

## PRODUCT IDENTIFICATION



**Product Name:** Nitric Acid 25%  
**CAS Number:** 7697-37-2  
**Molecular Formula:**  $\text{HNO}_3$   
**Molecular Weight:** 63.013 g/mol  
**Grade:** Technical  
**Purity / Concentration:** 25%  
**Synonyms:** Nitric Acid Solution, Aqueous Nitric Acid

## PRODUCT OVERVIEW

Alliance Chemical offers high-quality 25% Technical Grade Nitric Acid, a versatile aqueous solution essential for industrial oxidizing and etching applications. This product features a precise 25% assay and maintains high purity levels, including a low 2 APHA color rating and minimal trace impurities like chloride and sulfate.

**Grade Significance:** Technical grade chemicals provide a cost-effective solution for industrial applications where commercial-grade purity is required but extreme analytical precision is not necessary. It ensures consistent performance for large-scale manufacturing and processing needs.

## CERTIFICATE OF ANALYSIS — TYPICAL VALUES

| PARAMETER               | UNIT | TYPICAL | MIN   | MAX   | TEST METHOD         |
|-------------------------|------|---------|-------|-------|---------------------|
| Assay (Titration)       | %    | 24.9667 | 24    | 26    | Titration           |
| Color (APHA/Hazen)      | APHA | 38.3333 | 0     | 70    | Spectrophotometry   |
| Specific Gravity (20°C) | g/mL | 1.1479  | 1.146 | 1.15  | Hydrometer @ 25°C   |
| Non-Volatile Residue    | %    | ND      | 0     | 0.01  | Residue on Ignition |
| Iron (Fe)               | ppm  | 3       | 0     | 5     | ICP-MS              |
| Chloride Cl             | ppm  | 14.4467 | 0     | 36.23 | ICP                 |

Values based on 4 batches tested. ND = Not Detected.

## PHYSICAL & CHEMICAL PROPERTIES

|                                 |                                                     |                                |                                        |
|---------------------------------|-----------------------------------------------------|--------------------------------|----------------------------------------|
| <b>Appearance</b>               | Colorless to slightly yellow, fuming liquid         | <b>Odor</b>                    | Pungent, acrid odor                    |
| <b>Form</b>                     | Liquid                                              | <b>Boiling Point</b>           | Not characterized for the 25% solution |
| <b>Melting / Freezing Point</b> | Not characterized for the 25% solution              | <b>Specific Gravity</b>        | 1.147                                  |
| <b>Solubility</b>               | Soluble in water, alcohol, and other polar solvents | <b>Molecular Formula</b>       | $\text{HNO}_3$                         |
| <b>Molecular Weight</b>         | 63.013 g/mol                                        | <b>Vapor Pressure (20°C)</b>   | 45 mmHg                                |
| <b>Viscosity (25°C)</b>         | 0.89 cP                                             | <b>Refractive Index (20°C)</b> | 1.335                                  |
| <b>Density (25°C)</b>           | 1.13 g/mL                                           |                                |                                        |

## APPLICATIONS

1. **Metalworking** — Used extensively in metal etching processes to clean surfaces or create intricate patterns on components.
2. **Semiconductor Manufacturing** — Functions as a critical etchant and cleaning agent for silicon wafers and other electronic substrate materials.
3. **Water Treatment** — Applied as a reliable reagent for adjusting pH levels in industrial wastewater treatment systems.
4. **Agriculture** — Serves as a fundamental precursor in the chemical production of nitrate-based fertilizers for crop optimization.
5. **Chemical Synthesis** — Acts as a potent oxidizing agent to facilitate various complex chemical reactions in laboratory and industrial settings.

## STORAGE & HANDLING

Due to its nature as a powerful oxidizer, Nitric Acid 25% must be stored in a cool, well-ventilated area away from combustible materials and organic substances. Proper containment is critical to prevent severe skin burns and inhalation hazards, ensuring the integrity of the container and the safety of the facility.

- Store in a cool, dry, well-ventilated area away from incompatible materials.
- Use corrosion-resistant containers (e.g., HDPE, glass).
- Avoid contact with reducing agents and organic materials.
- Wear appropriate personal protective equipment (PPE) including gloves and goggles.
- Ensure proper 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]

**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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