

SAFETY DATA SHEET

Ammonium Hydroxide

This MSDS is valid for all grades that start with catalog number 282

1. IDENTIFICATION OF SUBSTANCE / MIXTURE AND OF SUPPLIER

Product Identifier: High Purity Chemicals
Synonyms: Ammonium hydroxide solutions; ammonia aqueous; ammonia solutions
Other means of identification: CAS No. 1336-21-6
EINECS No. 215-647-6

Recommended use of the chemical and restrictions on use:
Industrial use, General purpose reagent

Supplier Details:

Pharmco Products, Inc.
58 Vale Road, Brookfield,
CT 06804, USA.
Tel: 203.740.3471
Fax: 203.740.3481
CCN17213

Pharmco Products, Inc.
1101 Isaac Shelby Drive, Shelbyville,
KY 40065, USA.
Tel: 502.232.7600
Fax: 502.633.6100
CCN17213



4621 Technology Drive, Golden, CO 80403
ph: (303) 762-0800 fax: (303) 762-1240

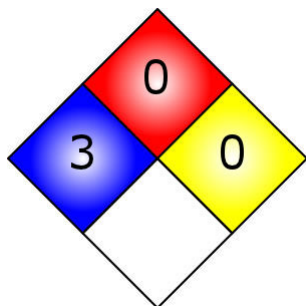
Emergency Contact: CHEMTREC: 1.800.424.9300 (USA) / +1.703.527.3887 (International)

2. HAZARDS IDENTIFICATION

OSHA Hazards:

Corrosive, Toxic by ingestion

NFPA



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GHS label elements, including precautionary statements



Signal Word:
DANGER!

Hazard statement(s)

H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H400	Very toxic to aquatic life.

Precautionary statement(s)

P273	Avoid release to the environment.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical attention.
P310	Immediately call a POISON CENTER or doctor/ physician.
P280	Wear protective gloves and eye and face protection.

GHS Classification(s)

Acute aquatic toxicity (Category 1)
Acute toxicity, Oral (Category 4)
Eye damage (Category 1)
Skin corrosion (Category 1A)

Other hazards which do not result in classification:

Potential Health Effects:

Organ	Description
Eyes	Causes eye burns.
Ingestion	Toxic if swallowed.
Inhalation	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin	May be harmful if absorbed through skin. Causes skin burns.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

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Chemical identity:	Ammonium Hydroxide
Common name / Synonym:	Ammonium hydroxide solutions; ammonia aqueous; ammonia solutions
CAS number:	1336-21-6
EINECS number:	215-647-6
ICSC number:	0215
RTECS #:	BQ9625000
UN #:	2672
EC #:	007-001-01-2

% Weight	Material	CAS
27 - 31	Ammonium Hydroxide	1336-21-6
69 - 73	Water	7732-18-5

4. FIRST AID MEASURES

General advice

Take proper precautions to ensure your own health and safety before attempting rescue and providing first aid. Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

Skin

Get medical aid. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing/shoes.

Inhalation

Get medical aid immediately. Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

Eyes

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately. Keep rinsing while in transport to hospital.

Ingestion

DO NOT induce vomiting. If vomiting does occur, have victim lean forward to prevent aspiration. Rinse mouth with water. Seek medical attention. Never give anything by mouth to an unconscious individual.

5. FIRE FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products):

Nitrogen oxides are expected to be, under fire conditions, the primary hazardous decomposition products.

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Special protective equipment and precautions for firefighters:

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes. Keep unopened containers cool by spraying with water.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Use personal protective equipment. Actively avoid the inhalation of vapors, mist, dust, or gas. Confirm adequate ventilation prior to use of product. Remove personnel from the danger zone.

Environmental precautions:

Stop leak. Contain spill if possible and safe to do so. Prevent product from entering drains.

Methods and materials for containment and cleaning up:

Absorb with an inert dry material and place in an appropriate waste disposal container. Keep disposal containers closed when finished.

7. HANDLING AND STORAGE

Precautions for safe handling:

Do not get on skin or in eyes. Do not inhale vapor or mist. Take normal fire prevention measures.

Conditions for safe storage, including any incompatibilities:

Keep container tightly closed in a cool, dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters, e.g., occupational exposure limit values or biological limit values:

Occupational Exposure Limits

Component	Source	Type	Value	Note
Ammonium Hydroxide	/		No exposure limit	

Appropriate engineering controls:

General room or local exhaust ventilation is usually required to meet exposure limit(s). Electrical equipment should be grounded and conform to applicable electrical code.

Individual protection measures, such as personal protective equipment:

Respiratory protection:

Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the

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respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection:

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Eye protection:

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

Skin and body protection:

Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures:

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance (physical state, color, etc.)	Clear. Liquid.
Odor	Specific data not available
Odor threshold	Specific data not available
pH	11.7 at 20 °C (68 °F)
Freezing point	-60 °C (-76 °F)
Initial boiling point and boiling range	38 °C (100.4 °F) @1013hPa (760 mm Hg)
Flash point	Specific data not available
Evaporation rate	Specific data not available
Flammability (solid, gas)	Not flammable or combustible.
Upper / Lower flammability or explosive limits	25% (V) / 16% (V)
Vapor pressure	153 hPa (115 mmHg) at 20 °C (68 °F)
Vapor Density	1.21
Relative Density	0.9 g/mL at 25 °C (77 °F)
Solubility(ies)	Specific data not available
Partition coefficient n-octanol/water(ies)	Specific data not available
Auto-ignition temperature	Specific data not available
Decomposition temperature	Specific data not available
Formula (AMMONIUM HYDROXIDE)	H5NO
Molecular Weight (AMMONIUM HYDROXIDE)	35.05 g/mol

10. STABILITY AND REACTIVITY

Chemical Stability	Stable under recommended storage conditions.
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Possibility of hazardous reactions	No data available
Conditions to avoid (e.g., static discharge, shock or vibration)	No data available
Incompatible materials	Copper, iron, zinc
Hazardous decomposition products	Nitrogen oxides are expected to be, under fire conditions, the primary hazardous decomposition products.

