

SAFETY DATA SHEET

AQUA AMMONIA (5-19.9% NH3)

SDS #: 4003 (Page 1 of 3)

Section 1 – Product and Company Identification

GHS product identifier: Aqua Ammonia (5-19.9%)

Other means of identification: Aqua ammonia; ammonium hydroxide; NH₄OH; CAS #: 1336-21-6

Recommended use of the chemical: Agricultural, Industrial **Restrictions:** none known

Supplier Details: Airgas Specialty Products, Inc.; 2530 Sever Rd.; Ste 300; Lawrenceville, GA 30043
Phone: 770-717-2210

Emergency phone number(s): 800-528-4963 (hrs: 7/24) **Chemtrec:** 800-424-9300 (hrs: 7/24)
Transportation, Canada (CANUTEC): 1-613-996-6666

Section 2. Hazard(s) identification

Classification: Hazardous as per OSHA Hazard Communication Standard (29CFR1910.1200)

Signal word: Danger

Hazard statement(s)/Classifications:

Aqueous ammonia is not flammable.

Ammonia vapor is Flammable-Category 2 NFPA (ammonia vapor): 3-3-0 indoors, 3-1-0 outdoors

Acute Toxicity (inhalation hazard)-Category 3. May cause eye and respiratory damage & death in extreme cases.

Skin Corrosion/Irritation: Category 1B. May cause severe chemical burns to skin.

Aquatic Hazard (Acute) – Category 1; Very toxic to fish and other aquatic life. Keep out of all waterways.

HAZARD PICTOGRAMS



Store and use only outdoors or in a well ventilated place.

Wear eye & face protection, protective gloves & clothing.

Section 3. Composition/ information on ingredients

Substance / Mixture: Mixture

Chemical name: Aqua Ammonia **CAS #:** 1336-21-6

Common name & synonyms: Aqua ammonia, ammonium hydroxide, NH₄OH

Anhydrous ammonia 5-19.9% **CAS #:** 7664-41-7.....**Water** 95-81.1% **CAS #:** 7732-18-5

Impurities: Less than 0.1% **Stabilizing additives:** None

Section 4. First-aid measures

Eye contact: Immediately flush eyes with excess, low-pressure potable water for at least 15 minutes; lift eyelids in process. Remove contacts ASAP. Seek immediate medical aid. **Symptoms:** Redness, severe burning & watering of the eyes. **Effects:** Possible permanent damage or even blindness.

Inhalation: Remove from exposure. If breathing is difficult or has stopped, provide oxygen or artificial respiration as appropriate. Seek immediate medical aid. **Symptoms:** Severe burning of nose & other parts of respiratory system.

Effects: Possible permanent damage to respiratory system or even death in extreme case.

Skin contact: Immediately flush body with excess, low-pressure water for at least 15 minutes while removing all contaminated clothing and shoes. Seek immediate medical aid. Clothing and shoes should be free of ammonia before reuse. **Symptoms:** Burning sensation, redness. **Effects:** Potential severe blistering.

Ingestion: Do not induce vomiting. Wash out mouth thoroughly with potable water. Have victim drink large amount of potable water if conscious. Seek immediate medical aid. **Symptoms/Effects:** May burn mouth, throat & stomach.

Summary: Potable water is preferred in all cases; but, any water is likely to be much better than no water.

Section 5. Fire-fighting measures

Hazard: Aqueous ammonia is generally stored in pressure vessels. The greatest fire hazard is pressure relief valves releasing ammonia vapors, or vessel rupture in worst case. Consequently, water should be applied to vessels containing aqua ammonia to prevent vessels from over-heating and thus releasing ammonia vapors. Aqueous ammonia or ammonia vapor present eye, inhalation, skin and ingestion hazards as summarized in section 4 above. See Emergency Response Guidebook for recommended evacuation distances (100 ft. minimum for small spills, and 500 ft. minimum for large releases). Nitrogen oxide combustion products are possible if ammonia vapor burns.

Extinguishing media: Aqueous ammonia is not flammable. Ammonia vapor burns in the 16-25% concentration range in air. Water is the preferred extinguishing media for ammonia, and may be the only effective media since only ammonia vapor will burn. Negative effects from other common extinguishing media are not expected.

Protective equipment: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode if ammonia vapor is present.

Specific Hazards: Aqueous ammonia is very toxic to fish and other aquatic life. Fire water contaminated with ammonia must be contained and prevented from entering any waterway (lake, stream, sewer, drain, etc.)

Section 6. Accidental release measures

US EPA regulation (40CFR355) requires that a release of 1,000 lb or more of aqua ammonia be reported immediately (within 15 minutes) to the NRC at 800-424-8802. The release must also be reported immediately to the SERC, the LEPC and FD. Check local and state reporting requirements, since some require all releases to be reported. **SUGGESTED**

LOCAL ACTION: Stop leak if safe & feasible. Evacuate personnel not equipped with protective gear. Contain spill & use water spray to absorb ammonia vapor. Prevent ammonia, or water containing ammonia, from entering streams, lakes, sewers, etc since ammonia (even at very low concentrations) is toxic to aquatic life. Any unintentional release of ammonia while loading, transporting or unloading must be reported to U.S. DOT as per 49CFR171.16. Also, see 171.15.

