TECHNICAL DATA SHEET

Nitric Acid 70% ACS Grade - Low Particle

Revised: 02/20/2026

PRODUCT IDENTIFICATION

Product Name: Nitric Acid 70% ACS Grade - Low Particle
CAS Number: 7697-37-2
Molecular Formula: HNO_3
Molecular Weight: 63.013 g/mol
Grade: ACS Grade
Purity / Concentration: 70%
Synonyms: Aqua Fortis, Nitric Acid Solution

PRODUCT OVERVIEW

Alliance Chemical's Nitric Acid 70% ACS Grade - Low Particle is a high-purity solution, boasting a colorless to pale yellow appearance and an assay of 70.2%. Its low residue after ignition (0.0003%) makes it ideal for applications demanding minimal contamination. This product is commonly used as a mobile phase component in HPLC and in the semiconductor industry for etching silicon wafers.

Grade Significance: ACS Grade designation signifies that this Nitric Acid meets the stringent purity standards set by the American Chemical Society, guaranteeing its suitability for demanding analytical and research applications. This high level of purity ensures reliable and reproducible results in sensitive experiments.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	70.2	69	71	Titration
Color (APHA)	APHA	5	—	10	ASTM D1209
Specific Gravity (20°C)	g/mL	1.414	—	—	USP <841>
Residue After Ignition	%	0.0003	—	0.0005	Gravimetric
Arsenic (As)	ppm	0.02	—	0.05	ICP-MS
Heavy Metals (as Pb)	ppm	0.1	—	1	ICP-MS
Iron (Fe)	ppm	0.05	—	0.2	ICP-MS
Chloride (Cl^-)	ppm	0.1	—	0.5	ISE
Nitrate (NO_3^-)	ppm	1	—	2	Spectrophotometry
Sulfate (SO_4^{2-})	ppm	0.2	—	1	Turbidimetry

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

PHYSICAL & CHEMICAL PROPERTIES

Appearance	Colorless to pale yellow liquid	**Odor**	Pungent, acrid odor
Form	Liquid	**Boiling Point**	83°C (181°F)
Melting / Freezing Point	-42°C (-44°F)	**Specific Gravity**	1.42
Solubility	Soluble in water	**Molecular Formula**	HNO_3
Molecular Weight	63.013 g/mol	**Vapor Pressure (20°C)**	5 mmHg
Viscosity (25°C)	1.2 cP	**Refractive Index (20°C)**	1.37
Density (25°C)	1.41 g/mL	**Partition Coefficient (log P)**	-1.0 (approximate, miscible in water; logP not typically used for strong acids)
Decomposition Temp.	Decomposes on strong heating; no fixed decomposition temperature		

APPLICATIONS

1. **Pharmaceuticals** — Used as a reagent in the synthesis of various pharmaceutical compounds, ensuring high purity and minimal interference due to its ACS grade.
2. **Semiconductor Manufacturing** — Employed for etching silicon wafers, where the low particle content is crucial for preventing defects and ensuring optimal performance of microelectronic devices.
3. **Chemical Synthesis** — Utilized as a strong oxidizing agent in numerous chemical reactions, benefiting from its consistent 70% concentration for reliable results.
4. **Laboratory Analysis** — Serves as a mobile phase component in reversed-phase high-performance liquid chromatography (HPLC) for separating organic compounds, where its purity and low levels of impurities are essential for accurate analysis.
5. **Fertilizer Production** — Functions as a precursor in the production of fertilizers and other nitrates, contributing to the nitrogen content and overall effectiveness of the final product.
6. **Metal Processing** — Used in metal cleaning and etching processes, where its oxidizing properties help remove surface contaminants and prepare metals for further treatment.

STORAGE & HANDLING

Proper storage of Nitric Acid 70% ACS Grade is crucial to maintain its purity and prevent hazardous situations. As a strong oxidizer, it should be stored away from incompatible materials to avoid fire or explosions (H272). Keeping it in a cool, dry, and well-ventilated area will also prevent degradation and ensure its effectiveness over time.

- Store in a cool, dry, well-ventilated area away from incompatible substances.
- Use containers made of HDPE or glass to prevent reactions.
- Avoid exposure to light and moisture to maintain product integrity.
- Wear appropriate personal protective equipment (PPE) including gloves and goggles when handling.
- Ensure proper ventilation in storage and usage areas to minimize inhalation risks.

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.

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