

## Ammonium Hydroxide, 1.0M

### 1. PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Ammonium Hydroxide, 1.0M

**Synonyms/Generic Names:** Aqueous Ammonia; Strong Ammonia Solution; Stronger Ammonia Water

**SDS Number:** 46.20

**Product Use:** For Educational Use Only

**Manufacturer:** Columbus Chemical Industries, Inc.  
N4335 Temkin Rd.  
Columbus, WI. 53925

**For More Information Contact:** Ward's Science  
5100 West Henrietta Rd.  
PO Box 92912-9012  
Rochester, NY 14692  
(800) 962-2660 (Monday-Friday 7:30-7:00 Eastern Time)

**In Case of Emergency Call:** CHEMTREC - 800-424-9300 or 703-527-3887 (24 Hours/Day, 7 Days/Week)

### 2. HAZARDS IDENTIFICATION

**OSHA Hazards:** Toxic by ingestion, Corrosive

**Target Organs:** None

**Signal Word:** Danger

**Pictograms:**



**GHS Classification:**

Skin irritation	Category 2
Serious eye damage	Category 1
Acute aquatic toxicity	Category 1

**GHS Label Elements, including precautionary statements:**

**Hazard Statements:**

H315	Causes skin irritation.
H280	Causes serious eye damage.
H400	Very toxic to aquatic life.

**Precautionary Statements:**

P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

**Potential Health Effects**

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

**NFPA Ratings**

<b>Health</b>	2
<b>Flammability</b>	0
<b>Reactivity</b>	0
<b>Specific hazard</b>	Not Available

**HMIS Ratings**

<b>Health</b>	2
<b>Fire</b>	0
<b>Reactivity</b>	0
<b>Personal</b>	H

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Component	Weight %	CAS #	EINECS# / ELINCS#	Formula	Molecular Weight
Ammonium Hydroxide	1.5-2.0	1336-21-6	215-647-6	H <sub>5</sub> NO	35.05 g/mol
Water	Balance	7732-18-5	231-791-2	H <sub>2</sub> O	18.00 g/mol

**4. FIRST-AID MEASURES**

<b>Eyes</b>	Rinse with plenty of water for at least 15 minutes and seek medical attention immediately.
<b>Inhalation</b>	Move casualty to fresh air and keep at rest. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
<b>Skin</b>	Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and wash using soap. Get medical attention.
<b>Ingestion</b>	<b>Do Not Induce Vomiting!</b> Never give anything by mouth to an unconscious person. If conscious, wash out mouth with water. Get medical attention.

**5. FIRE-FIGHTING MEASURES**

<b>Suitable (and unsuitable) extinguishing media</b>	Product is not flammable. Use appropriate media for adjacent fire. Cool unopened containers with water.
<b>Special protective equipment and precautions for firefighters</b>	Wear self-contained, approved breathing apparatus and full protective clothing, including eye protection and boots.
<b>Specific hazards arising from the chemical</b>	Emits toxic fumes (nitrogen oxides, ammonia gas) under fire conditions. (See also Stability and Reactivity section).

**6. ACCIDENTAL RELEASE MEASURES**

<b>Personal precautions, protective equipment and emergency procedures</b>	See section 8 for recommendations on the use of personal protective equipment.
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<b>Environmental precautions</b>	Prevent spillage from entering drains. Any release to the environment may be subject to federal/national or local reporting requirements.
<b>Methods and materials for containment and cleaning up</b>	Evacuate personnel to safe area and ventilate area. Absorb spill with noncombustible absorbent material, then place in a suitable container for disposal. Clean surfaces thoroughly with water to remove residual contamination. Dispose of all waste and cleanup materials in accordance with regulations.

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## 7. HANDLING AND STORAGE

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### Precautions for safe handling

See section 8 for recommendations on the use of personal protective equipment. Use with adequate ventilation. Wash thoroughly after using. Keep container closed when not in use. Avoid formation of aerosols.

### Conditions for safe storage, including any incompatibilities

Store in cool, dry well ventilated area. Keep away from incompatible materials (see section 10 for incompatibilities).

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## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

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**Occupational exposure controls:** Contains no substances with occupational exposure limit values.

