TECHNICAL DATA SHEET

Hydrochloric Acid 5% Technical Grade

Revised: 04/27/2026

PRODUCT IDENTIFICATION

Product Name: Hydrochloric Acid 5% Technical Grade
CAS Number: 7647-01-0
Molecular Formula: ClH
Molecular Weight: 36.46 g/mol
Grade: Technical Grade
Purity / Concentration: 5%
Synonyms: Hydrochloric Acid Solution, Muriatic Acid

PRODUCT OVERVIEW

Hydrochloric Acid 5% Technical Grade is a clear, colorless aqueous solution ideal for precise chemical applications requiring a lower concentration. With a verified assay of 5.1% and minimal impurities like iron at 0.1 ppm, this product offers consistent performance for pH adjustment and surface treatment.

Grade Significance: Technical Grade ensures that the product meets specific industrial performance standards while remaining cost-effective for large-scale operations where reagent-grade purity is not required.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	5.1	4.5	5.5	Titration with NaOH
Color (APHA)	APHA	10	—	20	ASTM D1209
Specific Gravity (20°C)	g/mL	1.025	1.01	1.03	ASTM D891
Residue After Ignition	%	0.0005	—	0.0010	Gravimetric
Iron (Fe)	ppm	0.1	—	5	ICP-OES
Sulfate (SO_4^{2-})	ppm	0.5	—	10	Turbidimetry

ND = Not Detected. Values are typical and may vary by lot.

PHYSICAL & CHEMICAL PROPERTIES

Appearance	Clear, colorless liquid	**Odor**	Pungent, acrid odor
Form	Liquid	**Boiling Point**	108°C (226.4°F)
Melting / Freezing Point	-74°C (-101.2°F)	**Specific Gravity**	1.03
Solubility	Soluble in water and organic solvents	**Molecular Formula**	ClH
Molecular Weight	36.46 g/mol	**Vapor Pressure (20°C)**	20 mmHg
Viscosity (25°C)	0.89 cP	**Refractive Index (20°C)**	1.332
Density (25°C)	1.01 g/mL		

APPLICATIONS

1. **Water Treatment** — Used effectively to lower the pH levels of water in treatment processes to ensure optimal chemical balance.
2. **Chemical Manufacturing** — Serves as a reliable reagent in various synthesis and chemical reaction pathways.
3. **Metalworking** — Utilized for cleaning metal surfaces by efficiently removing oxides and surface impurities prior to coating or finishing.
4. **Laboratory Research** — Commonly used in analytical procedures and titrations where a stable 5% concentration is required.

STORAGE & HANDLING

Proper storage is critical because this acid is corrosive and toxic if inhaled, posing severe risks to skin and eyes. Maintaining a secure, well-ventilated area prevents the buildup of hazardous vapors and ensures the integrity of the container is not compromised by corrosive reactions.

- Store in a cool, dry place away from direct sunlight.
- Use corrosion-resistant containers (e.g., HDPE or glass).
- Avoid contact with incompatible materials such as strong bases and oxidizers.
- Ensure proper ventilation in storage areas to prevent vapor accumulation.
- Wear appropriate personal protective equipment (PPE) including gloves and goggles.

AVAILABLE PACKAGING

- 1 Quart
- 1 Gallon
- 5 Gallon
- 15 Gallon
- 55 Gallon
- 275 Gallon
- 330 Gallon

SAFETY SUMMARY (CROSS-REFERENCE TO SDS)

Signal Word: Danger

Hazard Statements:

- H314: Causes severe skin burns and eye damage [Danger Skin corrosion/irritation]
- H331: Toxic if inhaled [Danger Acute toxicity, inhalation]

Emergency Contact: CHEMTEL - 800-255-3924 (24 Hours/Day, 7 Days/Week)

For complete safety information, refer to the Safety Data Sheet (SDS) for this product.

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