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## Material Safety Data Sheet

### Clear Household Ammonia

#### 1. Product Identification

Common name: **Ammonia**  
CAS No.: 1336-21-6  
Molecular Weight: 35.05  
Chemical Formula:  $\text{NH}_4\text{OH}$  in  $\text{H}_2\text{O}$   
Effective Date: 08/23/04 \* \* \* \* \* Supercedes: 07/06/04

#### 2. Composition/Information on Ingredients

<u>Ingredient</u>	<u>CAS No.</u>	<u>Percent</u>	<u>Hazardous</u>
Ammonium Hydroxide	1339-21-6	21-72%	Yes
Water	7732-18-5	28-79%	No

#### 3. Hazards Identification

##### Emergency Overview

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**POISON! DANGER! CORROSIVE. MAY BE FATAL IF SWALLOWED OR INHALED.  
MIST AND VAPOR CAUSE BURNS TO EVERY AREA OF CONTACT.**  
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Health Rating: 3 - Severe (Poison)  
Flammability Rating: 0 - None  
Reactivity Rating: 1 - Slight  
Contact Rating: 4 - Extreme (Corrosive)  
Lab Protective Equip: GOGGLES & SHIELD; LAB COAT & APRON; VENT HOOD;  
----- PROPER ----- GLO -----  
VES

Storage Color Code: White Stripe (Store Separately)  
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##### Potential Health Effects

##### Inhalation:

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

**Ingestion:**

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

**Skin Contact:**

Causes irritation and burns to the skin.

**Eye Contact:**

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

**Chronic Exposure:**

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

**Aggravation of Pre-existing Conditions:**

Persons with pre-existing eye disorders or impaired respiratory function may be more susceptible to the effects of this material.

## 4. First Aid Measures

**Inhalation:**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician immediately.

**Ingestion:**

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. Get medical attention immediately.

**Skin Contact:**

Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Call a physician, immediately. Wash clothing before reuse.

**Eye Contact:**

Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately. Immediate action is critical to minimize possibility of blindness.

## 5. Fire Fighting Measures

**Fire:**

Autoignition temperature: 651 C (1204F)

Flammable limits in air % by volume:

lei: 16; uel: 25

**Explosion:**

Flammable vapors may accumulate in confined spaces.

**Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire. Use water spray to blanket fire, cool fire exposed containers, and to flush non-ignited spills or vapors away from fire.

**Special Information :**

In the event of a fire, wear full protective clothing and NIOSH-approved selfcontained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

## 6. Accidental Release Measures

Ventilate area of leak or spill. Keep unnecessary and unprotected people away from area of spill. Wear appropriate personal protective equipment as specified in Section 8. Contain and recover liquid when possible. 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.

## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Separate from incompatibilities. Store below 25C. Protect from direct sunlight. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

## 8. Exposure Controls/Personal Protection

### **Airborne Exposure Limits:**

-OSHA Permissible Exposure Limit (PEL):

50 ppm (NH<sub>3</sub>)

-ACGIH Threshold Limit Value (TLV):

25 ppm (NH<sub>3</sub>) (TWA) 35 ppm (STEL)

### **Ventilation System:**

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 Respirators (NIOSH Approved):**

If the exposure limit is exceeded and engineering controls are not feasible, a full facepiece 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 fullfacepiece positive-pressure, air-supplied respirator. **WARNING:** Air purifying respirators do not protect workers in oxygen-deficient atmospheres.

### **Skin 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.

**Eye Protection:**

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

## 9. Physical and Chemical Properties

**Appearance:**

Clear, colorless solution.

**Odor:**

Ammonia odor.

**Solubility:**

Infinitely soluble.

**Specific Gravity:**

0.9 (28%  $\text{NH}_4\text{OH}$ )

**pH:**

13.8 (29% solution).

**% Volatiles by volume @ 21 C (70F):**

No information found.

**Boiling Point:**

ca. 36C (ca. 97F)

**Melting Point:**

-72C (-98F)

**Vapor Density (Air=1):**

0.60  $\text{NH}_3$

**Vapor Pressure (mm Hg):**

115 @ 20C for 10% solution; 580 @ 20C for 28% solution.

**Evaporation Rate (BuAc=1):**

No information found.

## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage.

**Hazardous Decomposition Products:**

Burning may produce ammonia, nitrogen oxides.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Acids, acrolein, dimethyl sulfate, halogens, silver nitrate, propylene oxide, nitromethane, silver oxide, silver permanganate, oleum, beta-propiolactone. Most common metals.

**Conditions to Avoid:**

Heat, sunlight, incompatibles, sources of ignition.

## 11. Toxicological Information

### For ammonium hydroxide:

oral rat L050: 350 mg/kg; eye, rabbit, standard Oraize, 250 ug; severe, investigated as a mutagen.

### For ammonia:

inhalation rat LC50: 2000 ppm/4-hr; investigated as a tumorigen, mutagen.

#### -----\Cancer Lists\-----

#### —NTP Carcinogen—

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

## 12. Ecological Information

### Environmental Fate:

This material is not expected to significantly bioaccumulate.

### Environmental Toxicity:

24 Hr LC50 rainbow trout: 0.008 mg/L;

96 Hr LC50 fathead minnow: 8.2 mg/L;

48 Hr LC50 bluegill: 0.024 mg/L;

48 Hr EC50 water flea: 0.66 mg/L

## 13. Disposal Considerations

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.

## 14. Transport Information

### Domestic (Land, D.O.T.)

**Proper Shipping Name:** AMMONIA SOLUTIONS (WITH 10-35% AMMONIA)

**Hazard Class:** 8

**UN/NA:** UN2672

**Packing Group:** III

**Information reported for product/size:** 385LB

### International (Water, I.M.O.)

**Proper Shipping Name:** AMMONIA SOLUTIONS (WITH 10-35% AMMONIA)

**Hazard Class:** 8

**UN/NA:** UN2672

**Packing Group:** III

**Information reported for product/size:** 360LB

## 15. Other Information

**NFPA Ratings:** Health: 3 Flammability: 1 Reactivity: 0

### **Label Hazard Warning:**

POISON! DANGER! CORROSIVE ALKALINE SOLUTION. CAUSES BURNS TO ANY AREA OF CONTACT. HARMFUL IF SWALLOWED, INHALED OR ABSORBED THROUGH SKIN.

### **Label Precautions:**

Do not get in eyes, on skin, or on clothing.

Do not breathe vapor or mist.

Keep container closed.

Use only with adequate ventilation.

Wash thoroughly after handling.

### **Label First Aid:**

If swallowed, DO NOT INDUCE VOMITING. Give large quantities of water. Never give anything by mouth to an unconscious person. If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. In all cases get medical attention immediately.

### **Product Use:**

Laboratory Reagent.

### **Revision Information:**

MSDS Section(s) changed since last revision of document include: 8.

**Disclaimer:** \*\*\*\*\*

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