



Effective Date: 01/01/13
Replaces Revision: 10/06/11

NON-EMERGENCY TELEPHONE
610-866-4225

24-HOUR CHEMTREC EMERGENCY TELEPHONE
800-424-9300

SDS – SAFETY DATA SHEET

1. Identification

Product Identifier: AMMONIUM HYDROXIDE (10 - 35% NH₃)

Synonyms: Ammonium Hydroxide Solutions, Ammonia Aqueous, Ammonia Solutions

Chemical Formula: NH₄OH in H₂O

Recommended Use of the Chemical and Restrictions On Use: Laboratory Reagent

Manufacturer / Supplier: Puritan Products; 2290 Avenue A, Bethlehem, PA 18017 **Phone:** 610-866-4225

Emergency Phone Number: 24-Hour Chemtrec Emergency Telephone 800-424-9300

2. Hazard(s) Identification

Classification of the Substance or Mixture:

Acute toxicity, Oral (Category 4)

Skin corrosion (Category 1A)

Serious eye damage (Category 1)

Acute aquatic toxicity (Category 1)

Risk Phrases:

Symbols: C, N

R34: Causes burns.

R50: Very toxic to aquatic organisms.

Label Elements:

Trade Name: AMMONIUM HYDROXIDE (10 - 35% NH₃)

Signal Word: Danger



Hazard Statements:

H302: Harmful if swallowed.

H314: Causes severe skin burns and eye damage.

H400: Very toxic to aquatic life.

Precautionary Statements:

P273: Avoid release to the environment.

P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310: Immediately call a POISON CENTER or doctor / physician.

3. Composition / Information on Ingredients

CAS Number: 1336-21-6

EC Number: 215-647-6

Index Number: 007-001-01-2

Molecular Weight: 35.05 g/mol

Ingredient	CAS No.	EC Number	Percent	Hazardous	Chemical Characterization
Ammonium Hydroxide	1336-21-6	215-647-6	21 - 72%	Yes	Substance
Water	7732-18-5	231-791-2	28 - 79%	No	Mixture

Contains between 10 and 35% ammonia.

4. First-aid Measures

In all cases, CALL A PHYSICIAN IMMEDIATELY.

Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give Oxygen.

Ingestion: DO NOT INDUCE VOMITING! Give large quantities of water. Never give anything by mouth to an unconscious person.

Skin Contact: In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Eye Contact: IMMEDIATE ACTION IS ESSENTIAL FOR EYE EXPOSURES. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes.

5. Fire-fighting Measures

Fire: Not considered to be a fire hazard. At fire temperatures, Fire may produce irritating, corrosive and / or toxic gases.

Explosion: Flammable vapors may accumulate in confined spaces.

Fire Extinguishing Media: Use any means suitable for extinguishing surrounding fire. Water spray may be used to keep fire exposed containers cool. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special Information: In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full face piece operated in the pressure demand or other positive pressure mode.

6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Isolate hazard area. Keep unnecessary and unprotected personnel from entering.

Environmental Precautions and Methods and Materials for Containment and Cleaning Up: Contain and recover liquid when possible. Do not let product enter drains. Do not flush caustic residues to the sewer. Residues from spills can be diluted with water, neutralized with dilute acid such as Acetic, Hydrochloric or Sulfuric. Absorb neutralized caustic residue on clay, vermiculite or other inert substance and package in a suitable container for disposal. US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

7. Handling and Storage

Precautions for Safe Handling and Conditions for Safe Storage, Including Any Incompatibilities: Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Separate from incompatibilities. Store below 25C. Protect from direct sunlight. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid.) Observe all warnings and precautions listed for the product.

8. Exposure Controls / Personal Protection

Airborne Exposure Limits:

OSHA Permissible Exposure Limit (PEL): 50 ppm (NH₃)

ACGIH Threshold Limit Value (TLV): 25 ppm (NH₃) (TWA) 35 ppm (STEL)

Ventilation System: A system of local and / or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

Personal Respirators (NIOSH Approved): If the exposure limit is exceeded and engineering controls are not feasible, a full face piece respirator with an ammonia/methylamine cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest. For emergencies or instances where the exposure levels are not known, use a full face piece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in Oxygen-deficient atmospheres.

Skin Protection: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Neoprene and nitrile rubber are recommended materials. Polyvinyl alcohol is not recommended.

Eye Protection: Use chemical safety goggles and / or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.

9. Physical and Chemical Properties

Appearance: Clear, colorless solution

Odor: Ammonia odor

Odor Threshold: Not determined

pH: 13.8 (29% solution)

% Volatiles by volume @ 21C (70F): No information found

Melting Point: -72C (-98F)

Boiling Point / Boiling Range: ca. 36C (ca. 97F)

Flash Point: Not applicable

Evaporation Rate (BuAc=1): No information found

Flammability: Not applicable

Upper / Lower Flammability or Explosive Limits: Not applicable

Vapor Pressure (mm Hg): 115 @ 20C (68F) for 10% solution; 580 @ 20C (68F) for 28% solution

Vapor Density (Air=1): 0.60 NH₃

Relative Density: 0.9 g/mL at 25C (77F)

Solubility: Infinitely soluble
Partition Coefficient: n-octanol / water: No data available
Auto-ignition Temperature: No data available
Decomposition Temperature: No data available
Viscosity: No data available

10. Stability and Reactivity

Reactivity and / or Chemical Stability: Stable under ordinary conditions of use and storage.

