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THE BTTCO OVERSEAS

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from local roots to global routes

Material Safety Data Sheet
AMMONIA SOLUTION (10 - 35% NH3)/ LIQUID AMMONIA 25% (AMMONIUM HYDROXIDE)

Section 1 - Chemical Product and Company Identification

MSDS Name : AMMONIA SOLUTION (10 - 35% NH3)/ LIQUID AMMONIA 25% (AMMONIUM HYDROXIDE)
Chemical Name : Ammonium Hydroxide Solution
Synonyms : Aqueous Ammonia, Liquor Ammonia, Ammonia Solution
Chemical Formula : NH_4OH
Molecular Weight : 35.05 g/mol
CAS No : 1336-21-6
UN No : UN 2672
Hazchem Code : 2R
ERG No : 154
EAC : 2R

Company Identification : The BTTCO Overseas
6, Ashirvad Complex, Nr. Sardar Patel Seva Samaj Hall,
Navrangpura, Ahmedabad – 380009

Telephone Number : +91-94265 96891
Contact Person : Mr. Dinesh Lunkad

Section 2 Composition, Information on Ingredients

Chemical Name/ Ingredient	CAS #	Percent	Hazardous
Ammonium Hydroxide	1336-21-6	21-72%	Yes
Water	7732-18-5	28-79%	No
Contains between 10 and 35% ammonia.			

Section 3 Hazards Identification

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

SAF-T-DATA (tm) Ratings (Provided here for your convenience)

Health Rating	: 3 – Severe (Poison)
Flammability Rating	: 0 - None
Reactivity Rating	: 1 - Slight
Contact Rating	: 4 - Extreme (Corrosive)
Lab Protective Equip	: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD; PROPER GLOVES
Storage Color Code	: White Stripe (Store Separately)

Potential Health Effects:

Skin	: Causes irritation and burns to the skin.
Eyes	: Vapors cause irritation. Splashes cause severe pain, eye damage, and permanent blindness.
Ingestions	: 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.
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.
Chronic Effects	: 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.

Section 4 First Aid Measures

Eye Contact	: Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately. Immediate action is critical to minimize possibility of blindness.

Skin Contact : Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician, immediately. Wash clothing before reuse.

Inhalation : Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

Ingestion : If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

Section 5 Fire Fighting Measures

Fire : Autoignition temperature: 651°C (1204F)
Flammable limits in air %
by volume: lel: 16; uel: 25

Explosion : Flammable vapors may accumulate in confined spaces.

Fire Extinguishing Media : Use any means suitable for extinguishing surrounding fire. Use water spray to blanket fire, cool fire exposed containers, and to flush non-ignited spills or vapors away from fire.

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

Section 6 - Accidental Release Measures

Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section 8. Contain and recover liquid when possible. 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 tollfree number for the US Coast Guard National Response Center is (800) 424-8802.

Section 7 - Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Separate from incompatibilities. Store below 25°C. 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.

Section 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 protective Equipment

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.

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.

Respiratory protection : If the exposure limit is exceeded and engineering controls are not feasible, a full facepiece 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-facepiece positive-pressure, air-supplied respirator. WARNING: Air purifying

respirators do not protect workers in oxygen- deficient atmospheres.

Section 9 - Physical and Chemical Properties

Appearance	: Clear, colorless solution.
Odor	: Ammonia odor.
Solubility	: Infinitely soluble.
Specific Gravity	: 0.9 (28% NH4OH)
pH	: 13.8 (29% solution)
% Volatiles by volume @ 21°C (70F)	: No information found.
Boiling Point	: ca. 36°C (ca. 97 F)
Melting Point	: -72°C (-98 F)
Vapor Density (Air=1)	: 0.60 NH3
Vapor Pressure (mm Hg)	: 115 @ 20°C for 10% solution; 580 @ 20°C for 28% solution.
Evaporation Rate (BuAc=1)	: No information found.

Section 10 - Stability and Reactivity

Stability : Stable under ordinary conditions of use and storage.

Conditions to avoid : Heat, sunlight, incompatibles, sources of ignition.

Incompatibility with various substances : Acids, acrolein, dimethyl sulfate, halogens, silver nitrate, propylene oxide, nitromethane, silver oxide, silver permanganate, oleum, beta-propiolactone. Most common metals.

Polymerization : Will not occur.

Hazardous decomposition Products : Burning may produce ammonia, nitrogen oxides.

Section 11 - Toxicological Information

For ammonium hydroxide : oral rat LD50: 350 mg/kg; eye, rabbit, standard Draize, 250ug; severe, investigated as a mutagen. For ammonia: inhalation rat LC50: 2000 ppm/4-hr; investigated as a tumorigen, mutagen.

