

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name: Ammonium hydroxide (28 - 30%)
CAS number: 1336-21-6
Synonyms: Ammonium hydroxide solutions, Ammonia aqueous, Ammonia solutions.

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified Uses : Process chemical, Laboratory and scientific research and development.

1.3 Details of the supplier of the safety data sheet

Company : Lab Alley, LLC
22111 Highway 71 West, Suite 601
Spicewood, Texas 78669
U.S.A.

Telephone : 512-668-9918
Fax : 512-886-4008

1.4 Emergency telephone

Emergency Phone # : US & Canada: 1-800-535-5053 INFOTRAC
International 1-352-323-3500 INFOTRAC

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4)
Skin corrosion (Category 1A)
Serious eye damage (Category 1)
Acute aquatic toxicity (Category 1)
Sensitization, respiratory (Category 1)
Specific target organ toxicity - single exposure (Category 3) Respiratory tract irritation

2.2 GHS Label elements, including precautionary statements

Pictogram:



Signal Word:

Danger

Hazard statement(s):

Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. Harmful to aquatic life with long lasting effects.

Precautionary statement(s):

Prevention - Avoid breathing mist or vapors. Wash skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Wear protective gloves/ protective clothing/ eye protection/ face protection. In case of inadequate ventilation wear respiratory protection. **Response** - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor. Wash contaminated clothing before reuse. Collect spillage. Store in a well-ventilated place. Keep container tightly closed. Store locked up. Dispose of contents/ container to an approved waste disposal plant in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazards not otherwise classified

Lachrymator (substance which increases the flow of tears).

SECTION 3: Composition/information on ingredients

3.1 Components

Ingredient	CAS Number	Percent	Hazardous Chemical
Ammonium hydroxide	1336-21-6	28-30	Yes
Water	7732-18-5	Balance	No

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice:

First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

In case of inhalation:

Immediately remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing has stopped, administer artificial respiration. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.

In case of eye contact:

Immediately flush thoroughly with water for at least 30 minutes, while holding the eye lids open to be sure the material is washed out. Remove contact lenses if present and easy to do. Get immediate medical attention.

In case of skin contact:	Immediately flush skin with plenty of water for 15 minutes while removing contaminated clothing and shoes. Get immediate medical attention. Launder clothing before re-use. (Discard contaminated shoes).
In case of ingestion:	Do NOT induce vomiting. Rinse mouth with water. Never give anything by mouth to an unconscious or convulsing person. Keep the victim calm and warm. Get immediate medical attention.

4.2 Most important symptoms and effects, both acute and delayed

Corrosive effects. May cause severe eye, skin, respiratory tract irritation and burns. May cause temporary blindness and severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause allergic respiratory reaction.

4.3 Indication of any immediate medical attention and special treatment needed

Immediate medical attention is required for all routes of exposure.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable (and unsuitable) 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.

5.2 Specific hazards arising from the substance or mixture

Not considered to be a fire hazard. Irritating, corrosive and/or toxic gases or fumes will be released during a fire. Flammable vapors may accumulate in confined spaces

5.3 Special protective equipment and precautions for firefighters

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.

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Isolate hazard area. Keep unnecessary and unprotected personnel from entering. Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. Wear appropriate personal protective equipment as specified in Section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 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.

6.4 Reference to other sections

No additional information available.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Do not breathe mist or vapor. Use with adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Prevent contact with eye, skin, and clothing. Always wear impervious gloves, chemical safety goggles and protective clothing when handling this material. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Keep containers closed when not in use.

Hygiene measures

When using, do not eat, drink or smoke. Do not get in eyes. Do not get this material in contact with skin. Do not get this material on clothing. Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face before breaks and immediately after working with substance. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Store in a cool, dry, well ventilated location out of direct sunlight. Keep container tightly closed. Keep out of the reach of children. Recommended storage temperature: 2 - 8 °C .May develop pressure. Refrigerate before opening. Handle and open container with care.

SECTION 8. Exposure controls/personal protection

8.1 Occupational exposure limits

Chemical Name	Exposure Limits
Water	None Established
Ammonium Hydroxide (as ammonia)	25 ppm TWA, 35 ppm STEL ACGIH TLV 50 ppm TWA OSHA PEL

8.2 Exposure controls

Appropriate engineering controls

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/face protection

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

Skin and body 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 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.

Control of environmental exposure

Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical State	Liquid.
Appearance	Clear, colorless solution.
Odor	Ammonia odor.
Odor Thresh	Not determined.
pH	13.8 (29% solution)
Melting Point/Range	-72°C (-98°F)
Boiling Point/Range	ca. 36°C (ca. 97°F)
Flash Point	Not applicable
Evaporation Rate	No information available.
Flammability (solid, gas)	Not applicable.
Flammability or explosive limit	
	Upper : NA
	Lower : NA
Vapor Pressure	580 @ 20C (68F) for 28% solution
Vapor Density	0.60 NH3
Density	0.9 g/mL at 25C (77F)
Solubility	Infinitely soluble
Partition coefficient; n-octanol/water	No data available.
Autoignition Temp	No data available.
Decomposition Temp	No data available.
Viscosity	No data available.
Molecular Formula	NH4OH
Molecular Weight	35.05 g/mol
VOC Content(%)	No data available.
Oxidizing properties	No data available.

