

**Material Safety Data Sheet**

Version 3.0  
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**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : Ammonium hydroxide solution, 28.0-30.0% NH<sub>3</sub> basis

Product Number : 320145  
Brand : Sigma-Aldrich

Company : Sigma-Aldrich Canada, Ltd  
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CANADA

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**2. COMPOSITION/INFORMATION ON INGREDIENTS**

Synonyms : Ammonia aqueous  
Ammonia water

CAS-No.	EC-No.	Index-No.	Concentration
<b>Ammonium hydroxide</b>			
1336-21-6	215-647-6	007-001-01-2	>= 57.6 - <= 61.7 %
<b>Water</b>			
7732-18-5	231-791-2	-	>= 38.3 - <= 42.4 %

**3. HAZARDS IDENTIFICATION****Emergency Overview****Other hazards which do not result in classification**

Lachrymator.

**WHMIS Classification**

D1B Toxic Material Causing Immediate and  
E Serious Toxic Effects

Toxic by ingestion  
Corrosive to metals  
Corrosive

**HMIS Classification**

Health hazard: 3  
Chronic Health Hazard: \*  
Flammability: 0  
Physical hazards: 0

**Potential Health Effects**

<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>Eyes</b>	Causes eye burns.
<b>Ingestion</b>	Toxic if swallowed. Causes burns.

#### 4. FIRST AID MEASURES

##### General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

##### If inhaled

If breathed in, move person into fresh air. If not breathing give artificial respiration. Consult a physician.

##### In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Consult a physician.

##### In case of eye contact

Continue rinsing eyes during transport to hospital. Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

##### If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

#### 5. FIRE-FIGHTING MEASURES

##### Flammable properties

Flash point not applicable

Ignition temperature 651 °C (1,204 °F) -

##### Suitable extinguishing media

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

##### Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

#### 6. ACCIDENTAL RELEASE MEASURES

##### Personal precautions

Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas.

##### Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

##### Methods for cleaning up

Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

#### 7. HANDLING AND STORAGE

##### Handling

Avoid inhalation of vapour or mist.  
Normal measures for preventive fire protection.

##### Storage

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

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

### 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.

#### Eye protection

Tightly fitting safety goggles. Faceshield (8-inch minimum).

#### 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

Form	liquid, clear
Colour	colourless

### Safety data

pH	11.7 at 20 °C (68 °F)
Melting point	-60 °C (-76 °F)
Boiling point	38 - 100 °C (100 - 212 °F) at 1,013 hPa (760 mmHg)
Flash point	not applicable
Ignition temperature	651 °C (1,204 °F) -
Lower explosion limit	16 %(V)
Upper explosion limit	27 %(V)
Vapour pressure	153 hPa (115 mmHg) at 20 °C (68 °F)
Density	0.9 g/cm <sup>3</sup> at 25 °C (77 °F)
Water solubility	no data available
Relative vapour density	1.21 - (Air = 1.0)

## 10. STABILITY AND REACTIVITY

### Storage stability

Stable under recommended storage conditions.

### Materials to avoid

Copper, Iron, Zinc

### Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NO<sub>x</sub>)

## 11. TOXICOLOGICAL INFORMATION

### Acute toxicity

LD50 Oral - rat - 350 mg/kg (Ammonium hydroxide)

Remarks: Gastrointestinal:Other changes. Liver:Other changes. Kidney, Ureter, Bladder:Other changes.

### Irritation and corrosion

Eyes - rabbit - Severe eye irritation (Ammonium hydroxide)

### Sensitisation

no data available (Ammonium hydroxide)

### Chronic exposure

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

### Signs and Symptoms of Exposure

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, spasm, inflammation and edema of the larynx, spasm, inflammation and edema of the bronchi, pneumonitis, pulmonary edema, Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. (Ammonium hydroxide)

### Potential Health Effects

<b>Inhalation</b>	May be harmful if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
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## 12. ECOLOGICAL INFORMATION

### Elimination information (persistence and degradability)

no data available

### Ecotoxicity effects

Toxicity to fish	mortality NOEC - Oncorhynchus tshawytscha - 3.5 mg/l - 3 d (Ammonium hydroxide)
Toxicity to daphnia and other aquatic invertebrates.	LC50 - Daphnia magna (Water flea) - 32 mg/l - 50 h (Ammonium hydroxide)

### Further information on ecology

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic organisms.

## 13. DISPOSAL CONSIDERATIONS

**Product**

Observe all federal, state, and local environmental regulations. 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.

**Contaminated packaging**

Dispose of as unused product.

**14. TRANSPORT INFORMATION****DOT (US)**

UN-Number: 2672 Class: 8 Packing group: III  
Proper shipping name: Ammonia solution  
Reportable Quantity (RQ): 1621 lbs  
Marine pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

UN-Number: 2672 Class: 8 Packing group: III EMS-No: F-A, S-B  
Proper shipping name: AMMONIA SOLUTION  
Marine pollutant: No

**IATA**

UN-Number: 2672 Class: 8 Packing group: III  
Proper shipping name: Ammonia solution

**15. REGULATORY INFORMATION****DSL Status**

All components of this product are on the Canadian DSL list.

**WHMIS Classification**

D1B	Toxic Material Causing Immediate and	Toxic by ingestion
E	Serious Toxic Effects	Corrosive to metals
		Corrosive

**16. OTHER INFORMATION****Further information**

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