TECHNICAL DATA SHEET

Nitric Acid 5%

Revised: 04/27/2026

PRODUCT IDENTIFICATION

Product Name: Nitric Acid 5%
CAS Number: 7697-37-2
Molecular Formula: HNO_3
Molecular Weight: 63.013 g/mol
Grade: Technical
Purity / Concentration: 5%
Synonyms: Dilute Nitric Acid, Nitric Acid Solution 5%

PRODUCT OVERVIEW

Nitric Acid 5% is a high-quality technical grade solution characterized by a precise 5.1% assay and exceptional purity, including low heavy metal content of 0.05 ppm. This colorless liquid is engineered for consistent performance in laboratory and industrial chemical processes.

Grade Significance: Technical grade signifies that this product is manufactured to meet rigorous industrial standards, providing a cost-effective solution for applications where high-purity, standardized chemical performance is required.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	5.1	4.8	5.3	Titration with NaOH
Color (APHA)	APHA	5	—	10	APHA 2120
Specific Gravity (20°C)	g/mL	1.03	—	—	USP <841>
Residue After Ignition	%	0.0001	—	0.0010	ACS
Heavy Metals (as Pb)	ppm	0.05	—	0.5	ACS
Iron (Fe)	ppm	0.05	—	0.2	ACS
Chloride (Cl^-)	ppm	0.1	—	0.5	ACS
Sulfate (SO_4^{2-})	ppm	0.2	—	1	ACS

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

PHYSICAL & CHEMICAL PROPERTIES

Appearance	Colorless, fuming liquid	**Odor**	Pungent, acrid odor
Form	Liquid	**Boiling Point**	83°C (181.4°F)
Melting / Freezing Point	-42°C (-43.6°F)	**Specific Gravity**	1.03
Solubility	Soluble in water, alcohols, and most organic solvents	**Molecular Formula**	HNO_3
Molecular Weight	63.013 g/mol	**Vapor Pressure (20°C)**	12 mmHg
Viscosity (25°C)	1.0 cP	**Refractive Index (20°C)**	1.334
Density (25°C)	1.005 g/mL	**Partition Coefficient (log P)**	-0.6 (approximate, inorganic acid in water)
Decomposition Temp.	Not applicable for dilute aqueous solution		

APPLICATIONS

1. **Analytical Chemistry** — Serves as an essential mobile phase component in high-performance liquid chromatography to facilitate accurate compound separation.
2. **Electronics Manufacturing** — Utilized in the etching of semiconductors and metals to achieve precise, high-resolution pattern creation.
3. **Water Treatment** — Applied for effective pH adjustment to ensure treated water meets strict environmental and regulatory compliance standards.
4. **Pharmaceuticals** — Acts as a reliable reagent in various synthesis processes required for the development of medical products.

STORAGE & HANDLING

As a potent oxidizer, Nitric Acid 5% must be stored in a cool, ventilated area away from combustible materials to prevent fire risks. Proper containment is critical to mitigate the hazards of severe skin burns and inhalation toxicity, ensuring both facility safety and chemical stability.

- Store in a cool, dry place away from direct sunlight.
- Use containers made of HDPE or glass to prevent reactions.
- Avoid contact with strong bases and reducing agents.
- Ensure proper ventilation when handling to minimize inhalation risks.
- Wear appropriate personal protective equipment (PPE) including gloves and goggles.

AVAILABLE PACKAGING

- 1 Liter
- 2.5 Liter
- 55 Gallon

SAFETY SUMMARY (CROSS-REFERENCE TO SDS)

Signal Word: Danger

Hazard Statements:

- H272: May intensify fire; oxidizer [Danger Oxidizing liquids; Oxidizing solids]
- H314: Causes severe skin burns and eye damage [Danger Skin corrosion/irritation]
- H330: Fatal if inhaled [Danger Acute toxicity, inhalation]
- H271: May cause fire or explosion; strong oxidizer

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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