



## Material Safety Data Sheet Ammonium Hydroxide, ACS

### Section 1 - Chemical Product and Company Identification

**MSDS Name:**

Ammonium Hydroxide, ACS

**Catalog Numbers:**

LC11050

**Synonyms:**

Ammonia water, aqua ammonia, ammonium hydrate.

**Company Identification:**

LabChem Inc  
200 William Pitt Way  
Pittsburgh, PA 15238

**Company Phone Number:**

(412) 826-5230

**Emergency Phone Number:**

(800) 424-9300

**CHEMTREC Phone Number:**

(800) 424-9300

### Section 2 – Composition, Information on Ingredients

CAS#	Chemical Name:	Percent
1336-21-6	Ammonium hydroxide	28
7732-18-5	Water	balance

### Section 3 - Hazards Identification

#### Emergency Overview

**Appearance:** *Clear, colorless solution***Danger!** Corrosive and toxic. May be fatal if swallowed. Mist or vapor causes irritation or burns to eyes, skin, respiratory, and gastrointestinal tracts.**Target Organs:** *Eyes, skin, respiratory and gastrointestinal tracts***Potential Health Effects****Eye:**

Contact with vapors causes irritation. Contact with liquid may cause eye burns, ulceration of the conjunctiva and cornea, and loss of sight, temporary or permanent.

**Skin:**

Causes irritation with burning pain, itching, and redness. May cause severe skin irritation and burns.

**Ingestion:**

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



## Material Safety Data Sheet Ammonium Hydroxide, ACS

### **Inhalation:**

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

### **Chronic:**

Chronic ingestion may cause effects similar to those of acute ingestion. Prolonged or repeated exposure may cause corneal damage and the development of cataracts and glaucoma.

## Section 4 - First Aid Measures

### **Eyes:**

Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid at once. Do NOT allow victim to rub or keep eyes closed.

### **Skin:**

Get medical aid at once. Flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

### **Ingestion:**

Do not induce vomiting. If victim is conscious, give 2-4 cupfuls of milk or water to dilute. Never give anything by mouth to an unconscious person. Get medical aid at once.

### **Inhalation:**

Remove from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. Do NOT use mouth-to-mouth resuscitation.

### **Notes to Physician:**

After inhalation exposure, observe for 24 – 72 hours as pulmonary edema may be delayed.

## Section 5 - Fire Fighting Measures

### **General Information:**

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Avoid breathing corrosive vapors. Move container if possible. Although not a flammable liquid (DOT), ammonia gas evolved is flammable, and an eye, skin, respiratory irritant.

### **Extinguishing Media:**

For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam.

### **Autoignition Temperature:**

651°C (1204°F)

### **Flash Point:**

Not available.

### **NFPA Rating:**

Health- 3, Flammability- 0, Instability- 0.

### **Explosion Limits:**

Lower: 16 Upper: 25



## Material Safety Data Sheet Ammonium Hydroxide, ACS

### Section 6 - Accidental Release Measures

**General Information:**

Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:**

Absorb spills with absorbent (vermiculite, sand, fuller's earth) and place in suitable containers for later disposal. Ventilate and wear protective clothing. Neutralize to pH 7 with a dilute acid or suitable agent. Wash down with water if necessary.

### Section 7 - Handling and Storage

**Handling:**

Do not get in eyes, on skin, or on clothing. Do not ingest or inhale. Use only in a chemical fume hood.

**Storage:**

Store in a cool, dry place. Do not store in direct sunlight. Store in a tightly closed container. Corrosives area.

### Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:**

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate ventilation to keep airborne concentrations below Permissible Exposure Limits.

**Exposure Limits:**

Chemical Name:	ACGIH	NIOSH	OSHA
Ammonia	25 ppm TWA; 35 ppm STEL	25 ppm TWA; 18 mg/m <sup>3</sup> TWA; 300 ppm IDLH	50 ppm TWA; 35 mg/m <sup>3</sup> TWA
Water	none listed	none listed	none listed

**OSHA Vacated PELs:**

None.

**Personal Protective Equipment****Eyes:**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:**

Wear appropriate gloves to prevent skin exposure.

**Clothing:**

Wear appropriate protective clothing to prevent skin exposure.

**Respirators:**

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.



