MATERIAL SAFETY DATA SHEET

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

- **Product name:** (Ammonium Hydroxide) **Aqua Ammonia Solutions**
- **Product Description:** Chemical Family: Ammonia Solutions
- **Manufacturer:** Deep South Chemical, Inc.
  229 Millstone Road
  Broussard, LA 70518 (337) 837-9931
- **For Emergency: Call CHEMTREC 1-800-424-9300 Outside the U.S.A. (703)-527-3887**
- **Contact Person:** Glenn Ray
- **Chemical Family:** Inorganic Bases
- **MSDS Revised:** January 1, 2014

SECTION 2. COMPOSITION / INFORMATION ON INGREDIENTS

Substances classified under CHIP

Hazardous components	**CAS Number**	**%**	PEL(OSHA)	TLV(ACGIH)
Ammonia, Anhydrous	7664-41-7	14-30%	50 ppm	25 ppm
Water	7732-18-5	70-81%	-----	-----

SECTION 3. HAZARDS IDENTIFICATION, INCLUDING EMERGENCY OVERVIEW

Effects of overexposure

Inhalation: If inhaled, will cause nausea, vomiting, breathing difficulty, and convulsions. Shock or loss of consciousness may result. Brief exposure to 5000 ppm may be fatal.

Ingestion: Ingestion causes burning pain in mouth, throat, stomach, and thorax, constriction of throat, and coughing. This is soon followed by vomiting of blood or by passage of loose stools containing blood. Ingestion of 3-4 ml may be fatal.

Skin: **Absorption**; Ammonia, because of its alkalinity and water solubility, tends to break down and disrupt the outer cell layers, permitting rapid penetration. Even so, ammonia is not a systemic poison and the effects will be limited to local effects. **Contact**; Causes smarting of the skin and first-degree burns on short exposure. May cause second-degree burns on long exposure.

Eyes: Vapor is irritating to the eyes. Liquid will cause burns.

Signs and Symptoms of Exposure: Burning of the eyes, conjunctivitis, skin irritation, swelling of the eyelids and lips, dry red mouth and tongue, burning in the throat, and coughing. In more severe cases of exposure, difficulty in breathing, signs and symptoms of lung congestion, and, ultimately, death from respiratory failure due to pulmonary edema may occur.

Effects of Overexposure: Irritation and possible burns of the skin and mucous membranes. Headache, salivation, nausea, and vomiting. Difficult or labored breathing and cough with bloody mucous discharge. Bronchitis, laryngitis, hemoptysis, and pulmonary edema or pneumonitis. Ulceration of the conjunctiva and cornea, and corneal and lenticular opacities. Damage to the eyes may be permanent.

Medical Conditions Generally Aggravated by Exposure: Ammonia is a respiratory irritant. persons with impaired pulmonary function may be at increased risk from exposure

SECTION 4. FIRST AID MEASURES

Ingestion: **Do Not Induce Vomiting**. If person is conscious, give large quantities of water and, if possible, diluted vinegar, lemon juice, orange juice, or other citric juices to neutralize the ammonia. Delay may cause perforation of esophagus or stomach. OBTAIN MEDICAL ATTENTION.

Inhalation: Remove victim to fresh air. Give oxygen if breathing is difficult. If breathing has stopped, start artifical respiration. Keep victim calm and resting. OBTAIN MEDICAL ATTENTION.

Skin: Apply water immediately to exposed areas of skin and continue for at least 15 minutes. Remove contaminated clothing while continuing to apply water. Do not apply salves or ointments to affected areas. OBTAIN MEDICAL ATTENTION.

Eyes: Immediately flush with flowing water for at least 15 minutes with the eyelids held apart. OBTAIN MEDICAL ATTENTION.

SECTION 5. FIRE FIGHTING MEASURES

Flash Point: N/A

Autoignition Temperature: 850° C; 1560° F

Lower Explosive Limit: 16% by volume Ammonia gas

Upper Explosive Limit: 25% by volume Ammonia gas

Unusual Fire and Explosion Hazards: The presence of oil or other combustible materials will increase the fire hazard. The explosive (flammable) range of ammonia is broadened by a mixture of oxygen replacing air, and by temperature and pressure higher than atmospheric.

