECTION 8: EXPOSURE CONTROLS, PERSONAL PROTECTION

Occupational Exposure Limit or Biological Limit Value:
Exposure Limits:

Regulatory Agency / Standard	Exposure Limit	Notes
OSHA PEL (Ceiling)	5 ppm	Do not exceed this concentration at any time during the work shift.
ACGIH TLV (TWA)	2 ppm	Average exposure over an 8-hour workday that should not be exceeded.
NIOSH REL (Ceiling)	5 ppm (7 mg/m³)	Recommends minimizing exposure even below this limit.

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Hydrogen chloride	C 5 ppm	50 ppm IDLH	C 5 ppm; C 7 mg/m3
Water	none listed	none listed	none listed

Osha Vacated Pels:
Hydrogen Chloride: C 5 Ppm; C 7 Mg/M3 Water: No Osha Vacated Pels Are Listed for This Chemical.
Appropriate Engineering Controls:
Facilities Storing or Utilizing This Material Should Be Equipped with An Eyewash Facility and A Safety Shower. Use Adequate General or Local Exhaust Ventilation to Keep Airborne Concentrations Below the Permissible Exposure Limits.
Personal Protective Equipment:
Eyes: Wear Appropriate Protective Eyeglasses or Chemical Safety Goggles as Described by Osha's Eye and Face Protection Regulations in 29 Cfr 1910.133 Or European Standard En166.
Skin: Wear Neoprene or Polyvinyl Chloride Gloves to Prevent Exposure.
Clothing: Wear Appropriate Protective Clothing to Prevent Skin Exposure.
Respirators: A respiratory protection program that meets OSHA's 29 CFR §1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.
≤5 ppm: Full-face APR with acid gas cartridges (NIOSH TC-23C)
>5 ppm: SCBA
Gloves: Nitrile (≥0.4 mm) or neoprene
Face: Chemical goggles + face shield

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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:
PHYSICAL STATE: Clear liquid
COLOR: colorless to slightly pale yellow
CHANGE IN APPEARANCE: Not available
ODOR: strong, pungent
ODOR THRESHOLD: Typically ~1–5 ppm for HCl; aids leak detection.
Molecular Formula: HCl
Molecular Weight: 36.46
pH: 0.00
FREEZING/MELTING POINT: -43 °C
BOILING POINT: 84 °C
FLASH POINT: Not applicable.
EVAPORATION RATE: > 1.00 (N-butyl acetate)
FLAMMABILITY (solid, gas): Not available
VAPOR PRESSURE: 5.7 mm Hg @ 0 °C
VAPOR DENSITY: heavier than air; critical for spill response.
SPECIFIC GRAVITY/DENSITY: 1.1593@20°C
VISCOSITY: Not available**.**
SOLUBILITY IN WATER: VERY soluble
SOLVENT SOLUBILITY:
Soluble: Miscible
Insoluble: Not available
PARTITION COEFICIENT n-octanol / water: Not available
AUTO IGNITION TEMPERATURE: Not applicable.
DECOMPOSITION TEMPERATURE: Not available.

SECTION 10: STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under normal temperatures and pressures.
CONDITIONS TO AVOID: Mechanical shock, incompatible materials, metals, excess heat, exposure to moist air or water, bases. Peroxides, metal salts
HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition; SODIUM OXIDE
POLYMERIZATION: Will not polymerize. However, it can induce hazardous polymerization of acetaldehyde, acrolein and acrylonitrile.
INCOMPATIBILITIES WITH OTHER MATERIALS: Bases, acetic anhydride, alkali metals, aluminum, amines, copper, copper alloys, fluorine, iron, sodium hydroxide, steel, sulfuric acid, vinyl acetate, zinc, potassium permanganate,

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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. incompatibility with oxidizers (e.g., nitric acid, peroxides) and organic materials.

HAZARDOUS DECOMPOSITION PRODUCTS: Hydrogen chloride, chlorine, carbon monoxide, carbon dioxide, hydrogen gas.

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

RTECS#:

CAS# 7647-01-0: MW4025000

CAS# 7732-18-5: ZC0110000

LD50/LC50:

CAS# 7647-01-0:

Inhalation, mouse: LC50 = 1108 ppm/1H;

Inhalation, rat: LC50 = 3124 ppm/1H;

Oral, rabbit: LD50 = 900 mg/kg;<BR.

CAS# 7732-18-5:

Oral, rat: LD50 = >90 mL/kg;<BR.

Carcinogenicity:

CAS# 7647-01-0:

IARC: Group 3 carcinogens CAS# 7732-18-5: Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology: Experimental reproductive effects have been reported.

