

PRODUCT IDENTIFICATION



Product Name: Nitric Acid 65%ACS Grade
CAS Number: 7697-37-2
Molecular Formula: HNO₃
Molecular Weight: 63.013 g/mol
Grade: ACS Grade
Purity / Concentration: 65%
Synonyms: Nitric Acid Solution, Aqueous Nitric Acid

PRODUCT OVERVIEW

Alliance Chemical's Nitric Acid 65% ACS Grade is a high-purity solution, boasting an assay of 65.3% and a low Color (APHA) of 5. It is commonly used as a mobile phase component in reversed-phase high-performance liquid chromatography and for pH adjustment.

Grade Significance: ACS Grade signifies that this Nitric Acid meets the stringent purity standards set by the American Chemical Society, ensuring reliability and accuracy in demanding analytical and research applications. This high purity minimizes potential interferences and ensures consistent results.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	65.3	65	70	Titration
Color (APHA)	APHA	5	—	10	ASTM D1209
Specific Gravity (20°C)	g/mL	1.39	—	—	USP <841>
Residue After Ignition	%	0.0002	—	0.0005	ACS
Arsenic (As)	ppm	0.02	—	0.05	ICP-MS
Heavy Metals (as Pb)	ppm	0.1	—	1	ICP-MS
Iron (Fe)	ppm	0.1	—	0.2	ICP-MS
Chloride (Cl ⁻)	ppm	0.1	—	0.5	ISE
Sulfate (SO ₄ ²⁻)	ppm	0.2	—	1	Turbidimetry
Free Chlorine Cl	ppm	ND	—	1	Titration
Nitrous Acid As Hno2	%	0.0005	—	0.0020	Spectrophotometry

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	121°C (250°F)
Melting / Freezing Point	-42°C (-44°F)	Solubility	Soluble in water, alcohol, and ether
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)	1.36	Density (25°C)	1.41 g/mL
Partition Coefficient (log-P)	-0.5 to -0.3	Decomposition Temp.	No definite decomposition below 100°C; decomposes on heating

APPLICATIONS

- 1. Pharmaceuticals** — Used as a reagent in the synthesis of various pharmaceutical compounds. Its high purity ensures minimal interference with reaction processes, leading to more reliable and consistent results.
- 2. Agriculture** — Utilized in the production of nitrate-based fertilizers. Nitric acid reacts with ammonia to form ammonium nitrate, a key component in providing essential nitrogen to plants.
- 3. Manufacturing** — Serves as an etching agent for metals, particularly in the electronics and semiconductor industries. Its controlled etching properties allow for precise removal of material, crucial for creating intricate circuit patterns.
- 4. Wastewater Treatment** — Used to adjust pH levels in wastewater treatment processes. Nitric acid helps neutralize alkaline wastewater, ensuring compliance with environmental regulations before discharge.
- 5. Laboratory Analysis** — Commonly used as a mobile phase component in reversed-phase high-performance liquid chromatography (HPLC). Its properties facilitate the separation and analysis of organic compounds.
- 6. Explosives** — A key ingredient in the production of various explosives. It reacts with other compounds to form explosive materials, requiring careful handling and control during manufacturing.

STORAGE & HANDLING

Proper storage of Nitric Acid 65% is crucial due to its oxidizing and corrosive nature. It must be stored in tightly sealed, acid-resistant containers, away from incompatible materials and sources of heat, to prevent dangerous reactions and container degradation. Exposure to incompatible materials may result in fire or explosion.

- Store in a cool, dry, well-ventilated area away from incompatible substances.
- Use materials compatible with nitric acid, such as HDPE or glass containers.
- Avoid contact with reducing agents, organic materials, and bases.
- Protect from light and moisture to maintain stability.
- Wear appropriate personal protective equipment (PPE) including gloves and goggles.

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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