

PRODUCT IDENTIFICATION



Product Name: Ammonium Hydroxide 29% Technical Grade

CAS Number: 1336-21-6

Molecular Formula: H_5NO

Molecular Weight: 35.046 g/mol

Grade: Technical Grade

Purity / Concentration: 29%

Synonyms: Aqueous Ammonia, Ammonia Solution

PRODUCT OVERVIEW

Ammonium Hydroxide 29% Technical Grade is a high-purity aqueous ammonia solution, characterized by its clear, colorless appearance and a precise assay of 29.5%. This versatile chemical is widely utilized across industrial sectors for pH adjustment, chemical synthesis, and large-scale cleaning applications.

Grade Significance: Technical Grade signifies that this product meets consistent industrial standards suitable for manufacturing and processing, balancing high purity with cost-effective availability for large-scale operations.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	29.5	28	30	Titration with standardized HCl
Color (APHA)	APHA	3	—	5	APHA/Hazen visual comparison
Specific Gravity (20°C)	g/mL	0.899	0.895	0.905	Hydrometer or pycnometer at 20°C
Residue After Ignition	%	0.0050	—	0.01	Gravimetric after ignition
Water Content	%	0.05	—	0.1	Karl Fischer titration
Aluminum (Al)	ppm	0.1	—	0.5	ICP-OES
Arsenic (As)	ppm	0.0050	—	0.01	ICP-MS
Calcium (Ca)	ppm	0.15	—	0.5	ICP-OES
Chromium (Cr)	ppm	0.02	—	0.1	ICP-OES
Cobalt (Co)	ppm	0.01	—	0.05	ICP-OES
Copper (Cu)	ppm	0.02	—	0.1	ICP-OES
Heavy Metals (as Pb)	ppm	0.01	—	0.05	ICP-MS
Iron (Fe)	ppm	0.05	—	0.2	ICP-OES
Lead (Pb)	ppm	0.01	—	0.05	ICP-MS
Magnesium (Mg)	ppm	0.15	—	0.5	ICP-OES
Manganese (Mn)	ppm	0.02	—	0.1	ICP-OES
Nickel (Ni)	ppm	0.01	—	0.05	ICP-OES
Potassium (K)	ppm	0.15	—	0.5	ICP-OES
Sodium (Na)	ppm	0.15	—	0.5	ICP-OES
Zinc (Zn)	ppm	0.05	—	0.2	ICP-OES
Ammonium (NH ₄ ⁺)	ppm	0.1	—	0.5	Ion Chromatography (IC)
Chloride (Cl ⁻)	ppm	1	—	2	Ion Chromatography (IC) or ion-selective electrode
Nitrate (NO ₃ ⁻)	ppm	5	—	10	Ion Chromatography (IC)
Phosphate (PO ₄ ³⁻)	ppm	1	—	2	Ion Chromatography (IC)
Sulfate (SO ₄ ²⁻)	ppm	2	—	5	Ion Chromatography (IC)

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

PHYSICAL & CHEMICAL PROPERTIES

Appearance	Clear, colorless liquid	Odor	Strong ammonia odor
Form	Liquid	Boiling Point	Not characterized for the 29% solution
Melting / Freezing Point	Not characterized for the 29% solution	Flash Point	11°C (52°F)
Specific Gravity	0.9	Solubility	Soluble in water
Molecular Formula	H ₅ NO	Molecular Weight	35.046 g/mol
Vapor Pressure (20°C)	33 mmHg	Viscosity (25°C)	0.89 cP
Refractive Index (20°C)	1.333	Density (25°C)	0.897 g/mL
Partition Coefficient (log P)	-1.38	Decomposition Temp.	Not decomposing up to 100°C

APPLICATIONS

1. **Water Treatment** — Functions as a reliable buffering agent to effectively adjust and stabilize the pH levels of water during municipal or industrial treatment processes.
2. **Chemical Manufacturing** — Serves as a fundamental reagent in the synthesis of complex chemical compounds and nitrogen-based fertilizers.
3. **Industrial Cleaning** — Utilized as a powerful degreaser to efficiently remove heavy grease, grime, and organic contaminants from industrial surfaces and equipment.
4. **Agriculture** — Acts as a key component in the production of nitrogen-rich fertilizers that support essential crop development and soil health.

STORAGE & HANDLING

Ammonium Hydroxide must be stored in a cool, well-ventilated area to prevent pressure buildup and to mitigate its low flash point of 11°C. Because the solution is corrosive to metals, it is critical to use compatible storage materials to prevent container degradation and potential chemical leaks.

- Store in a cool, 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 minimize inhalation risks.

AVAILABLE PACKAGING

- 1 Quart
- 1 Gallon
- 5 Gallon
- 15 Gallon
- 55 Gallon
- 275 Gallon
- 330 Gallon

SAFETY SUMMARY (CROSS-REFERENCE TO SDS)

Signal Word: **Danger**



Hazard Statements:

- H290: May be corrosive to metals
- H302: Harmful if swallowed
- H314: Causes severe skin burns and eye damage
- H335: May cause respiratory irritation
- H400: Very toxic to aquatic life

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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