NTP Carcinogen / IARC Classification:

Ingredient	CAS No.	NTP Known Carcinogen	NTP Anticipated Carcinogen	IARC Classification
Ammonium Hydroxide	1336-21-6	No	No	Not Listed
Water	7732-18-5	No	No	Not Listed

Section 12 - Ecological Information

Environmental Fate : This material is not expected to significantly bioaccumulate.

Environmental Toxicity : 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

Section 13 - Disposal Considerations

Waste 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.

Section 14 - Transport Information

DOT/IATA/IMDG/IMO

Proper Shipping Name : AMMONIA SOLUTION (10–35% Ammonia)
UN No : UN 2672
CAS No : 1336-21-6
EMS No : F-A, S-B
ERG No : 154
EAC : 2R
IMDG-Packaging Group : III
Marine Pollutant : No
Class : 8 (Corrosive)
Packing Group : III
Subsidiary Risks : None
Label Required : Corrosive (Class 8)

Section 15 -Regulatory Information

WHMIS Classification

D1B – Toxic Material Causing Immediate and Serious Toxic Effects
E – Corrosive Material

Chemical Inventory Status – Part 1

Ingredient	CAS No.	TSCA	EC	Japan (ENCS)	Australia (AICS)
Ammonium Hydroxide	1336-21-6	Yes	Yes	Yes	Yes
Water	7732-18-5	Yes	Yes	Yes	Yes

Chemical Inventory Status – Part 2

Ingredient	CAS No.	Korea (KECI)	DSL	NDSL	Philippines (PICCS)
Ammonium Hydroxide	1336-21-6	Yes	Yes	No	Yes
Water	7732-18-5	Yes	Yes	No	Yes

Federal, State & International Regulations – Part 1

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

Federal, State & International Regulations – Part 2

Ingredient	CAS No.	CERCLA RQ (lbs)	RCRA 261.33	TSCA 8(d)
Ammonium Hydroxide	1336-21-6	1000	No	No
Water	7732-18-5	Not Listed	No	No

Additional Regulatory Information

Regulation	Status
Chemical Weapons Convention (CWC)	No
TSCA 12(b) Export Notification	No
CDTA	No
SARA 311/312 Acute Health Hazard	Yes
SARA 311/312 Chronic Health Hazard	Yes
SARA 311/312 Fire Hazard	No
SARA 311/312 Pressure Hazard	No
SARA 311/312 Reactivity Hazard	No

Product Classification: Mixture / Liquid

Canada & Australia Regulatory Information

Canada (WHMIS)

WHMIS Classification : D1B, E

WHMIS Statement : This MSDS has been prepared in accordance with the hazard criteria of the Controlled Products Regulations (CPR). The MSDS contains all information required by the CPR.

Australia

Parameter	Details
Australian Hazchem Code	2P
Poison Schedule	S6 (Poison)
SUSMP Classification	Schedule 6
Dangerous Goods Classification	Class 8 – Corrosive Substance

Regulatory Notes

WHMIS D1B : Toxic material causing immediate and serious toxic effects.

WHMIS E : Corrosive material.

Hazchem Code 2P : Indicates emergency response actions involving water fog and

full protective equipment.

Poison Schedule S6 : Substances with moderate to high toxicity requiring distinctive packaging and labeling.

Section 16 - Other Information

NFPA Ratings : Health : 3
Flammability : 1
Reactivity : 0
4 = Extreme, 3 = High, 2 = Moderate, 1 = Slight,
0 = Insignificant

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

Label Precautions : Do not get in eyes, on skin, or on clothing.
Do not breathe vapor or mist.
Keep container closed.
Use only with adequate ventilation.
Wash thoroughly after handling.

Label First Aid : If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. IMMEDIATE ACTION IS ESSENTIAL FOR EYE EXPOSURES. In all cases call a physician immediately.

Product Use : Laboratory Reagent.

Revision Information : MSDS Section(s) changed since last revision of document include: 15.

Disclaimer:
This document is provided solely as a guideline for the safe handling of the material by trained and qualified personnel using this product. Users are responsible for evaluating the suitability of the information for their specific applications and conditions of use. Although the

information and recommendations contained herein are believed to be accurate and reliable as of the date of issue, BTTCO GROUP makes no representations or warranties regarding their completeness or accuracy and assumes no liability for any loss, damage, or consequences resulting from reliance on this information.

Date: 01.04.2026
Place: Ahmedabad, Gujarat, India