

PRODUCT IDENTIFICATION



Product Name: Nitric Acid 40%
CAS Number: 7697-37-2
Molecular Formula: HNO_3
Molecular Weight: 63.013 g/mol
Grade: Technical
Purity / Concentration: 40%
Synonyms: Nitric Acid Solution, Aqueous Nitric Acid

PRODUCT OVERVIEW

Alliance Chemical offers high-quality Technical grade Nitric Acid 40% (CAS 7697-37-2), a versatile aqueous solution essential for diverse industrial and laboratory processes. This clear, colorless liquid is characterized by a precise assay of 40.3% and exceptional purity, including low levels of iron and heavy metals at 0.1 ppm.

Grade Significance: Technical grade Nitric Acid is specifically formulated for general industrial and laboratory applications where high reliability is required but the extreme purity of reagent-grade chemicals is not necessary.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (Titration)	%	39.9	39	41	Titration
Color (APHA/Hazen)	APHA	31.5	0	70	Spectrophotometry
Specific Gravity (20°C)	g/mL	1.2455	1.244	1.248	Hydrometer @ 25°C
Non-Volatile Residue	%	0.01	0	0.01	Residue on Ignition
Iron (Fe)	ppm	2	0	5	ICP-MS
Chloride Cl	ppm	28.635	0	57.97	ICP

Values based on 3 batches tested. ND = Not Detected.

PHYSICAL & CHEMICAL PROPERTIES

Appearance	Clear, colorless liquid	Odor	Pungent, acrid odor
Form	Liquid	Boiling Point	Not characterized for the 40% solution
Melting / Freezing Point	Not characterized for the 40% solution	Specific Gravity	1.249
Solubility	Miscible with water, alcohol, and most organic solvents	Molecular Formula	HNO_3
Molecular Weight	63.013 g/mol	Vapor Pressure (20°C)	0.5 mmHg
Viscosity (25°C)	1.2 cP	Refractive Index (20°C)	1.335
Density (25°C)	1.2 g/mL		

APPLICATIONS

1. **Metal Processing** — Used extensively for metal etching and cleaning, ensuring surfaces are properly prepared for plating or coating applications.
2. **Chemical Manufacturing** — Serves as a critical reagent in the synthesis of various organic and inorganic compounds, including fertilizers and dyes.
3. **Laboratory Research** — Utilized as a standard acid in analytical chemistry for sample digestion and the preparation of metal standard solutions.
4. **Water Treatment** — Applied in pH adjustment and cleaning processes to maintain the efficiency of industrial water systems.
5. **Electronics** — Employed in the cleaning and etching of semiconductor materials to remove contaminants and create precise circuit patterns.

STORAGE & HANDLING

Proper storage is critical because Nitric Acid 40% is a powerful oxidizer that can intensify fires and cause severe chemical burns. It must be stored in a cool, well-ventilated area away from combustible materials and incompatible substances to prevent dangerous reactions and accidental inhalation hazards.

- Store in a cool, dry, well-ventilated area away from incompatible materials.
- Use corrosion-resistant containers (e.g., HDPE, glass) for storage.
- Avoid exposure to light and heat to maintain chemical stability.
- Wear appropriate personal protective equipment (PPE) including gloves and goggles when handling.

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]

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

Disclaimer: The information contained herein is believed to be accurate and represents the best information currently available to us. However, Alliance Chemical makes no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes.