TECHNICAL DATA SHEET

Nitric Acid 5% Technical Grade

Revised: 08/10/2026

PRODUCT IDENTIFICATION

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

PRODUCT OVERVIEW

Alliance Chemical offers high-quality 5% Technical Grade Nitric Acid, a reliable solution characterized by low impurity levels, including iron at 0.3 ppm and non-volatile residue at 0.0030%. This colorless, liquid reagent is essential for applications requiring precise pH adjustment, chemical synthesis, and industrial etching processes.

Grade Significance: Technical Grade signifies that this product is manufactured for general industrial use where high reliability is required, but it does not meet the stringent purity standards required for food, drug, or analytical laboratory reagent grades.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (Titration)	%	5	4.7	5.3	Titration
Color (APHA/Hazen)	APHA	5	—	70	Spectrophotometry
Non-Volatile Residue	%	0.0030	—	0.01	Residue on Ignition
Iron (Fe)	ppm	0.3	0	1	ICP-MS
Chloride Cl	ppm	0.216	0	0.72	ICP

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**	Not characterized for the 5% solution
Melting / Freezing Point	Not characterized for the 5% solution	**Specific Gravity**	1.025
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** — This dilute nitric acid serves as a critical mobile phase component in high-performance liquid chromatography for the accurate separation of complex compounds.
2. **Electronics Manufacturing** — It is utilized in the controlled etching of semiconductors and metals, allowing manufacturers to create precise, intricate patterns on various substrates.
3. **Water Treatment** — The solution is applied to effectively adjust pH levels in water treatment systems, ensuring that effluent meets strict environmental compliance standards.
4. **Pharmaceuticals** — It acts as a versatile reagent in chemical synthesis processes, supporting the development and manufacturing of various pharmaceutical ingredients.

STORAGE & HANDLING

Proper storage is critical because 5% Nitric Acid is a strong oxidizer that can cause severe skin burns, eye damage, and metal corrosion. Containers must be kept in a cool, well-ventilated area away from incompatible materials to prevent hazardous reactions or accidental release.

- 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:

- H290: May be corrosive to metals
- H314: Causes severe skin burns and eye damage
- 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.

Alliance Chemical | 204 South Edmond St, Taylor, Texas 76574 | 512-365-6838 | www.alliancechemical.com