



SAFETY DATA SHEET

Ammonium Hydroxide

This SDS 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:

Supplier Details:

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

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

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

2. HAZARDS IDENTIFICATION

Emergency Overview:

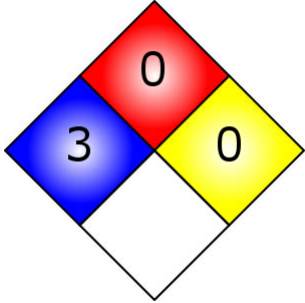
POISON! DANGER! CORROSIVE. MAY BE FATAL IF SWALLOWED OR INHALED. MIST AND VAPOR CAUSE BURNS TO EVERY AREA OF CONTACT.

OSHA Hazards:

Corrosive, Toxic by ingestion



Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
NFPA **+1.703.527.3887 (INT)**



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:

Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)

Organ	Description	+1.703.527.3887 (INT)
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

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 #:	UN2672
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

Immediately flush affected area with plenty of water while removing contaminated clothing. Wash contaminated clothing before reuse. Contact a doctor. If irritation persists, get medical attention.

Inhalation

Remove person to fresh air. If signs/symptoms continue, get medical attention. Give oxygen or artificial respiration as needed.

Eyes

Thoroughly flush the eyes with large amounts of clean low-pressure water for at least 15 minutes, occasionally lifting the upper and lower eyelids. If irritation persists, seek medical attention.

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.



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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 expected to be the primary hazardous combustion products.

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.

Flammable Properties

Autoignition temperature

651 °C (1,204 °F)

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Use personal protective equipment. Avoid dust formation. Do not inhale vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

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

Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)
Control parameters, e.g., occupational exposure limit values or biological limit values:+1.703.527.3887 (INT)

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 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.)	Powder. White.
pH	11.7 at 20 °C (68 °F)
Freezing point	-60 °C (-76 °F)
Initial boiling point and boiling range	ca. 36 °C (ca. 97 °F)
Upper / Lower flammability or explosive limits	16% (V) / 25% (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)	partially soluble
Auto-ignition temperature	651 °C (1,204 °F)



Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)

Formula (AMMONIUM HYDROXIDE)	H5NO	+1.703.527.3887 (INT)
Molecular Weight (AMMONIUM HYDROXIDE)	35.05 g/mol	

10. STABILITY AND REACTIVITY

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	Hazardous decomposition products formed under fire conditions. - nitrogen oxides

11. TOXICOLOGICAL INFORMATION

- Ammonium Hydroxide 1336-21-6

Product Summary:

No data available for the mutagenic, teratogenic, or reproductive effects of the product.

Acute Toxicity:

LD50 (Oral)	Rat	350 mg/kg	
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Irritation:

Eyes

Rabbit - severe eye irritation/damage - 6 hours

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



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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.	

12. ECOLOGICAL INFORMATION

- Ammonium Hydroxide 1336-21-6

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

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.

14. TRANSPORT INFORMATION

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

UN number	UN2672
UN proper shipping name	Ammonia solutions
Transport hazard class(es)	8
Packing group (if applicable)	III

Reportable Quantity

1,000 lbs

IMDG



Product Information: 203.740.3471 Emergency Assistance (CHEMTREC): 1.800.424.9300 (USA)

UN-Number: UN2672 Class: 8 Packing Group: III

+1.703.527.3887 (INT)

EMS-No: F-A, S-B

Proper shipping name: AMMONIA SOLUTIONS

Marine pollutant: No

IATA

UN-Number: UN2672 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 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



PHARMCO
by Greenfield Global

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Pennsylvania Right To Know Components

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

New Jersey Right To Know Components

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

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

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