



Ammonium Hydroxide (29%)

Preparation date: June 17, 2014

Safety Data Sheet

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SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

SDS REVISION #: 001

PRODUCT IDENTIFIER: Ammonium Hydroxide (29%)

OTHER IDENTIFIERS: Aqueous ammonia; Aqua ammonia; Ammonium hydroxide solution; Ammonium hydroxide – 29%

CHEMICAL FORMULA: NH_4OH

RELEVANT USES: Cleaning solution, pH adjustment

MANUFACTURED BY: MGC Pure Chemicals America, Inc.
6560 South Mountain Road
Mesa, AZ 85212-9716

PHONE NUMBERS: Inquiries - (480) 987-9100
Transportation Emergencies
U.S. (800) 424-9300 (Chemtrec)
Maritime (703) 527-3887 (Chemtrec)

SECTION 2 - HAZARDS IDENTIFICATION

GHS CLASSIFICATION:
Skin corrosive (Category 1B)
Serious eye damage (Category 1)
Acute toxicity, oral (Category 4)
Aquatic toxicity, acute (Category 1)



SIGNAL WORD:
Danger!

HAZARD STATEMENTS:
Causes severe skin burns and eye damage. Harmful if swallowed. Very toxic to aquatic life.

PRECAUTIONARY STATEMENTS:
Prevention
Do not breathe vapors, mist or spray. Wash exposed areas thoroughly after handling. Wear protective gloves, protective clothing and eye and face protection. Do not eat, drink or smoke when using this product. Avoid release to the environment.

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SECTION 2 - HAZARDS IDENTIFICATION (continued)

PRECAUTIONARY STATEMENTS (continued):

Response

If swallowed: Call a physician if you feel unwell. Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a doctor if breathing has stopped. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Collect spillage.

Storage

Store locked up.

Disposal

Dispose of container in accordance with all applicable regulations. This product, if disposed of, is considered a hazardous waste

HAZARDS NOT OTHERWISE CLASSIFIED: None

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

<u>Component</u>	<u>%</u>	<u>CAS No.</u>
Ammonium hydroxide	28-30	1336-21-6
Water	70-72	7732-18-5

SECTION 4 - FIRST AID MEASURES

IN CASE OF EYE CONTACT:

Immediately flush with large amounts of water for at least 15 minutes, lifting upper and lower lids occasionally. Remove contact lenses, if present and easy to do. Get immediate medical attention. Do not use chemical antidote.

IN CASE OF SKIN CONTACT:

Immediately flush exposed area with water for at least 15 minutes, and then wash with soap and water. If reddening persists, or if open sores or blisters develop, see a physician. Remove contaminated clothing and launder before re-use.

IF SWALLOWED:

Immediately rinse mouth with water. If conscious, immediately give two large glasses of water. Never give anything by mouth to an unconscious person. Do **not** induce vomiting; vomiting may further damage the mouth and throat. Call a physician.

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SECTION 4 - FIRST AID MEASURES (continued)

IF INHALED:

Immediately move to fresh air. If breathing has stopped, give artificial respiration. Get immediate medical attention.

MOST IMPORTANT SYMPTOMS AND EFFECTS:

Contact with living tissue (skin, eyes, nose, etc.) causes severe, permanent damage. Excessive inhalation of high concentrations of vapors may cause pulmonary edema

NOTE TO PHYSICIAN:

Perform endoscopy in all cases of suspected ingestion. In cases of severe esophageal corrosion, the use of therapeutic doses of steroids should be considered. General supportive measures with continual monitoring of gas exchange, acid-base balance, electrolytes and fluid intake are also required.

SECTION 5 - FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

This product contains a large quantity of water, and would not, under normal circumstances, burn. Heating above 160° F (71° C) may produce sufficient vapors to ignite if presented with a source of ignition.



EXTINGUISHING MEDIA:

Use water fog, foam, dry chemical or carbon dioxide as appropriate for other materials involved in the fire.

PROTECTION OF FIREFIGHTERS:

Keep personnel removed from and upwind. Wear full protective clothing and self-contained breathing apparatus with full face-piece. Cool containers with water.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

PRECAUTIONS, PROTECTIVE EQUIPMENT & EMERGENCY PROCEDURES:

Eliminate all ignition sources. Persons not wearing protective equipment should be excluded from the area of the spill until cleanup has been completed.

