# TECHNICAL DATA SHEET

**Nitric Acid 40% Technical Grade**

Revised: 08/10/2026

## PRODUCT IDENTIFICATION


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

## PRODUCT OVERVIEW

Alliance Chemical offers high-quality 40% Technical Grade Nitric Acid, a clear and colorless aqueous solution ideal for diverse industrial applications. Our current batches maintain a consistent assay of 39.9% and a specific gravity of 1.2455 g/mL, ensuring reliable performance in your chemical processes.

**Grade Significance:** Technical Grade ensures the chemical meets industrial standards for consistency and performance, providing an economical choice for applications where ultra-pure laboratory-grade specifications are not strictly required.

## 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 | 1.74 | 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 pickling and etching metal surfaces to remove impurities and prepare parts for finishing.
2. **Laboratory Research** — Serves as a fundamental reagent for analytical testing and controlled chemical reactions in industrial laboratory settings.
3. **Water Treatment** — Utilized for pH adjustment and cleaning of scale from industrial water systems and equipment.
4. **Chemical Manufacturing** — Acts as a key intermediate in the synthesis of various specialty chemicals and nitrate compounds.

## STORAGE & HANDLING

Proper storage is critical because 40% Nitric Acid is highly corrosive to metals and poses severe skin and respiratory hazards. It must be kept in compatible, vented containers within a cool, secure, and well-ventilated area to prevent accidental release or hazardous pressure buildup.

- 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:**

- H290: May be corrosive to metals
- H314: Causes severe skin burns and eye damage
- H331: Toxic if inhaled
- 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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