SECTION 1: CHEMICAL PRODUCT & COMPANY IDENTIFICATION

CHEMICAL NAME: Ammonium Hydroxide **TRADE NAMES / SYNONYMS:** Aqua Ammonia, Ammonium Hydroxide

MANUFACTURER AND/OR DISTRIBUTOR:
Airgas Specialty Products
2530 Sever Road, 300
Lawrenceville, GA 30043 USA

EMERGENCY TELEPHONE NUMBERS:
Transportation (CHEMTREC): 1-800-424-9300
Environmental/Health/Safety (24-hr): 1-800-528-4963
Customer Service (Toll Free): 1-800-295-2225

SECTION 2: COMPOSITION / INFORMATION ON INGREDIENTS

CHEMICAL	FORMULA	% BY WEIGHT	CAS	OSHA PEL	NIOSH REL / ACGIH TLV		IDLH
				25 ppm (California only)			
Ammonia	NH_3	5-19.9	7664-41-7	50 ppm (TWA)	25 ppm (TWA)	35 ppm (STEL)	300ppm
Water	H_2O	80.1-95	7732-18-5	None	None	None	
Aqua Ammonia	NH_4OH	100	1336-21-6	------	------	------	

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: 1. Colorless liquid with a pungent odor. **2.** Avoid contact with liquid and vapor. **3**. Not flammable. **4**. Mixes with water. **5**. Harmful to aquatic life in very low concentrations. **6.** Stop discharge if possible.

POTENTIAL HEALTH EFFECT

ROUTES OF ENTRY: Inhalation, Skin Contact, Eye Contact, Ingestion **TARGET ORGANS:** Eyes, skin and respiratory system.

EYE CONTACT: May be severely irritating upon liquid exposure, with irritation from fumes. **SKIN CONTACT:** High concentrations can cause severe irritation and burns. **INHALATION:** The gas can be suffocating and is irritating to the mucous membranes and lung tissue. **INGESTION:** Can cause vomiting, nausea and corrosive burns to the esophagus and stomach. The exact nature and intensity of toxic effects following ingestion of varying amounts of strong aqua ammonia solution (ex. 28%) is unpredictable. The most accepted view is that any amount from one teaspoon or greater can be dangerous if ingested.

SECTION 4: FIRST AID MEASURES

EYE CONTACT: Flush with large amounts of water for at least 15 minutes then immediately seek medical aid.

SKIN CONTACT: Immediately flush with large quantities of water for at least 15 minutes while removing clothing. Seek immediate medical aid.

INHALATION: Remove from exposure. If breathing has stopped or is difficult, administer artificial respiration or oxygen as needed. Seek immediate medical aid.

INGESTION: Do not induce vomiting. Have victim drink large quantities of water if conscious. Immediately seek medical aid. Never give anything by mouth to an unconscious person**.**

SECTION 5: FIRE FIGHTING MEASURES

FLASH POINT(method used): Not Applicable **FLAMMABLE LIMITS:** 16-25% NH_3 in air (for labeling purposes, not DOT flammable gas). **EXTINGUISHING MEDIA:** Water fog or spray for escaping ammonia gas.

SPECIAL FIRE FIGHTING PROCEDURES: The mixture will not burn but escaping gas can burn in the range of 16-25% NH_3 in air. Wear full protective clothing and self-contained breathing apparatus in the pressure demand mode.

NFPA HAZARD CLASSIFICATION (Aqua): Health: 2 **Flammability:** 1 **Reactivity:** 0 (least-0 —— 4-highest)

SECTION 6: ACCIDENTAL RELEASE MEASURES

In US, federal regulations require that a release of 1,000 lb. or more of ammonium hydroxide must be reported immediately to the National Response Center at (800) 424-8802, the SERC and the LEPC. In California, ALL releases must be reported to CUPA, state and local agencies. Additional state and local regulations may apply. **SUGGESTED LOCAL ACTION:** Releases will liberate irritating vapors. Spilled liquids should be contained and not washed into sewers or ground water. Prevent large quantities from contact with vegetation or waterways. Ammonium hydroxide is a regulated material and reporting of any release may be required. Any release of this material during the course of loading, transporting, unloading or temporary storage must be reported to the U.S. DOT as required by 49 CFR 171.15 and 171.16.

SECTION 7: HANDLING AND STORAGE

Store in ventilated containers or pressure vessels away from heat. Open containers cautiously in case of pressure build up. Zinc, copper and copper alloys such as brass are rapidly corroded by ammonium hydroxide.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION: Respiratory protection approved by NIOSH / MSHA for ammonia must be used when exposure limits are exceeded. Whether chemical canister respirator or self-contained breathing apparatus is sufficient for effective respiratory protection depends on the type and magnitude of exposure.

SKIN PROTECTION: Rubber gloves and rubber or other types of approved protective clothing should be used to prevent skin contact. A face shield should be used for increased protection from contact with liquid or vapor.

EYE PROTECTION: Chemical splash goggles, approved for use with ammonia, must be worn to prevent eye contact with liquid or vapor. A face shield should be used for increased protection from contact with liquid.