## Material Safety Data Sheet Ammonium Hydroxide, ACS

### Section 9 - Physical and Chemical Properties

<b>Physical State:</b>	Liquid
<b>Color:</b>	Colorless
<b>Odor:</b>	Strong ammonia odor
<b>pH:</b>	13.6
<b>Vapor Pressure:</b>	557 mm Hg @ 21°C
<b>Vapor Density:</b>	0.59 (air=1)
<b>Evaporation Rate:</b>	Not available
<b>Viscosity:</b>	Not available
<b>Boiling Point:</b>	27°C
<b>Freezing/Melting Point:</b>	-69°C
<b>Decomposition Temperature:</b>	Not available
<b>Solubility in water:</b>	Soluble
<b>Specific Gravity/Density:</b>	0.89
<b>Molecular Formula:</b>	NH <sub>4</sub> OH
<b>Molecular Weight:</b>	35.04

### Section 10 - Stability and Reactivity

**Chemical Stability:**

Stable under normal temperatures and pressures. Heating evolves ammonia gas.

**Conditions to Avoid:**

Incompatible materials, excess heat, confined spaces.

**Incompatibilities with Other Materials:**

Strong oxidizing agents, acids, acrolein, halogens, mercury, hypochlorite, silver nitrate, acrylic acid, dimethyl sulfate, silver oxide.

**Hazardous Decomposition Products:**

Nitrogen oxides and ammonia.

**Hazardous Polymerization:**

Has not been reported.

### Section 11- Toxicological Information

**RTECS:**

CAS# 7732-18-5: ZC0110000.

CAS# 1336-21-6: BQ9625000.

**LD50/LC50:**

CAS# 7732-18-5:

Oral, rat: LD50 = >90 mL/kg

CAS# 1336-21-6:

Draize test, rabbit, eye: 250 ug Severe;

Draize test, rabbit, eye: 44 ug Severe;

Oral, rat: LD50 = 350 mg/kg

**Carcinogenicity:**

CAS# 7732-18-5: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.



## Material Safety Data Sheet Ammonium Hydroxide, ACS

CAS# 1336-21-6: Not listed as a carcinogen by ACGIH, IARC, NIOSH, NTP, OSHA, or CA Prop 65.

**Epidemiology:**

Tumorigenic effects have been reported in experimental animals.

**Teratogenicity:**

No information found

**Reproductive:**

No information found

**Mutagenicity:**

Mutagenic effects have occurred in experimental animals.

**Neurotoxicity:**

No information found

### Section 12 - Ecological Information

**Ecotoxicity:**

Fish: Rainbow trout: LC50 = 0.008 mg/L; 24 Hr.; Unspecified, Fish: Fathead Minnow: LC50 = 8.2 mg/L; 96 Hr.; Unspecified, Fish: Bluegill/Sunfish: LC50 = 0.024-0.093 mg/L; 48 Hr.; Unspecified, Water flea Daphnia: EC50 = 0.66 mg/L; 48 Hr.; 22 degrees C No data available.

**Environmental:**

No information available.

**Physical:**

No information available.

**Other:**

Do not empty into drains.

### Section 13 - Disposal Considerations

Dispose of in accordance with Federal, State, and local regulations.

### Section 14 - Transport Information

**US DOT**

**Shipping Name:** Ammonia solution

**Hazard Class:** 8

**UN Number:** UN2672

**Packing Group:** PG III

### Section 15 - Regulatory Information

**US Federal**

**TSCA:**

CAS# 7732-18-5 is listed on the TSCA inventory.

CAS# 1336-21-6 is listed on the TSCA inventory.



## Material Safety Data Sheet Ammonium Hydroxide, ACS

### **SARA Reportable Quantities (RQ):**

CAS# 1336-21-6: 1000 lb. final RQ; 454 kg final RQ

### **CERCLA/SARA Section 313:**

This material contains Ammonia (CAS# 7664-41-7,  $\geq 25\%$ ), which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

### **OSHA - Highly Hazardous:**

CAS# 7664-41-7 is considered highly hazardous by OSHA.

### **US State**

#### **State Right to Know:**

Ammonium hydroxide can be found on the following state Right-to-Know lists: California, New Jersey, Pennsylvania, Massachusetts.

#### **California Regulations:**

None.

### **European/International Regulations**

#### **Canadian DSL/NDSL:**

CAS# 7732-18-5 is listed on Canada's DSL List.

CAS# 1336-21-6 is listed on Canada's DSL List.

#### **Canada Ingredient Disclosure List:**

CAS# 7732-18-5 is not listed on the Canadian Ingredient Disclosure List.

CAS# 1336-21-6 is listed on Canada's Ingredient Disclosure List.

## Section 16 - Other Information

MSDS Creation Date: July 6, 1998

Revision Date: September 18, 2009

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