

# Safety Data Sheet

## HYDRO CHLORIC ACID (All Grades)

### Section 1: Chemical Product and Company Identification



**Company Identification :** Engro Polymer & Chemicals Ltd

12th Floor, Ocean Towers, G-3, Khayaban-e-Iqbal, Block 9, Clifton, Karachi.

**Emergency Telephone Number:** (+92) 21-111-411-411

**Product Identifier:** Hydrochloric Acid (HCL)

**Synonyms:** HCl Solution ,Aqueous hydrogen chloride

**Product Use:** Process chemical, Metal cleaning, Water purification, Petroleum industry

### Section 2: Hazard Identification

**OSHA REGULATORY STATUS:** This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**EMERGENCY OVERVIEW:** Color: Colorless Physical State: Liquid Appearance: Clear Odor: Irritating, Pungent, Sharp Signal Word: Danger **MAJOR HEALTH HAZARDS:** CORROSIVE. CAUSES SEVERE SKIN BURNS AND SERIOUS EYE DAMAGE. HARMFUL IF SWALLOWED. HARMFUL IF INHALED. CAUSES DAMAGE TO TEETH THROUGH PROLONGED OR REPEATED EXPOSURES. **PHYSICAL HAZARDS:** Contact with metals may evolve flammable hydrogen gas. May spatter or generate heat when mixed with water. **PRECAUTIONARY STATEMENTS:** Do not get in eyes, on skin, or on clothing. Wear gloves, protective clothing, eye, and face protection. Do not breathe the mist, vapors, or spray. Use outdoors or in a well-ventilated area. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Keep separated from incompatible substances. **ADDITIONAL HAZARD INFORMATION:** This material is corrosive. To treat contacted tissue, flush with water to dilute. There is no specific antidote

#### GHS CLASSIFICATION:

GHS: CONTACT HAZARD - SKIN:	Category 1B - Causes severe skin burns and eye damage.
GHS: CONTACT HAZARD - EYE:	Category 1 - Causes serious eye damage
GHS: ACUTE TOXICITY - INHALATION:	Category 4 - Harmful if inhaled
GHS: ACUTE TOXICITY - ORAL:	Category 4 - Harmful if swallowed.
GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE):	Category 1 - Causes damage to teeth through prolonged or repeated exposure
GHS: TARGET ORGAN TOXICITY (REPEATED EXPOSURE):	Category 1 - Causes damage to teeth through prolonged or repeated exposure
GHS: CARCINOGENICITY:	Not classified as a carcinogen per GHS criteria. This material is not classifiable as to its carcinogenicity to humans (Group 3 - IARC). ACGIH - A4 Carcinogen - Not classifiable as a human carcinogen.

**UNKNOWN ACUTE TOXICITY:** Not applicable. 100% of this product consists of ingredient(s) of known acute toxicity.

**GHS SYMBOL:** Corrosive

Health hazard

Exclamation mark



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**GHS SIGNAL WORD: DANGER**

**GHS HAZARD STATEMENTS:**

**GHS - Health Hazard Statement(s)**

- Causes severe skin burns and eye damage
- Causes serious eye damage
- Harmful if swallowed
- Harmful if inhaled
- Causes damage to organs through prolonged or repeated exposure (teeth)

**GHS - Precautionary Statement(s) - Prevention**

- Wear protective gloves, protective clothing, eye, and face protection
- Do not breathe mist, vapors, or spray
- Wash thoroughly after handling
- Do not eat, drink or smoke when using this product
- Use only outdoors or in a well-ventilated area

**GHS - Precautionary Statement(s) - 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): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
- Immediately call a POISON CENTER or doctor/physician
- Wash contaminated clothing before reuse
- IF INHALED: Remove person to fresh air and keep comfortable for breathing
- Call a POISON CENTER or doctor/physician if you feel unwell
- Specific treatment (see First Aid information on product label and/or Section 4 of the SDS)

**GHS - Precautionary Statement(s) - Storage**

- Store locked up

**GHS - Precautionary Statement(s) - Disposal**

- Dispose of contents and container in accordance with applicable local, regional, national, and/or international regulations

**Hazards Not Otherwise Classified (HNOC)**  
None identified

**See Section 11: TOXICOLOGICAL INFORMATION**

**Section 3: Composition and Information on Ingredients**

Hazardous Component	Concentration (by weight %)	CAS - No.
Hydrogen chloride	9 - 36	7647-01-0

**Section 4: First Aid Measures**

**INHALATION:** 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. If respiration or pulse has stopped, have a trained person administer basic life support (Cardio-Pulmonary Resuscitation and/or Automatic External Defibrillator) and CALL FOR EMERGENCY SERVICES IMMEDIATELY.