Section 7. Handling and storage

Regulations for storing & handling ammonium hydroxide have not been established; though information in 29CFR1910.111 and ANSI/CGA G-2.1 may be helpful. Protect vessels to avoid physical damage and temperatures exceeding 120 dF. Use only approved storage systems. Zinc, copper, silver, cadmium, and their alloys must **not** be used in ammonia systems since they can be corroded rapidly by ammonia. Eye wash stations and safety showers should be readily available. Contact your Airgas Specialty Products Sales representative for assistance.

Section 8. Exposure controls / personal protection

OSHA PEL (U.S., 2-2013): TWA: 50 ppm 8 hr for ammonia vapor

ACGIH TLV (U.S. 6-2013): STEL: 35 ppm 15 min. TWA: 25 ppm 8 hr. for ammonia vapor

NIOSH REL (U.S., 4-2013): STEL: 35 ppm 15 min. TWA: 25 ppm 10 hr. for ammonia vapor

Engineering controls: See ANSI/CGA G-2.1 & OSHA 29CFR1910.111 for useful information.

Personal Protective Measures: **Eyes:** Chemical splash goggles & face shield must be worn to protect eyes from ammonia vapor and liquid aqueous ammonia. **Respiratory:** Use NIOSH/MSHA & OSHA approved respiratory protection for ammonia as needed. **Skin:** Approved rubber gloves and rubberized or other types of approved protective clothing should be worn. **Ventilation:** Explosion proof ventilation should be provided to minimize concentrations of ammonia in work areas. **Other:** Eye wash and safety showers should be immediately available.

Section 9. Physical and chemical properties

Physical state: Liquid

Color: Clear liquid. Ammonia vapor is clear or fog-like.

Molecular formula/weight: NH₄OH/35.04 g/mole

pH: 11.6 for 1.7% NH₃ soln. in water

Odor: Pungent; 5 ppm NH₃ threshold in air

Critical Temperature: N/A

Boil/condense point: 120 dF (19.7% soln.)

Melt/freeze point: -30.8 dF (19.3% soln.)

Flammability: Aqua soln. is not flammable; Ammonia vapor is flammable @16-25% ammonia concentration in air

Vapor pressure: 1 atm. @ 120 dF; 19.7% solution

Vapor Sp. gravity (NH₃): 0.59 (Air = 1)

Flash point, Burn time, Burn rate, Evaporation rate: all not available

Section 10. Stability and reactivity**Reactivity:** Neutralizes acids**Chemical stability:** Stable**Possible hazardous reactions:** Generally none, except reacts very exothermally with acids.**Conditions to avoid:** Do not cut, weld, braze, drill, grind, or heat vessels.**Hazardous decomposition products:** Not expected; though nitrogen oxides are possible from burning vapor.**Section 11. Toxicological information****Rat:** LC50 inhalation NH3 gas 1 hour exposure in 7338 ppm atmosphere**Corrosive:** Aqua ammonia is a strong alkali and readily damages all body tissues.**Toxicity:** Ammonia is not a cumulative metabolic poison. Not a known or suspected carcinogen.**Chronic effects:** None known (including sensitizer, mutagen, carcinogen, reproductive toxicity, teratogen, or specific target organs).**Section 12. Ecological information**

Ammonia at low concentrations is very toxic to many species of fish and other aquatic life. Do not allow ammonia or water containing ammonia to enter streams, lakes, sewers, etc.

Acute LC50.....0.53 ppm in fresh water for Daphnia – Daphnia magna in 48 hours.




Acute LC50.....0.3 ppm in fresh water for Hypophthalmichthys nobilis fish (Bighead carp) in 96 hours.

Section 13. Disposal considerations

Comply with all Federal, State, & Local laws and regulations.

Contact your Airgas Specialty Products sales representative for assistance.

Section 14. Transport information**(GROUND ONLY)**

	US DOT	CANADA TDG	MEXICO
UN Number	UN2672	UN2672	UN2672
Proper shipping name:	Ammonium Hydroxide	Ammonium Hydroxide	Ammonium Hydroxide
Hazard class	8	8	8
Placards:			
Packing Group	III	III	III
Environment	No	No	No

Do not ship via air or water without consulting shipping/transportation specialist for applicable regulations.**Section 15. Regulatory information**The following and other Federal regulations can be found at: <http://www.ecfr.gov>.

May be subject to OSHA & EPA regulations including, but not limited to, the following: 29CFR1910.1200 (Hazard Communication), 40CFR68 (Chemical Accident Prevention, 40CFR302 (Reportable quantities & notification), 40CFR355 (Subpart B--Emergency Planning, Subpart C—Emergency Release Notification; 355.6 Release notification relationships), 40CFR370 (Hazardous Chemical Reporting: Community Right-To-Know; See all parts, Tier 2 reports must be filed by March 1 of each year.); 40CFR372 (Chemical Release Reporting; See all parts, especially Subpart E; You may be required to submit a Toxic Release Inventory (TRI) form R by July 1 of each year). Regulations for storing & handling ammonium hydroxide have not been published; though information in 29CFR1910.111 may be helpful. DOT regulations are contained in 49CFR100-199.

Section 16. Other information**Date prepared:** May 4, 2015**Last revision:** May 4, 2015