11. TOXICOLOGICAL INFORMATION

• Water 7732-18-5

Product Summary:

No data available for the teratogenic, mutagenic, or reproductive toxicity effects of this product. No data available to designate the product as causing specific target organ toxicity through single or repeated exposure. No data available to designate product as an aspiration hazard or as a respiratory or skin sensitizer.

Acute Toxicity:

No data available	Oral LD50	Dermal LD50	Inhalation LC50
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Irritation:

Eyes

No data available.

Skin

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Other Hazards

Organ	Description
Eyes	No known hazards.
Ingestion	No known hazards.
Inhalation	Can be harmful if inhaled. Can cause irritation to upper respiratory tract.

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Skin	No known hazards.
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• Ammonium Hydroxide 1336-21-6

Product Summary:

No data available for the teratogenicity, mutagenicity, or reproductive toxicity of this product. No data available to designate the product as causing specific target organ toxicity through single or repeated exposure. No data available to designate product as an aspiration hazard.

Acute Toxicity:

LD50 (Oral)	Rat	350 mg/kg	
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Irritation:

Eyes

Rabbit - severe eye irritation/damage - 6 hours

Respiratory or Skin Sensitization

No data available

Skin

No data available

Carcinogenicity

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Other Hazards

Organ	Description
Eyes	Causes eye burns.
Ingestion	Toxic if ingested.
Inhalation	May be harmful if inhaled. Material is extremely damaging to the upper respiratory tract.
Skin	May be harmful if absorbed through skin. Causes skin burns.

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12. ECOLOGICAL INFORMATION

- Water 7732-18-5
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Ecotoxicity (aquatic and terrestrial, where available):

Ecotoxicity

Not Applicable

Persistence and degradability:

No data available

Bioaccumulative potential:

No data available

Other adverse effects:

No data available

- Ammonium Hydroxide 1336-21-6
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Ecotoxicity (aquatic and terrestrial, where available):

Acute Toxicity to Fish (AMMONIUM HYDROXIDE)

NOEC / 3 days, Chinook Salmon - 3.5 mg/L

Persistence and degradability:

No data available

Bioaccumulative potential:

No data available

Other adverse effects:

No data available

13. DISPOSAL CONSIDERATIONS

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging:

Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.

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14. TRANSPORT INFORMATION

Description of waste residues and information on their safe handling and methods of disposal:

UN number	2672
UN proper shipping name	Ammonia solutions
Transport hazard class(es)	8
Packing group (if applicable)	III

Reportable Quantity

1,000 lbs

IMDG

UN-Number: 2672 Class: 8 Packing Group: III

EMS-No: F-A, S-B

Proper shipping name: AMMONIA SOLUTIONS

Marine pollutant: No

IATA

UN-Number: 2672 Class: 8 Packing Group: III

Proper shipping name: Ammonia solutions

15. REGULATORY INFORMATION

Safety, health and environmental regulations specific for the product in question:

OSHA Hazards

Corrosive, Toxic by ingestion

All ingredients are on the following inventories or are exempted from listing

Country	Notification
Australia	AICS
Canada	DSL
China	IECS
European Union	EINECS
Japan	ENCS/ISHL
Korea	ECL
New Zealand	NZIoC
Philippines	PICCS
United States of America	TSCA

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313: AMMONIUM

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HYDROXIDE CAS-No. 1336-21-6 Revision Date 2007-03-01

SARA 311/312 Hazards

Acute Health Hazard

CERCLA

Ammonium hydroxide CAS-No. 1336-21-6, RQ: 1,000 lbs.

Massachusetts Right To Know Components

Ammonium hydroxide CAS-No. 1336-21-6 Revision Date 2007-03-01

Pennsylvania Right To Know Components

Ammonium hydroxide CAS-No. 1336-21-6 Revision Date 2007-03-01

Water CAS-No. 7732-18-5

New Jersey Right To Know Components

Ammonium hydroxide CAS-No. 1336-21-6 Revision Date 2007-03-01

Water CAS-No. 7732-18-5

California Prop 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION: INCLUDING INFORMATION ON PREPARATION AND REVISION OF THE SDS

Disclaimer

PHARMCO-AAPER believes that the information on this MSDS was obtained from reliable sources. However, the information is provided without any warranty, expressed or implied, regarding its correctness. Some information presented and conclusions drawn herein are from sources other than direct test data on the substance itself. The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, PHARMCO-AAPER does not assume responsibility and expressly disclaims liability for loss, damage, or expense arising out of or in any way connected with handling, storage, use, or disposal of this product. If the product is used as a component in another product, this MSDS information may not be applicable. Information is correct to the best of our knowledge at the date of the MSDS

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publication.