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SECTION 6 - ACCIDENTAL RELEASE MEASURES (continued)

CONTAINMENT & CLEAN-UP:

Dike area of spill to prevent spreading and pump liquid to salvage tank. Absorb remaining liquid on vermiculite, floor absorbent or other absorbent material and shovel into containers.

This product is toxic to fish; prevent run-off to sewers, streams, lakes and other bodies of water.

EPA has designated ammonium hydroxide as a hazardous substance with an RQ of 1000 pounds. Reporting spills of this material to the National Response Center at (800) 424-8802 may be required.

SECTION 7 - HANDLING AND STORAGE

SAFE HANDLING:

Avoid contact with skin, eyes and clothing. Avoid inhalation of vapors. Wash thoroughly after handling. Ammonia gas accumulates, under pressure, in the headspace of the storage container. Open containers only in a well-ventilated area. Wear protective equipment. Do not use copper, brass or zinc-plated materials for handling this product.

STORAGE:

Keep in closed or covered containers when not in use. Store in cool dry place with adequate ventilation. Storage at elevated temperatures (above 77° F) can cause pressure to build up in the container. Cool before opening container. Do not store near heat or open flames.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Ammonium hydroxide
(CAS# 1336-21-6)

OSHA PEL - 50 ppm (ammonia)
ACGIH TLV - 25 ppm (ammonia)
ACGIH STEL - 35 ppm (ammonia)
NIOSH ceiling - 50 ppm (ammonia)

ENGINEERING CONTROLS:

Provide sufficient ventilation to maintain exposure below established exposure limits.

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SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION (continued)

EYE / FACE PROTECTION:

Chemical splash goggles in compliance with OSHA regulations and full face-shield are advised.

SKIN PROTECTION:

Wear protective gloves such as Neoprene or BUNA-N. Impervious clothing and boots are recommended. Leather shoes and boots cannot be decontaminated if soaked with liquid material.

RESPIRATORY PROTECTION:

A NIOSH/MSHA approved self-contained breathing apparatus or respirator with an ammonia gas cartridge is recommended, especially if product is heated or where there is insufficient ventilation to maintain exposure below established exposure limits.

SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Clear, colorless liquid @ 68° F (20° C)

Odor: Ammonia

Odor Threshold: 25-50 ppm

Specific Gravity (H₂O=1): ~0.898 @ 68° F (20° C)

Weight per Gallon: ~7.5

Vapor Pressure (mm Hg): 570 @ 68° F (20° C)

Vapor Density (Air = 1): 0.60

Initial Boiling Point: ~82° F (28° C)

Freezing Point: -106° F (-77° C)

Volatile %: >99%

VOC %: nil

Evaporation Rate: Unavailable
(Ethyl Ether = 1)

Solubility in Water: 100%

pH: >12.5 (as is)

Flash Point: >181° F (83° C) Closed Cup

Upper Explosion Limit: 28% (ammonia)

Lower Explosion Limit: 15% (component)

Autoignition Temperature: 1204° F (651° C)

SECTION 10 - STABILITY AND REACTIVITY

REACTIVITY:

Reacts with strong acids and water-reactive materials

STABILITY:

High temperatures cause large quantities of ammonia gas to be released. In extreme cases, this could cause the container to rupture.

POSSIBILITY OF HAZARDOUS REACTIONS:

Reacts with water-reactive materials, strong acids and strong oxidizers

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SECTION 10 - STABILITY AND REACTIVITY (continued)

CONDITIONS TO AVOID:

Avoid exposure to excessive heat

INCOMPATIBLE MATERIALS:

Avoid contact with strong mineral acids. Product corrodes copper, brass, aluminum alloys and zinc-plated materials.

HAZARDOUS DECOMPOSITION PRODUCTS:

Ammonia gas

DECOMPOSITION:

Ammonia gas

SECTION 11 - TOXICOLOGICAL INFORMATION

LIKELY ROUTES OF EXPOSURE:

Skin and eye contact and inhalation

SYMPTOMS:

Eyes: Tearing and redness

Skin: Redness and drying

Inhalation: Coughing nausea, headache

EFFECTS FROM EXPOSURE:

Immediate: Eye contact causes severe irritation which may result in permanent damage. Skin contact causes severe irritation and burns. Inhalation causes headache, nausea, irritation to the respiratory tract, esophageal perforation and lung damage

Delayed: Lung damage and shock

Chronic: Inhalation may cause coughing, irritation of the respiratory tract, possible inflammation of the respiratory tract, respiratory difficulties and adverse effects to the nasal septum.