Teratogenicity: Embryo or Fetus: Stunted fetus, Inhalation, rat TCL0=450 mg/m3/1H Specific Developmental

Abnormalities: homeostatis, Inhalation, rat TCL0=450 mg/m3/1H (female 1 days pre-mating).

Reproductive Effects: No information available.

Neurotoxicity: No information available.

Mutagenicity: Cytogenetic analysis: Hamster, lung = 30 mmol/L.; Cytogenetic analysis: Hamster, ovary = 8 mmol/L.

Target Organs: Teeth, circulatory system.

POTENTIAL HEALTH EFFECTS

Inhalation: May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Causes chemical burns to the respiratory tract. Exposure to the mist and vapor may erode exposed teeth. Causes corrosive action on the mucous membranes.

Ingestion: May cause circulatory system failure. 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 be harmful if swallowed.

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Skin: 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. Contact with liquid is corrosive and causes severe burns and ulceration.
Eye: May cause irreversible eye injury. Vapor or mist may cause irritation and severe burns. Contact with liquid is corrosive to the eyes and causes severe burns. May cause painful sensitization to light.
Chronic: Prolonged or repeated skin contact may cause dermatitis. Repeated exposure may cause erosion of teeth. May cause fetal effects. Laboratory experiments have resulted in mutagenic effects. Prolonged exposure may cause conjunctivitis, photosensitization, and possible blindness.

SECTION 12: ECOLOGICAL INFORMATION

Fish: Bluegill/Sunfish: 3.6 mg/L; 48Hr.
Lethal (unspecified) Bluegill/Sunfish: LC50; 96 Hr.; pH 3.0-3.5
LC50 (Fish): 3.6 mg/L (96h, Bluegill)
Environmental Fate: Neutralizes rapidly in soil/water; monitor pH of runoff.
ENVIRONMENTAL: 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.
PHYSICAL: No information available.

SECTION 13: DISPOSAL CONSIDERATIONS

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

SECTION 14: TRANSPORT INFORMATION

U.S. DOT:

PROPER SHIPPING NAME: Hydrochloric Acid
ID NUMBER: UN1789
HAZARD CLASS OR DIVISION: 8
PACKING GROUP: II

CANADIAN TRANSPORTATION OF DANGEROUS GOODS: No classification assigned.

LAND TRANSPORT ADR/RID:

PROPER SHIPPING NAME: Hydrochloric Acid

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UN NUMBER: UN1789
ADR/RID CLASS: 8(9.2)
PACKING GROUP: II

SECTION 15: REGULATORY INFORMATION

US FEDERAL

TSCA

CAS# 7647-01-0 is listed on the TSCA inventory.
CAS# 7732-18-5 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA**.**

SARA

Section 302 (RQ)

CAS# 7647-01-0: final RQ = 5000 pounds (2270 kg)

Section 302 (TPQ)

CAS# 7647-01-0: TPQ = 500 pounds; RQ = 5000 pounds (does not meet toxicity criteria but because of high production volume and recognized toxicity is considered a chemical of concern)

SARA Codes

CAS # 7647-01-0: acute.

Section 313

This material contains Hydrogen chloride (CAS# 7647-01-0, 36 38%), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

Clean Air Act:

CAS# 7647-01-0 is listed as a hazardous air pollutant (HAP). This material does not contain any Class 1 Ozone depletory. This material does not contain any Class 2 Ozone depletory.

Clean Water Act:

CAS# 7647-01-0 is listed as a Hazardous Substance under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA: CAS# 7647-01-0 is considered highly hazardous by OSHA.

STATE

CAS# 7647-01-0 can be found on the following state right to know lists: California, New Jersey, Florida, Pennsylvania, Minnesota, and Massachusetts.

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CAS# 7732-18-5 is not present on state lists from CA, PA, MN, MA, FL, or NJ.
California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives
Corrosive (Category 1B), R34

KSA Compliance:
SASO GHS Rev. 9 (2021)

Hazard Symbols: C

Risk Phrases: R 34 Causes burns.

Safety Phrases:
S 26 In case of contact with eyes rinse immediately with plenty of water and seek medical advice.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 7647-01-0: 1

CAS# 7732-18-5: No information available.

Canada

CAS# 7647-01-0 is listed on Canada's DSL List.
CAS# 7732-18-5 is listed on Canada's DSL List.
This product has a WHMIS classification of D2A, E.
CAS# 7647-01-0 is listed on Canada's Ingredient Disclosure List.
CAS# 7732-18-5 is not listed on Canada's Ingredient Disclosure List.

SECTION 16: OTHER INFORMATION

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