





Introduction

Aqueous ammonia, commonly referred to as ammonia solution or ammonia water, is a solution of ammonia gas (NH_3) dissolved in water. It is a versatile and commonly used chemical solution with various applications across different industries. Here's an overview of aqueous ammonia:

CAS NO	7664-41-7
Formula	NH_3
Molecular weight	17.031 g/mol

STANDARD SPECIFICATION

Description	A Clear Colorless Liquid Odor Strongly Pungent & Characteristic
Assay	Contents of Ammonia i.e NH_3 = 25 % @ 27 C Contents of Water 75 %
Solubility	Mixable with water in all Proportions
Identifications	I.P. Identification test for ammonia positive
Residue On Evaporation	0.0068 %
Specific Gravity @ 25 c	0.905 gms
Chloride (AS CL)	Less than 0.0005 %

Sulphate (AS SO ₄)	Less than 0.0002 %
Iron (AS Fe)	Less than 0.00002 %
Carbonate (AS CO ₃)	Less than 0.002 %

CHEMICAL PROPERTIES

Aqueous ammonia is a solution in which ammonia gas (NH₃) is dissolved in water (H₂O). When dissolved, ammonia reacts with water to form ammonium ions (NH₄⁺) and hydroxide ions (OH⁻):



PHYSICAL PROPERTIES:

Odor	It has a distinct, pungent odor that is characteristic of ammonia gas.
Concentration	Aqueous ammonia solutions come in various concentrations, typically ranging from around 5% to 30% ammonia by weight.
State	Aqueous ammonia is a clear and colorless liquid, similar to water in appearance.

PRODUCTION

Aqueous ammonia is produced by dissolving ammonia gas in water. The ammonia gas can be obtained through various methods, including the Haber-Bosch process, which involves the reaction of nitrogen and hydrogen gases.

USES

Aqueous

ammonia and its application in several industries due to its unique properties:

Fertilizers	Ammonia solution is used as a source of nitrogen for fertilizers, such as ammonium nitrate and urea.
Cleaning and Degreasing	It's used in cleaning agents and degreasers, especially in industrial settings.
Wastewater Treatment	Ammonia is used in wastewater treatment processes to adjust pH and remove contaminants like heavy metals.
Cooling Systems	In refrigeration and air conditioning, aqueous ammonia is used as a refrigerant due to its low environmental impact.
Laboratory and Chemical Processes	It's used in various laboratory procedures, such as pH adjustment, extraction, and precipitation reactions.
Textile Industry	Aqueous ammonia is used in textile processing, particularly for treating cotton fabrics.
Food Industry	It's used as a food additive in very small quantities to alter the pH of certain products.
Safety Considerations	Aqueous ammonia is corrosive and can be irritating to the skin, eyes, and respiratory system. It's important to handle it with care, use proper protective equipment, and ensure good ventilation when working with it. It's also important to be cautious about mixing ammonia with other chemicals, as it can produce potentially harmful reactions.

In conclusion, aqueous ammonia is a versatile solution with a range of applications in various industries. Its ability to release ammonia gas and its pH-adjusting properties make it valuable for different processes, but its potential hazards highlight the importance of proper handling and safety precautions.

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