

PRODUCT IDENTIFICATION



Product Name: Nitric Acid 20%
CAS Number: 7697-37-2
Molecular Formula: HNO₃
Molecular Weight: 63.013 g/mol
Grade: Technical
Purity / Concentration: 20%
Synonyms: Nitric Acid Solution, Aqueous Nitric Acid

PRODUCT OVERVIEW

Alliance Chemical offers high-quality Nitric Acid 20% in a Technical grade, providing a reliable aqueous solution for industrial chemical processes. With a precise assay of 20.3% and ultra-low impurity levels, including iron content at 0.1 ppm, this product is engineered for consistent performance in demanding applications.

Grade Significance: Technical grade signifies that this product is manufactured to meet rigorous industrial standards, ensuring it is suitable for large-scale manufacturing and utility processes rather than specific pharmaceutical or food-grade applications.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	20.3	19.5	21	Titration with NaOH
Color (APHA)	APHA	5	—	10	ASTM D1209
Specific Gravity (20°C)	g/mL	1.115	1.112	1.118	Hydrometer
Residue After Ignition	%	0.0010	—	0.0050	Gravimetric
Iron (Fe)	ppm	0.1	—	1	ICP-OES
Chloride (Cl ⁻)	ppm	0.2	—	1	Ion Chromatography
Sulfate (SO ₄ ²⁻)	ppm	0.5	—	5	Turbidimetry

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

PHYSICAL & CHEMICAL PROPERTIES

Appearance	Clear, colorless to slightly yellow liquid	Odor	Pungent, acrid odor
Form	Liquid	Boiling Point	83°C (181.4°F)
Melting / Freezing Point	-42°C (-43.6°F)	Specific Gravity	1.11
Solubility	Miscible with water and most organic solvents	Molecular Formula	HNO ₃
Molecular Weight	63.013 g/mol	Vapor Pressure (20°C)	5 mmHg
Viscosity (25°C)	1.1 cP	Refractive Index (20°C)	1.335
Density (25°C)	1.086 g/mL	Decomposition Temp.	Decomposes on heating; no fixed bp

APPLICATIONS

1. **Electronics Manufacturing** — Used as a precise etchant in the production of printed circuit boards to remove excess metal and define intricate conductive pathways.
2. **Water Treatment** — Serves as an effective agent for adjusting the pH levels of industrial process water to ensure compliance and optimal system functionality.
3. **Chemical Synthesis** — Acts as a potent oxidizing agent in various laboratory and industrial reactions, facilitating the synthesis of complex chemical compounds.
4. **Analytical Laboratory** — Utilized in analytical procedures for sample preparation and acid digestion to ensure accurate testing results.
5. **Metal Finishing** — Employed in surface treatment processes to clean and passivate metal surfaces, enhancing durability and corrosion resistance.

STORAGE & HANDLING

Proper storage is critical because Nitric Acid 20% is a powerful oxidizer that can intensify fires and cause severe chemical burns. It must be stored in a cool, ventilated area, away from incompatible materials and organic substances to prevent hazardous reactions and maintain chemical integrity.

- Store in a cool, dry, well-ventilated area away from incompatible materials.
- Use containers made of HDPE or glass to prevent reactions.
- Avoid exposure to light and heat to maintain stability.
- Wear appropriate personal protective equipment (PPE) including gloves and goggles.
- Ensure adequate ventilation when handling to avoid inhalation of vapors.

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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