

TEXAS SPECIFICATION NO. 180-12-01B

AMMONIUM HYDROXIDE

Effective Date: May 2011

1. **SCOPE:** This specification establishes the minimum requirements for concentrated aqueous ammonia solutions of a commercial grade, intended for use in the manufacture of janitorial products.

Concentrated ammonium hydroxide (aqua ammonia) is a hazardous material classified as a corrosive liquid. Essential precautions to be taken in handling this material include wearing rubber gloves and aprons or other protective clothing, and face masks or goggles. Any part of the body accidentally contacting the liquid must be immediately flushed with running water, or severe chemical burns may result. In case of eye contact, obtain medical treatment as soon as possible. Prolonged inhalation of ammonia vapor should be avoided.

2. **DEFINITIONS:**

Terminology used in this specification is intended to be generic in nature and consistent with meanings that have been defined through general use and/or accepted trade practices. Where variant meanings may exist, the applicable interpretation shall be determined by the Texas Procurement and Support Services, a division of the Texas Comptroller of Public Accounts (CPA).

3. **SPECIFICATION REQUIREMENTS:** Ammonium hydroxide furnished under this specification shall meet or exceed the following:

- 3.1. **GENERAL REQUIREMENTS:** The product shall be a colorless liquid, essentially free from sediment or suspended matter.

- 3.2. **CHEMICAL AND PHYSICAL REQUIREMENTS:** The solution strength in terms of percent by weight anhydrous ammonia shall be 29.4 minimum, when tested by the methods cited in Section 4.

- 3.3. **SPECIFIC GRAVITY:** When measured by the hydrometer method referenced in Paragraph 6.1.2., the specific gravity 60/60°F (15.56/15.56° C) shall be not greater than 0.8975. This corresponds to 26° Baume (light scale) or a little less than 7.5 pounds per gallon

4. **TESTING:** Testing shall be performed by American Society for Testing and Materials (ASTM) procedures.

ASTM D 891 - Standard Test Methods for Specific Gravity, Apparent, of Liquid Industrial Chemicals

Testing shall be done by an independent laboratory (preferred ASTM recommended, <http://www.astm.org/LABS/search.html>). Tests shall be performed on products will be provided to ordering agencies.

The product furnished under this specification shall be tested by the following methods:

4.1 Ammonia Content:

- a. Using a 20 ml volumetric pipette, dispense 40 ml of standard 1 N HCl into each of two 250 ml Erlenmeyer flasks. Stopper one of the flasks.
- b. Titrate the contents of the other flask with standard 1 N NaOH to the bromphenol blue end point. (B = ml NaOH required)

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- c. Weight the stoppered flask, add a freshly secured sample of not more than 2 ml ammonium hydroxide, and weight again. (W = sample weight in grams)
- d. Titrate the excess acid to the bromphenol blue end point as in step 6.1.1.2. (T = ml NaOH required in this step.)
- e. Determine compliance with Section 3.2 by means of the formula:

$$\% \text{NH}_3 = \frac{\text{B}-\text{T}}{\text{W}} \times \text{N} (\text{NaOH}) \times 1.703$$

4.2 Specific Gravity: ASTM D 891

5. **INSPECTION:** Products furnished under this specification shall be inspected by, or at the direction of the customer at the time of delivery.

6. **PACKAGING:**

The product shall be packaged for shipment in Polyethylene drums of 55 gallons (208 L) capacity, 410 lbs/drum, complying with applicable Department of Transportation regulations.

Packing for shipment shall be in accordance with the manufacturer's standard practice and in a manner readily accepted by common carriers engaged in interstate commerce. Within the shipping carton, units shall be packed in a manner designed to minimize damage during the shipment because of rough or improper handling.

6.1. **PACKAGE MARKINGS:** Each shipping container shall be clearly marked with the following:

- 6.1.1. Name of contents, including brand name, if any.
- 6.1.2. Quantity contained in pounds and/or kilograms.
- 6.1.3. Name and address of the manufacturer.
- 6.1.4. Warning statements as required by governmental regulations. A label on a container of a hazardous chemical must meet the requirements of the most current OSHA standards.
- 6.1.5. The following additional information shall either be marked on the container or appear on the shipping documents:
 - Purchase order number or contract number.
 - Name and address of customer.
 - Customer's requisition number.

6.2. **LABELING:** Each container shall bear a durable label containing the name of the product and instructions for use, including required precautionary statements.

7. **COMPLIANCE:** The vendor must comply with the following documents upon delivery:

7.1. **Certificate of Analysis (CA):** A certificate of analysis from the manufacturer shall be submitted with each shipment.

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7.2. **Material Safety Data Sheets (MSDS):** All Items must conform to the Texas Hazard Communications Act by being certified as nontoxic or providing an official MSDS sheet conforming to the requirements of the most current OSHA standards. A copy of the official MSDS sheet for each applicable chemical product must be submitted with each sample; each initial shipment; and updated MSDS must be provided with the first shipment after update.

8. **APPROVED PRODUCTS LIST (APL):**

The CPA will maintain an APL of products that meet or exceed the requirements of this specification.

To have a product listed on the APL, the following procedures are required:

8.1. Submit a written request to CPA, Texas Procurement and Support Services Division and include the following documentations:

- **Official Certificate of Analysis from an independent laboratory**

The official Certificate of Analysis must list the following:

- ✓ Chemical Name (CTFI/INCI name) and CAS No.
- ✓ Manufacturer Name
- ✓ Brand Name or Trade Name
- ✓ Batch or Lot Identification Number
- ✓ Each analytical result given as outlined in the RFP specifications
- ✓ Laboratory Name, Address, and Contact Information

- **Detailed technical specifications**
- **Product literature**
- **Material Safety Data Sheet (MSDS)**

8.2. The Certificate of Analysis will be reviewed and if approved, samples will be requested, in writing by CPA, for compatibility testing. The shipping instructions will be provided to the vendor at the time of the request.

8.3. A minimum of sixty (60) days will be required for compatibility testing to be conducted.

8.4. Sample sizes should be no less than 250 grams for powders and 500 ml for liquids. **Each sample must be accompanied with a current MSDS from the manufacturer.** More samples may be requested in writing by CPA. Samples will not be accepted unless accompanied with the current MSDS document for that material.

8.5. **CONTINUED COMPLIANCE:** Listing an approved product shall not relieve the vendor of providing products meeting each requirement of this specification. The vendor shall notify the CPA, in writing, of any changes in the product, address, brand name, etc.

8.6. **REMOVAL FROM APL:** Products on the APL may be removed for non-compliance, as determined by the CPA, or for failure to provide notification of any change to APL product(s).