TRADEMARK NITROGEN CORPORATION

What Is Aqua Ammonia? Chemistry & Manufacturing

Industrial Product Information | November 2026

What Is Aqua Ammonia?

Aqua ammonia, also called aqueous ammonia or ammonium hydroxide, is ammonia (NH_3) dissolved in water. It is a clear, colorless, alkaline liquid with a characteristic ammonia odor. Unlike anhydrous ammonia, which is commonly stored as a liquefied gas under pressure, aqua ammonia is supplied as a water-based solution for industrial and treatment applications.

TradeMark Nitrogen Corporation (TMN) manufactures 19.5% and 29.5% aqua ammonia, expressed as percent ammonia by weight, at its Tampa, Florida facility.

How TradeMark Nitrogen Produces Aqua Ammonia

1. Reverse Osmosis Water Purification

Before ammonia is introduced, water used for aqua ammonia production is treated through reverse osmosis (RO) purification equipment. RO uses semipermeable membranes to reduce dissolved salts, minerals, and other impurities in the incoming water. Beginning with purified water helps limit unwanted constituents and supports consistent product quality.

2. Controlled Ammonia Absorption

Anhydrous ammonia is dissolved into the purified water under controlled operating conditions. Absorption releases heat, so temperature and concentration control are important to producing a consistent solution. Dissolved ammonia establishes an equilibrium with ammonium and hydroxide ions:

$$NH_3 + H_2O \rightleftharpoons NH_4^+ + OH^-$$

Although commonly called ammonium hydroxide, the product is predominantly dissolved ammonia in water rather than a separate, isolated ammonium hydroxide compound.

3. Concentration and Quality Control

The quantity of ammonia absorbed determines the finished concentration. TMN supplies nominal 19.5% and 29.5% grades. Product specifications and the corresponding Technical Data Sheets and Safety Data Sheets should be consulted for grade-specific information.

Common Industrial Uses

Water treatment: Ammonia source for controlled chloramine formation and other approved treatment applications.

Air emissions control: Ammonia reagent for certain NO_x-reduction systems, including SCR and SNCR.

Chemical processing: Feedstock for ammonium salts and other nitrogen-containing chemical products.

Agriculture and industrial pH adjustment: Nitrogen source in compatible fertilizer processes and alkalinity adjustment in suitable industrial systems.

NSF/ANSI/CAN 60 Certification

TradeMark Nitrogen has completed NSF/ANSI/CAN 60 certification for its aqua ammonia product. This standard addresses health-effects requirements for drinking-water treatment chemicals. Users should confirm the specific certified grade, maximum use level, and applicable listing conditions before use in potable-water applications.

Manufactured in Tampa, Florida

TradeMark Nitrogen has operated as a nitrogen chemical manufacturer in Tampa since 1959. Its aqua ammonia production combines purified process water, controlled ammonia absorption, and established chemical manufacturing experience.

Product Documents and Additional Information

Technical Data Sheets, Safety Data Sheets, materials compatibility guidance, and density information are available on the TMN Aqua Ammonia product page:
https://trademarknitrogen.com/Products/Industrial/Aqua-Ammonia

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