### Personal Protection

<b>Eyes</b>	Wear chemical safety glasses or goggles.
<b>Inhalation</b>	Provide local exhaust, preferably mechanical. If exposure levels are excessive, use an approved respirator.
<b>Skin</b>	Wear nitrile or rubber gloves, apron or lab coat. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
<b>Other</b>	Not Available

### Other Recommendations

Provide eyewash stations, quick-drench showers and washing facilities accessible to areas of use and handling.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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Appearance (physical state, color, etc.)	Colorless, clear liquid.
Odor	Odor of ammonia.
Odor threshold	5 - 50 ppm as ammonia gas.
pH	6.0 - 8.0 at 25°C (77°F)
Melting point/freezing point	Not Available
Initial boiling point and boiling range	100°C (212°F)
Flash point	Not Flammable
Evaporation rate	Not Available
Flammability (solid, gas)	Not Flammable
Upper/lower flammability or explosive limit	Not Explosive
Vapor pressure	Not Available
Vapor density	Not Available
Density	0.9 g/mL at 25°C (77°F)
Solubility (ies)	Completely miscible in water.
Partition coefficient: n-octanol/water	Not Available
Auto-ignition temperature	Not Available
Decomposition temperature	Not Available

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## 10. STABILITY AND REACTIVITY

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<b>Chemical Stability</b>	Stable
<b>Possibility of Hazardous Reactions</b>	Will not occur.
<b>Conditions to Avoid</b>	High temperatures, open flames, electric sparks.
<b>Incompatible Materials</b>	Oxidizing agents, heavy metals and their salts, halogens, nitromethane, strong mineral acids, dimethyl sulfate, acrolein, acrylic acid, chlorosulfuric acid, propiolactone, propylene oxide.
<b>Hazardous Decomposition Products</b>	Nitric oxides and ammonia.

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## 11. TOXICOLOGICAL INFORMATION

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### Acute Toxicity

#### *Ammonium Hydroxide*

<b>Skin</b>	Not Available
<b>Eyes</b>	Eyes – rabbit – severe eye irritation.
<b>Respiratory</b>	LC50 Inhalation – rat – 3670 ppm – 1hr LC50 Inhalation – mouse – 2420 ppm – 1hr
<b>Ingestion</b>	LD50 Oral – rat – 350 mg/kg

### Carcinogenicity

<b>IARC</b>	No components of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
<b>ACGIH</b>	No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
<b>NTP</b>	No components of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
<b>OSHA</b>	No components of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

### Signs & Symptoms of Exposure

<b>Skin</b>	Causes severe irritation.
<b>Eyes</b>	Severe burns and possible irreversible eye damage including corneal injury and cataracts.
<b>Respiratory</b>	Coughing burns, breathing difficulty.
<b>Ingestion</b>	Burns, mouth, and larynx, throat constriction, nausea, vomiting.

<b>Chronic Toxicity</b>	Not Available
<b>Teratogenicity</b>	Not Available
<b>Mutagenicity</b>	Mutagenic for bacteria and/or yeast.
<b>Embryotoxicity</b>	Not Available
<b>Specific Target Organ Toxicity</b>	Not Available
<b>Reproductive Toxicity</b>	Not Available
<b>Respiratory/Skin Sensitization</b>	Not Available

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## 12. ECOLOGICAL INFORMATION

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### Ecotoxicity

#### *Ammonium Hydroxide*

<b>Aquatic Vertebrate</b>	Mortality NOEC - <i>Oncorhynchus tshawytscha</i> - 3.5 mg/l - 3.0 d
<b>Aquatic Invertebrate</b>	LC50 - <i>Daphnia magna</i> (Water flea) - 32 mg/l - 50 h
<b>Terrestrial</b>	Not Available

<b>Persistence and Degradability</b>	Not Available
<b>Bioaccumulative Potential</b>	Not Available
<b>Mobility in Soil</b>	Not Available
<b>PBT and vPvB Assessment</b>	Not Available
<b>Other Adverse Effects</b>	Very toxic to aquatic life.

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### 13. DISPOSAL CONSIDERATIONS

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<b>Waste Residues</b>	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste products or residues.
<b>Product Containers</b>	Users should review their operations in terms of the applicable federal/national or local regulations and consult with appropriate regulatory agencies if necessary before disposing of waste product container.

The information offered in section 13 is for the product as shipped. Use and/or alterations to the product may significantly change the characteristics of the material and alter the waste classification and proper disposal methods.

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### 14. TRANSPORTATION INFORMATION

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US DOT	UN2672, Ammonia solution, 8, pg III
TDG	UN2672, AMMONIA SOLUTION, 8, PG III
IMDG	UN2672, AMMONIA SOLUTION, 8, PG III
Marine Pollutant	No
IATA/ICAO	UN2672, Ammonia solution, 8, pg III

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### 15. REGULATORY INFORMATION

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TSCA Inventory Status	All ingredients are listed on the TSCA inventory.
DSCL (EEC)	All ingredients are listed on the DSCL inventory.
California Proposition 65	Not Listed
SARA 302	Not Listed
SARA 304	Not Listed
SARA 311	Acute Health Hazard
SARA 312	Acute Health Hazard
SARA 313	Listed: Ammonium Hydroxide
WHMIS Canada	Class D-1B: Material causing other toxic effects (very toxic).

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## 16. OTHER INFORMATION

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Revision	Date
Revision 1	11/27/2012
Revision 2	06/20/2013

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