**SKIN CONTACT:** Immediately flush contaminated areas with water. Remove contaminated clothing, jewelry, and shoes immediately. Wash contaminated areas with soap and water. Thoroughly clean and dry contaminated clothing and shoes before reuse. GET MEDICAL ATTENTION IMMEDIATELY.

**EYE CONTACT:** Immediately flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is

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essential to achieve maximum effectiveness. GET MEDICAL ATTENTION IMMEDIATELY.

**INGESTION:** Not a likely route of exposure

**Section 5: Fire and Explosion Data**

**Fire Hazard:** Negligible fire hazard.

**Extinguishing Media:** Use media appropriate for surrounding fire

**Fire Fighting:** Keep unnecessary people away, isolate hazard area and deny entry. Wear NIOSH approved positive pressure self-contained breathing apparatus operated in pressure demand mode. Move container from fire area if it can be done without risk. Cool non-leaking containers with water. Avoid inhalation of material or combustion by-products. Stay upwind and keep out of low areas.

**Sensitivity to Mechanical Impact:** Not sensitive.

**Sensitivity to Static Discharge:** Not sensitive.

**Flash point:** Not flammable

**Hazardous Combustion Products:** Hydrogen chloride, Chlorine, Hydrogen gas

**Section 6: Accidental Release Measures**

**Occupational Release:**

Remove sources of ignition. Wear appropriate personal protective equipment recommended in Section 8 of the MSDS. Stop leak if possible without personal risk. Consider evacuation of personnel located downwind if material is leaking. Shut off ventilation system if needed. Completely contain spilled material with dikes, sandbags, etc. Neutralize with soda ash or dilute caustic soda. Collect with appropriate absorbent and place into suitable container. Liquid material may be removed with a properly rated vacuum truck. Keep out of water supplies and sewers. This material is acidic and may lower the PH of the surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies.

**Section 7: Handling and Storage**

**Occupational Release:**

Remove sources of ignition. Wear appropriate personal protective equipment recommended in Section 8 of the MSDS. Stop leak if possible without personal risk. Consider evacuation of personnel located downwind if material is leaking. Shut off ventilation system if needed. Completely contain spilled material with dikes, sandbags, etc. Neutralize with soda ash or dilute caustic soda. Collect with appropriate absorbent and place into suitable container. Liquid material may be removed with a properly rated vacuum truck. Keep out of water supplies and sewers. This material is acidic and may lower the Ph of the surface waters with low buffering capacity. Releases should be reported, if required, to appropriate agencies.

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### Section 8: Exposure Controls/Personal Protection

#### OSHA Regulatory Exposure limit(s):

Hazardous Component	CAS - No.	OSHA Final PEL TWA	OSHA Final PEL STEL	OSHA Final PEL Ceiling
Hydrogen chloride	7647-01-0	-----	-----	5 ppm 7 mg/m <sup>3</sup>

**ENGINEERING CONTROLS:** Use closed systems when possible. Provide local exhaust ventilation where vapor or mist may be generated. Ensure compliance with applicable exposure limits.

#### PERSONAL PROTECTIVE EQUIPMENT:

**Eye Protection:** Wear chemical safety goggles with a faceshield to protect against eye and skin contact when appropriate. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

**Skin and Body Protection:** Wear chemical resistant clothing and rubber boots when potential for contact with the material exists. Always place pants legs over boots.

**Hand Protection:** Wear appropriate chemical resistant gloves

**Protective Material Types:** Nitrile, Neoprene, Butyl rubber, Polyvinyl chloride (PVC), Responder®,

Hazardous Component	Immediately Dangerous to Life/ Health (IDLH)
Hydrogen chloride	50 ppm IDLH

**Respiratory Protection:** A NIOSH approved full-face respirator equipped with acid gas cartridges (appropriate for hydrogen chloride) may be permissible under certain circumstances where airborne concentrations of hydrogen chloride are expected to exceed exposure limits, or when symptoms have been observed that are indicative of overexposure. When the level may be above the IDLH, use an SCBA or pressure-demand supplied air with an auxilliary self-contained escape pack. Pressure-demand SCBA (self-contained breathing apparatus) must be used when there is a potential for uncontrolled release or unknown concentrations. A respiratory protection program that meets 29 CFR 1910.134 must be followed whenever workplace conditions warrant use of a respirator.

### Section 9: Physical and Chemical Properties

Physical State: Liquid

Appearance: Clear

Color: Colorless

Odor: Irritating, Pungent, Sharp

Odor Threshold 0.3 ppm (causes olfactory fatigue)

Molecular Weight: 36.46

Molecular Formula: HCl

Flash point: Not flammable

Boiling Point/Range: 140 - 221°F (60 – 105 °C)

Freezing Point/Range: -29 to 5 °F (-34 to -15 °C)

Vapor Pressure: 14.6 - 80 mmHg @ 20°C

Vapor Density (air=1): 1.3 @ 20°C

Specific Gravity (water=1): 1.05 – 1.18

Density: 8.75 – 9.83 lbs/gal

Water Solubility: 100%

pH: 2 (0.2% solution)

Volatility: 9 - 36% by volume

Evaporation Rate (ether=1): < 1.00 (butyl acetate=1)

### Section 10: Stability and Reactivity Data

**Reactivity/ Stability:** Stable at normal temperatures and pressures.

Conditions to Avoid: Avoid heat, flames, sparks and other sources of ignition. Avoid contact with water.