VENTILATION: Local positive pressure and/or exhaust ventilation should be used to reduce vapor concentrations in confined spaces. Ammonia vapor, being lighter than air, can be expected to dissipate to the upper atmosphere. Ammonia concentrations may also be reduced by the use of an appropriate absorbent or reactant material.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT: 160°F (10% Sol'n.)
SOLUBILITY IN WATER: Complete
MELTING POINT: Approx 15°F (10% Sol'n.)
PERCENT VOLATILE BY VOLUME: 100%
VAPOR PRESSURE: 130 mm Hg @ 80°F(10% Sol'n.)
SPECIFIC GRAVITY: 0.928 @ 60°F (19.5% Sol'n., water=1)
VAPOR DENSITY: 0.60 @ 32°F (Air=1)
pH: Approx. 11.6 for 1 N Sol'n. in water
APPEARANCE: Colorless, pungent liquid

SECTION 10: STABILITY AND REACTIVITY

STABILITY: Material generally considered stable. Heating above ambient temperature causes the vapor pressure of ammonia to increase rapidly.

INCOMPATIBILITY (materials to avoid): Strong acids. Aqua ammonia reacts with bromine, chlorine, mercury, silver, silver solder, and hypochlorite (bleach) to form explosive compounds. Avoid use of metals containing copper or zinc.

HAZARDOUS DECOMPOSITION PRODUCTS: Heating and contact of vapors with very hot surfaces may form hydrogen. The decomposition temperature may be lowered to 575°F by contact with certain metals such as nickel.

HAZARDOUS POLYMERIZATION: Will not occur **CONDITIONS TO AVOID:** Not applicable

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICITY BY INGESTION: Grade 3; Oral Rat, LD_{50} = 350 mg/kg. Ammonia is a strong alkali and readily damages all body tissues. Ammonia is not a cumulative metabolic poison.

SECTION 12: ECOLOGICAL INFORMATION

AQUATIC TOXICITY: 6.25 ppm 24hr/Trout/Lethal/Freshwater; 15ppm 48hr/Sunfish/TLm/Tap Water
WATERFOWL TOXICITY: Data not available **BIOCHEMICAL OXYGEN DEMAND:** Data not available
FOOD CHAIN CONCENTRATION POTENTIAL: None

SECTION 13: DISPOSAL CONSIDERATIONS

Consult local, state or federal regulatory agencies for acceptable disposal procedures and disposal locations. Disposal in streams or sewers is generally contrary to federal, state, and local regulations. For Hazardous Waste Regulations call (800) 424-9346, the RCRA Hotline.

SECTION 14: TRANSPORT INFORMATION

	5-10% Ammonia Solutions	>10-19.9% Ammonia Solutions
Proper shipping name:	Corrosive Liquid, N.O.S. (contains ammonia)	Ammonium Hydroxide
DOT Hazard Class:	8	8
Identification Number:	UN1760	UN2672
Packing Group:	III	III

SECTION 15: REGULATORY INFORMATION

NOTICE: This product is subject to the reporting requirements of SARA (1986, Section 313 of Title III) and 40 CFR Part 370.

CERCLA/SUPERFUND, 40 CFR 117.302: Unpermitted releases of 1,000 lb. or more of ammonium hydroxide in any 24-hour period must be reported immediately to the NRC at 1-800-424-8802, the SERC, and the LEPC. Written follow-up is required to SERC & LEPC.

OSHA HAZARD COMMUNICATION RULE, 20 CFR 1910.1200: Aqua ammonia is a hazardous chemical.

TOXIC SUBSTANCE CONTROL ACT: This material is listed in the TSCA Inventory.

EMERGENCY PLANNING AND COMMUNITY RIGHT-TO-KNOW ACT (SARA, TITLE III): Section 302 Extremely Hazardous Substance: Yes; Section 311/312 Hazardous Categories: Immediate (Acute) Health Hazards; Section 313 Toxic Chemical: Yes (as ammonia); **WHMIS:** One percent (1%) as ammonia. **CALIFORNIA PROPOSITION 65:** Reproductive: No Carcinogen: No

OSHA PROCESS SAFETY MANAGEMENT, 29 CFR 1910.119: This product is NOT subject to the Process Safety Management requirements of 29 CFR 1910.119.

EPA CHEMICAL ACCIDENTAL RELEASE PREVENTION, 40 CFR PART 68: This product is NOT subject to the Risk Management Plan requirements of 40 CFR Part 68. **DRINKING WATER:** Maximum use dosage in potable water is 10mg/l.

SECTION 16: OTHER INFORMATION

REASON FOR REVISION: 1. Addition of new Toll Free Customer Service Number in Section 1. 2. Revision to concentration range in section 2. 3. Revision to proper DOT Shipping Name. 4. Revision to EPCRA Section 302 information in Section 15; 6. Revised LEL and UEL. 7. Company Name Change. 8. Revised LEL and UEL. 9. Company Address Changed.

MSDS PREPARED BY: Airgas Specialty Products

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