Possibility of Hazardous Reactions and Conditions to Avoid: Heat, sunlight, incompatibles, sources of ignition.

Incompatible Materials: Acids, Acrolein, Dimethyl Sulfate, halogens, Silver Nitrate, Propylene Oxide, Nitromethane, Silver Oxide, Silver Permanganate, Oleum, Beta-propiolactone. Most common metals.

Hazardous Decomposition Products: Burning may produce Ammonia, Nitrogen Oxides.

11. Toxicological Information

Emergency Overview: POISON! DANGER! CORROSIVE. MAY BE FATAL IF SWALLOWED OR INHALED. MIST AND VAPOR CAUSE BURNS TO EVERY AREA OF CONTACT.

Potential Health Effects:

Inhalation: Vapors and mists cause irritation to the respiratory tract. Higher concentrations can cause burns, pulmonary edema and death. Brief exposure to 5000 ppm can be fatal.

Ingestion: Toxic! May cause corrosion to the esophagus and stomach with perforation and peritonitis. Symptoms may include pain in the mouth, chest, and abdomen, with coughing, vomiting and collapse. Ingestion of as little as 3-4 mL may be fatal.

Skin Contact: Causes irritation and burns to the skin.

Eye Contact: Vapors cause irritation. Splashes cause severe pain, eye damage, and permanent blindness.

Chronic Exposure: Repeated exposure may cause damage to the tissues of the mucous membranes, upper respiratory tract, eyes and skin.

Aggravation of Pre-existing Conditions: Persons with pre-existing eye disorders or impaired respiratory function may be more susceptible to the effects of this material.

Specific Target Organ Toxicity - Single Exposure (Globally Harmonized System:) No data available.

Specific Target Organ Toxicity - Repeated Exposure (Globally Harmonized System:) No data available.

Numerical Measures of Toxicity: Cancer Lists: NTP Carcinogen

Ingredient	Known	Anticipated	IARC Category
Ammonium Hydroxide (1336-21-6)	No	No	None
Water (7732-18-5)	No	No	None

Acute Toxicity:

For Ammonium Hydroxide:

Oral rat LD50: 350 mg/kg; eye, rabbit, standard Draize, 250 ug; severe
Investigated as a mutagen.

For Ammonia:

Inhalation rat LC50: 2000 ppm/4-hr
Investigated as a tumorigen, mutagen.

12. Ecological Information

Ecotoxicity: Expected to be very toxic to aquatic life.

24 Hr LC50 rainbow trout: 0.008 mg/L

96 Hr LC50 fathead minnow: 8.2 mg/L

48 Hr LC50 bluegill: 0.024 mg/L

48 Hr EC50 water flea: 0.66 mg/L

Persistence and Degradability: Expected to be readily biodegradable.

Bioaccumulative Potential: This material is not expected to significantly bioaccumulate.

Mobility in Soil: This product is water soluble and will move readily in soil and water.

Other adverse effects: US Regulations (CERCLA) require reporting spills and releases to soil, water and air in excess of reportable quantities. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

13. Disposal Considerations

Very toxic to aquatic organisms. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. Transport Information

UN Number: UN2672

UN Proper Shipping Name: AMMONIA SOLUTIONS (WITH 10-35% AMMONIA)

Packing Group: III



DOT

IMDG

IATA

Land Transport ADR/RID and GGVs/GGVE (Cross Border / Domestic)

Transport Hazard Class(es): 8

Maritime Transport IMDG/GGVSea

Transport Hazard Class(es): 8

Marine Pollutant: No

Air Transport ICAO-TI and IATA-DGR

Transport Hazard Class(es): 8

Transport in Bulk According to Annex II of MARPOL 73/78 and the IBC Code

Special Precautions for User: Warning: Corrosive Substances

15. Regulatory Information

Chemical Inventory Status – Part 1

Ingredient	TSCA	EC	Japan	Australia
Ammonium Hydroxide (1336-21-6)	Yes	Yes	Yes	Yes
Water (7732-18-5)	Yes	Yes	Yes	Yes

Chemical Inventory Status – Part 2

Ingredient	Korea	Canada		Phil.
		DSL	NDSL	
Ammonium Hydroxide (1336-21-6)	Yes	Yes	No	Yes
Water (7732-18-5)	Yes	Yes	No	Yes

Federal, State & International Regulations - Part 1

	SARA 302		SARA 313	
Ingredient	RQ	TPQ	List Chemical	Catg.
Ammonium Hydroxide (1336-21-6)	No	No	No	No
Water (7732-18-5)	No	No	No	No

Federal, State & International Regulations - Part 2

	RCRA		TSCA
Ingredient	CERCLA	261.33	8(d)
Ammonium Hydroxide (1336-21-6)	1000	No	No
Water (7732-18-5)	No	No	No

Chemical Weapons Convention: No		TSCA 12(b): No		CDTA: No
SARA 311/312:	Acute: Yes	Chronic: Yes	Fire: No	Pressure: No
Reactivity: No		Mixture / Liquid		

Australian Hazchem Code: 2P

Poison Schedule: S6

16. Other Information

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