

Material Safety Data Sheet

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SECTION I - PRODUCT IDENTIFICATION

Trade Name(s): Aqua Ammonia

Synonyms: Ammonia Solutions; Ammonium Hydroxide; High Strength Aqua Ammonia (30% NH₃); Regular Strength Aqua Ammonia (19% NH₃)

Product Class: Ammonia Solutions

Product Appearance & Odor: Colorless liquid, pungent and extremely irritating odor.

DOT Hazard Shipping Description: Ammonia solutions 8 UN2672 III RQ*

* "RQ" required only if container (drum, rail tank car, etc.) has 100 pounds or more of Aqua Ammonia at >20% strength or 1,000 pounds or more at <20% strength.

Label Required:

RQ

NFPA Hazard Classification: Health (Blue) = 3
Flammability (Red) = 1
Reactivity (Yellow) = 0



SECTION II - HAZARDOUS INGREDIENTS

Ingredients:	CAS#	% (Range)	Occupational Exposure Limits	
			ACGIH TLV-TWA	OSHA PEL-TWA
Ammonia, aqueous (ammonium hydroxide)	1336-21-6	10-35% NH ₃ in water	(limits as ammonia)	
			25 ppm	50 ppm
			35 ppm (STEL)	

Ingredients, other than those mentioned above, as used in this product are not hazardous as defined under current Department of Labor regulations, or are present in de minimus concentrations (less than 0.1% for carcinogens, less than 1.0% for other hazardous materials).

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SECTION III - PHYSICAL DATA

Boiling Point: 27 - 49°C (80 - 120°F)

Vapor Density: 0.6 (air = 1) for gaseous ammonia

Percent Volatile by Volume: 100%

Vapor Pressure: 4.5 – 11.0 psia @ 20°C (68°F)

Specific Gravity: 0.89 – 0.93 g/cc (7.45 – 7.75 lb/gal)

Solubility in Water: infinitely soluble

SECTION IV - FIRE AND EXPLOSION HAZARD DATA

Flash Point: Not flammable

Flammable Limits (for ammonia): LEL 16.0%; UEL 25%

Extinguishing Media: Water fog is best. (Ammonia will react with Carbon Dioxide to form a dense white cloud)

Special Fire Fighting Procedures: **Aqua ammonia is an aqueous solution that will not support combustion.** Use water spray or fog to keep fire-exposed containers cool. Ammonia burns to form oxides of nitrogen. Firefighters should wear self-contained breathing apparatus and full protective clothing.

Unusual Fire and Explosion Hazards: If exposed to elevated temperatures, Aqua Ammonia will release Ammonia gas. Although classified nonflammable, Ammonia does have an explosive range. Ammonia can be a dangerous fire and explosion hazard when mixed with air.

SECTION V - HEALTH HAZARD DATA

Effects of Overexposure

Eyes: May cause severe eye irritation with corneal injury and permanent vision impairment.

Skin: If contact with gas is prolonged for more than a few minutes, severe burning pain and corrosive damage will occur. Contact with liquid will cause severe tissue damage.

Ingestion: Extremely irritating to mucous membranes causing vomiting, nausea and burns.

Inhalation: The gas is extremely irritating to mucous membranes and lung tissue. Coughing, chest pain, and difficulty in breathing may result. Prolonged exposure may result in bronchitis, pulmonary edema, and chemical pneumonitis. Breathing high concentrations may result in death.

Systemic or Other Effects: May aggravate preexisting pulmonary, lung or eye conditions.

Carcinogenicity: NTP: No IARC Monographs: No OSHA Regulated: No

Emergency and First Aid Procedures

Eyes: Immediately flush with large amounts of water, including under the eyelids. Seek medical attention immediately, preferably an Ophthalmologist. Speed and thoroughness in rinsing eyes are important to avoid permanent injury.

Skin: Immediately flush with large amounts of tepid water while removing clothing. Thaw frozen clothing before removal. If a freeze burn has occurred, get medical attention.