TOXICITY DATA:

Toxicological information is based on literature information for ammonium hydroxide.

Eye irritation

eye (rabbit); 750 µg - severe

eye (rabbit); 44 µg - severe

eye (rabbit) rinsed; 100 mg - severe

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SECTION 11 - TOXICOLOGICAL INFORMATION (continued)

TOXICITY DATA (continued)

Inhalation

Human LC_{Lo} - 5000 ppm. Toxic effects not yet reviewed.
Human TC_{Lo} - 408 ppm. Lungs, thorax or respiration (fibrosis; focal; pulmonary edema)

Intravenous

Rabbit LD_{Lo} - 10 mg/kg. Toxic effects not yet reviewed.

Oral

Cat LD_{Lo} - 750 mg/kg. Toxic effects not yet reviewed.
Human LD_{Lo} - 43 mg/kg. Toxic effects not yet reviewed.
Rat LD₅₀ - 350 mg/kg. Toxic effects not yet reviewed.

Mutagenicity

E. coli; 10 mg/disc.

CARCINOGENICITY

This product is not reported to have any carcinogenic effects. This product (or components) is not listed in IARC Monographs, the current NTP Report on Carcinogens or the current ACGIH TLVs as a carcinogen or potential carcinogen. OSHA does not regulate it as a carcinogen.

SECTION 12 - ECOLOGICAL INFORMATION

ECOTOXICITY:

The following is based on various literature sources for 50%+ ammonium hydroxide solutions:

- 96-hr LC₅₀ for *Salmo gairdneri* (*Oncorhynchus mykiss*) - 0.16 - 1.1 mg/L
- 96-hr LC₅₀ for (*Pimephales promelas*) - 1-10 mg/L
- 96-hr LC₅₀ for (*Pimephales promelas*) - 0.75-3.4 mg/L
- 48-hr LC₅₀ for *Salmo gairdneri* (*Oncorhynchus mykiss*) - 47 ppm (cool water)
- 48-hr LC₅₀ for *Salmo gairdneri* (*Oncorhynchus mykiss*) - 34 ppm (warm water)

PERSISTENCE AND BIODEGRADABILITY

Readily biodegradable in water

BIOACCUMULATIVE POTENTIAL:

Not expected to be bioaccumulative. Log P_{ow} is -1.3

MOBILITY IN SOIL:

Will likely be mobile in the environment due to its water solubility

OTHER ADVERSE EFFECTS:

None known



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SECTION 13 - DISPOSAL CONSIDERATIONS

Incineration is the recommended disposal method for all chemical wastes such as this product, although this material may be sent to a hazardous waste treatment facility for neutralization and disposal. Material collected on absorbent material may be deposited in a landfill in accordance with all applicable local, state and federal regulations.

This product, if disposed of, may be considered a corrosive waste (D002) under current RCRA regulations, due to the pH of the material.

SECTION 14 - TRANSPORT INFORMATION

U.S. DOT, TDG (CANADIAN), IMO (WATER) AND ICAO (AIR) TRANSPORT INFORMATION:

UN Number: UN 2672
Shipping Name: Ammonia solution*
Class: 8, (corrosive)
Packing Group: III
RQ (product): 1000 pounds

Label :



**relative density between 0.880 and 0.957 at 15 degrees C in water, with more than 10 percent but not more than 35 percent ammonia*

SECTION 15 - REGULATORY INFORMATION

TSCA INFORMATION:

All components in this product are in compliance with TSCA Inventory requirements or exempt from reporting.

CEPA:

All components in this product are included on the Canadian Domestic Substances List (DSL).

EINECS:

All components in this product are on the European Inventory of Existing Chemical Substances (215-647-6).

SARA:

CERCLA/SARA 302: Not applicable
CERCLA/SARA 311/312: Acute
CERCLA/SARA 313: Not applicable



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SECTION 16 - OTHER INFORMATION

PREPARATION DATE: June 17, 2014
SUPERCEDES: New SDS , dated March 3, 2010
REASON FOR REVISION: Updated to GHS

The product information contained herein is believed to be accurate as of the date of the Safety Data Sheet, and is provided without warranty, expressed or implied, as to the results of use of this information or the product to which it relates. Recipient assumes all responsibility for the use of this information and the use (alone or in combination with any other product), storage or disposal of the product, including any resultant personal injury or property damage.

END OF REPORT