TECHNICAL DATA SHEET

Ammonium Hydroxide 29% ACS Grade

Revised: 04/27/2026

PRODUCT IDENTIFICATION

Product Name: Ammonium Hydroxide 29% ACS Grade
CAS Number: 1336-21-6
Molecular Formula: H_5NO
Molecular Weight: 35.046 g/mol
Grade: ACS Grade
Purity / Concentration: 29%
Synonyms: Aqueous Ammonia, Ammonium Hydroxide Solution

PRODUCT OVERVIEW

Ammonium Hydroxide 29% ACS Grade is a high-purity, volatile alkaline solution essential for precision chemical processes. With a strictly controlled assay of 29.3% and trace impurity levels like iron at 0.02 ppm, this reagent ensures reliable performance in demanding analytical and industrial applications.

Grade Significance: ACS Grade indicates that this product meets the stringent purity standards set by the American Chemical Society, ensuring the consistency and low impurity profile required for sensitive laboratory and industrial work.

CERTIFICATE OF ANALYSIS — TYPICAL VALUES

PARAMETER	UNIT	TYPICAL	MIN	MAX	TEST METHOD
Assay (wt%)	%	29.3	28	30	Titration with HCl
Color (APHA)	APHA	5	—	10	APHA 2120 B
Specific Gravity (20°C)	g/mL	0.897	—	—	ASTM D4052
Residue After Ignition	%	0.0005	—	0.0020	ACS Reagent Chemicals
Heavy Metals (as Pb)	ppm	0.05	—	1	ICP-MS
Iron (Fe)	ppm	0.02	—	0.2	ICP-MS
Chloride (Cl^-)	ppm	0.1	—	0.5	Ion Chromatography
Phosphate (PO_4^{3-})	ppm	0.05	—	2	Spectrophotometry
Carbon Dioxide	%	0.0010	—	0.0020	Titration
Total Sulfur As So4	ppm	0.2	—	3	Ion Chromatography

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

PHYSICAL & CHEMICAL PROPERTIES

Appearance	Clear, colorless, volatile alkaline liquid	**Odor**	Pungent ammonia odor
Form	Liquid	**Boiling Point**	37°C (98.6°F)
Melting / Freezing Point	-58°C (-72.4°F)	**Flash Point**	Not applicable
Specific Gravity	0.88	**Solubility**	Complete water miscibility
Molecular Formula	H_5NO	**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
Decomposition Temp.	Not applicable (stable under recommended storage conditions)		

APPLICATIONS

1. **Water Treatment** — Used as a precise buffering agent to elevate and stabilize the pH levels of water systems.
2. **Pharmaceutical Manufacturing** — Serves as a critical chemical precursor for the synthesis of complex pharmaceutical compounds and active ingredients.
3. **Industrial Cleaning** — Utilized in high-strength degreasing formulations to effectively remove organic residues and contaminants from surfaces.
4. **Analytical Chemistry** — Acts as a foundational reagent for laboratory titrations and qualitative analysis where high purity is required.

STORAGE & HANDLING

Ammonium hydroxide must be stored in a cool, well-ventilated area in tightly sealed containers to prevent the loss of volatile ammonia gas. Proper storage is vital to mitigate the risks of severe skin burns and respiratory irritation associated with its hazardous vapors.

- 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 exposure.

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:

- H314: Causes severe skin burns and eye damage [Danger Skin corrosion/irritation]
- H400: Very toxic to aquatic life [Warning Hazardous to the aquatic environment, acute hazard]

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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