Will react with some metals forming flammable hydrogen gas. Hydrogen chloride may react with cyanide,

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forming lethal concentrations of hydrocyanic acid. Avoid contact with incompatible materials.

### Incompatibilities Materials to Avoid:

Metals, Alkalis, Oxidizing agents, Mercuric sulfate, Per chloric acid, Carbides of calcium, cesium, rubidium, Acetylides of cesium and rubidium, Phosphides of calcium and uranium, Lithium silicide

### Hazardous Decomposition Products:

Chlorine, Hydrogen chloride, Hydrogen gas

Hazardous Polymerization: Will not occur

### Section 11: Toxicological Information

Hazardous Component	LD50 Oral	LC50 Inhalation	LD50 Dermal
Hydrogen chloride	700 mg/kg (Rat) 900 mg/kg (Rabbit)	3124 ppm (1 hr-Rat)	5010 mg/kg (Rabbit)

### TOXICITY:

Inhalation will cause severe irritation and possible burns with coughing and choking. If inhaled deeply, edema and hemorrhage of the lungs may occur. Prolonged exposure may cause discoloration and/or erosion of teeth. Contact with eyes causes immediate severe irritation with possible burns, permanent visual impairment, or total loss of sight. Skin contact with this material may cause severe irritation and corrosion of tissue. Ingestion may cause immediate burns of the mouth, esophagus, and stomach. Ingestion may cause intense pain, nausea, vomiting, bleeding, circulating collapse, shock and death.

**CARCINOGENICITY:** This product is not classified as a carcinogen by NTP, IARC or OSHA.

### Section 12: Ecological Information

#### ECOTOXICITY DATA:

LC50 Gambusia affinis: 282 mg/L 96 h

LC50 goldfish: 178 mg/L (1 to 2 hour survival time)

LC50 bluegill: 3.6 mg/L 48 h

LC50 shrimp: 100 – 330 mg/L

HALF LIFE		
Hazardous Chemicals	Air	Water
HCl	11 days	NA

#### FATE AND TRANSPORT:

**BIODEGRADATION:** This material is inorganic and not subject to biodegradation.

**PERSISTENCE:** This material is believed not to persist in the environment. This material is believed to exist in the disassociated state in the environment. If released to soil, hydrogen chloride will sink into the soil. The acid will dissolve some soil material (in particular, anything with a carbonate base) and will be somewhat neutralized. The remaining portion is thought to transport downward to the water table. If released to water, it dissociates almost completely and will be neutralized by natural alkalinity and carbon dioxide.

**BIOCONCENTRATION:** This material is not expected to bioconcentrate in organisms.

**ADDITIONAL ECOLOGICAL INFORMATION:** This material has exhibited toxicity to terrestrial organisms. May decrease

pH of waterways and adversely affect aquatic life.

### Section 13: Disposal Considerations

Reuse or reprocess, if possible. Dispose in accordance with all applicable regulations. May be subject to disposal

Regulations: U.S. EPA 40 CFR 261. Hazardous Waste Number(s): D002

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**Section 14: Transport Information**

**DOT 49 CFR 172.101:**  
**PROPER SHIPPING NAME:** Hydrochloric acid solution  
**DOT UN NUMBER:** UN1789  
**HAZARD CLASS/ DIVISION:** 8  
**PACKING GROUP:** II  
**LABELING**  
**REQUIREMENTS:** 8  
**DOT RQ (lbs.):** RQ 5,000 Lbs. (Hydrochloric acid)

**Section 15: Other Regulatory Information**

**OSHA REGULATORY STATUS:**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200) (US).

Pakistan Environmental Protection Act, 1997 and rules & regulation made thereunder, including in particular the Hazardous Substance Rules 2014.

**Section 16: Other Information**



Prepared by : Engro Polymer & Chemicals Ltd

**NFPA 704 - Hazard Identification Ratings (SCALE 0-4)**

**Health: 3 Flammability: 0 Reactivity: 1**

**Disclaimer:** Judgments as to the suitability of information herein for the purchaser's purposes are necessarily the purchaser's responsibility. Although reasonable care has been taken in the preparation of such information, Engro Polymer & Chemical Ltd extends no warranties, makes no representations, and assumes no responsibility as to the accuracy or suitability of such information for application to the purchaser's intended purpose or for consequences of its use.