9.2 Other safety information

None.

SECTION 10: Stability and reactivity

10.1 Reactivity

Not available.

10.2 Chemical stability

Stable at ambient temperatures. Ammonia evaporates from opened containers.

10.3 Possibility of hazardous reactions

Hazardous polymerization does not occur.

10.4 Conditions to avoid

None under normal conditions.

10.5 Incompatible materials

Strong oxidizing agents. Acids. Halogens. Silver salts.

10.6 Hazardous decomposition products

Ammonia.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Product Information

Component Information

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ammonium hydroxide	350 mg/kg (Rabbit)	NA	LC50: 2000 ppm/4-hr (Rat)

Skin corrosion/irritation

Causes irritation and burns to the skin.

Serious eye damage/eye irritation

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

Respiratory or skin sensitization

No data available.

Germ cell mutagenicity

No data available.

Carcinogenicity *The table below indicates whether each agency has listed any ingredient as a carcinogen.

Numerical Measures of Toxicity: Cancer Lists: NTP Carcinogen

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

Reproductive toxicity

No data available.

Specific target organ toxicity - single exposure

No data available.

Specific target organ toxicity - repeated exposure

No data available.

Aspiration hazard

No data available.

Chronic effects

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

11.2 Additional information

None.

SECTION 12. Ecological information

12.1 Toxicity

Ecotoxicity:

Harmful to aquatic life with long lasting effects. Components of this product are hazardous to aquatic life. Accumulation in aquatic organisms is expected.

Component	Fathead Minnow	Rainbow Trout	Bluegill	Water Flea
Ammonium hydroxide	8.2 mg/L 96 Hr LC50	0.008 mg/L 24 Hr LC50	0.024 mg/L 48 Hr LC50	0.66 mg/L 48 Hr EC50

12.2 Persistence and Degradability

Expected to be readily biodegradable.

12.3 Bioaccumulative Potential

This material is not expected to significantly bioaccumulate.

12.4 Mobility in Soil

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

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available.

12.7 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.

SECTION 13. Disposal considerations

13.1 Waste Disposal Methods

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. Hazardous waste code D002: Waste Corrosive material [pH <=2 or >=12.5, or corrosive to steel]

SECTION 14: Transport information

DOT

UN-No	UN2672
Proper Shipping Name	Ammonia solution
Hazard Class	8
Subsidiary Hazard Class	
Packing Group	III

IATA

UN-No	UN2672
Proper Shipping Name	Ammonia solution
Hazard Class	8
Subsidiary Hazard Class	
Packing Group	III

IMDG/IMO

UN-No	UN2672
Proper Shipping Name	Ammonia solution
Hazard Class	8
Subsidiary Hazard Class	
Packing Group	III

ADR

UN-No	UN2672
Proper Shipping Name	Ammonia solution
Hazard Class	8
Subsidiary Hazard Class	
Packing Group	III

SECTION 15: Regulatory information

US federal regulations: All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not on regulatory list

CERCLA Hazardous Substance List (40 CFR 302.4)

Ammonia CAS 7664-41-7 LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories:

Immediate Hazard - Yes

Delayed Hazard - Yes

Fire Hazard - No

Pressure Hazard - No

Reactivity Hazard - No

SARA 302 Extremely hazardous substance

No

SARA 311/312 Hazardous chemical

No

Other federal regulations:

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

AMMONIA (CAS 7664-41-7)

Safe Drinking Water Act (SDWA)

Not regulated

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR

1310.02(b) and 1310.04(f) (2) and Chemical Code Number

Not listed

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Not regulated

DEA Exempt Chemical Mixtures Code Number

Not regulated

Food and Drug Administration (FDA)

Not regulated

US-state regulations California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

This material is not known to contain any chemicals currently listed as as carcinogens or reproductive toxins.

S. Massachusetts RTK - Substance List

AMMONIA (CAS 7664-41-7)

US. New Jersey Worker and Community Right-to-Know Act

AMMONIA (CAS 7664-41-7) 500 LBS

US. Pennsylvania RTK - Hazardous Substances

AMMONIA (CAS 7664-41-7)

US. Rhode Island RTK

AMMONIA (CAS 7664-41-7)

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT):

Listed substance: Not listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes

Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Phillipines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

SECTION 16: Other information

Issue Date 02/25/2016
Revision Date 10/09/2023

Disclaimer:

The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.