Ingestion: Do not induce vomiting. Rinse mouth out with water. Drink large amounts of water or milk. Seek medical attention immediately.

Inhalation: Remove promptly to fresh air. If breathing has stopped, apply artificial respiration. Apply oxygen as soon as possible. Seek medical attention immediately.

Special Considerations: None.

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SECTION VI - REACTIVITY DATA

Stability: Stable.

Conditions to Avoid: Avoid exposing containers to heat or flame. Keep separated from incompatible materials.

Materials to Avoid (Incompatibility): Acids, strong oxidizing agents, chlorine, bromine, pentafluoride, nitrogen trifluoride, mercury, silver oxide, calcium, and chlorides of iron. Do not use copper, brass, bronze, or galvanized steel in Aqua Ammonia service.

Hazardous Decomposition Products: Ammonia and oxides of Nitrogen (Nitrogen Dioxide, Nitric Oxide).

Hazardous Polymerization: Will not occur.

SECTION VII - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled: Keep people away. Stay upwind and warn people downwind of possible exposure. Wear self-contained breathing apparatus if condition warrants. Follow applicable Federal, State and local reporting requirements.

Waste Disposal Method: Aqua Ammonia is an immediate poison to marine life. Vegetation, insects, reptiles, fish and small mammals contacted by Aqua Ammonia (or a large gaseous Ammonia vapor clouds released by heat) will likely die; post spill conservation measures may be required. Minimize runoff to watersheds by diking, containment or absorption. Contaminated dirt may be spread as a fertilizer.

SECTION VIII - SPECIAL PROTECTION INFORMATION

Ventilation: Provide adequate general and local exhaust ventilation to attain occupational exposure limits, to prevent the formation of explosive atmospheres; and to prevent the formation of an oxygen deficient atmosphere, particularly in a confined space area.

Respiratory Protection: Use a NIOSH approved chemical cartridge respirator with full facepiece for ammonia concentrations up to 300 ppm. Use a positive pressure (pressure demand) SCBA for concentrations above 300 ppm, for emergency response, or for entry into unknown concentrations.

Protective Clothing: Aqua Ammonia is severely corrosive to epidermal tissue. Wearing nonporous clothing: pants, sleeves, footwear, and gloves is the recommended protection against skin contact.

Eye Protection: Aqua Ammonia is severely corrosive to mucosal membranes (eyes, nose, throat). Remove contact lenses and wear chemical goggles. A face shield is also advised for additional skin protection where contact with liquid or vapor may occur.

Other Precautions Required: None.

SECTION IX - SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: Store in compliance with all Federal, State, and local regulations. Store cylinders and tanks in a well ventilated area, away from incompatible materials (i.e. Chlorine), sources of heat and ignition. Empty containers may contain residual liquid or gas and can be dangerous. Ground or bond all lines and equipment used for the transfer and storage of ammonia gas to prevent static sparks. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, flames, sparks or other sources of ignition; they may explode and cause injury or death.

Other Precautions: None.

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SECTION X - SPECIAL INFORMATION

EPCRA Section 311/312 Hazard Categorization:

Acute	Chronic	Fire	Pressure	Reactive
X				

EPCRA & CAA Hazardous Substance Reporting Requirements:

Ingredient	CAS No.	% by wt	CAA 112(r)	302 TPQ lb.	304 RQ lb.	313 TRI
Ammonium Hydroxide	1336-21-6	For <20% Ammonia Soln	Not Listed	Not Listed	1,000	
Ammonium ion in water	7664-41-7	For >20% Ammonia Soln	20,000 lb	500	100	X

Key: CAA 112(r) = Toxic Substance with potential for airborne release
Sec. 302 TPQ = Extremely Hazardous Substances (EHS) Threshold Planning Quantity
Sec. 304 RQ = EHS and CERCLA Reportable Quantity if spilled
Sec. 313 TRI = Toxic Chemicals to be reported on Toxic Release Inventory if spilled

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