Extinguishing Media: Water spray or fog type streams. Chemical or CO_2 should be used on small fires only.

Special Firefighting Procedures: Stop the flow of liquid. Use water to keep fire exposed containers cool and to protect men affecting the shut off. Wear self-contained breathing apparatus and full protective clothing. Approach fire upwind and evacuate area downwind if needed.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Steps to be taken if material is released or spilled: Stop the flow. Wear self-contained breathing apparatus and full protective clothing. Approach spill from upwind and evacuate area downwind. Prevent runoff from entering streams, drinking water supply or sewers. Dike to contain spill. Dilute with water, if necessary to reduce ammonia vaporization. Can be neutralized with diluted phosphoric or sulfuric acids. Vinegar will effectively neutralize small spills of aqua ammonia

Waste disposal method: Dispose of according to local, state and federal regulations in an approved disposal facility or recycling facility.

SECTION 7. HANDLING AND STORAGE

Storage & Handling: Avoid heating containers of aqua ammonia. Avoid storing in close proximity to strong acids. Avoid contact with skin and eyes. Avoid inhalation of vapors.

Other precautions: Harmful to aquatic life in very low concentrations. May be dangerous if it enters water intakes. Notify local health and wildlife officials. Do not contaminate any body of water by direct application, cleaning of equipment or disposal.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Unless ventilation is adequate to keep airborne concentrations below the exposure standard, wear approved respiratory protection such as an ammonia canister mask or an approved air supplied respirator. Canister or cartridge type masks must not be used above their exposure limits. From 0-199 ppm, a cartridge type 1/2 mask respirator is needed. From 200-299 ppm a type "N" gas mask with full face piece is needed. Over 300 ppm a self-contained breathing apparatus (SCBA) is required.

Ventilation: Local exhaust is essential. Spark-proof fans desirable with mechanical ventilation. Ducts should be located at ceiling level and lead upwards to the outside. Local exhaust must be adequate to reduce ammonia concentration below 25 ppm.

Protective Clothing: Rubber boots, gloves, apron, and coat.

Eye Protection: Tight fitting chemical safety and splash-proof goggles and/or a splash-proof faceshield must be worn if there is a likelihood of exposure. Persons subject to ammonia exposure must not wear contact lenses.

Other Protective Clothing or Equipment: Eyewash fountain and safety shower should be available in the work area.

Work/Hygienic Practices: Avoid contact with skin and avoid breathing vapors. Do not eat, drink, or smoke in work area. Wash hands before eating, drinking, or using restroom.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Liquid	**pH:** 12-14
Melting Point/Range: N/A	**Boiling Point/Range:** 82.8-140.4°F @ 14.7 PSIA
Appearance/Color/Odor: Colorless liquid with pungent odor	
Solubility in Water: 100%	**Vapor Pressure(mmHg):** 268-720 @ 80°F
Vapor Density(Air=1): 0.6 @ 32°F	**Molecular Weight:** N/A

Specific Gravity(Water=1)@ 60°F by % of Solution:			
0.8957 (30%)-0.9261 (20%)	Approx. 0.9459 (14%)	Approx. 0.9425 (15%)	0.92 (19%)

Weight/Gallon (Lbs.) by % of Solution:			
7.46-7.71 (20-30%)	7.88 (14%)	7.85 (15%)	7.66 (19%)

Baume' @ 60°F by % of Solution:			
21.17 (20%) - 26.31 (30%)	18.02 (14%)	18.55 (15%)	20.65 (19%)

% Volatiles: 14-30%	**How to detect this compound :** Smell. The odor threshold for Aqua Ammonia is 1-5 ppm.

SECTION 10. STABILITY AND REACTIVITY

Stability: Stable **Hazardous Polymerization:** Will not occur

Conditions to Avoid: Heat, open flames, and electrical equipment and fixtures which are not vapor-proof or grounded.

Materials to Avoid: Contact with mercury, chlorine, bromine, iodine, calcium, silver oxide, or hypochlorite can form explosive compounds.

Hazardous Decomposition Products: Ammonia is lightly reactive, easily undergoing oxidation, substitution and addition reactions. Combustion of ammonia will yield small amounts of nitrogen and water.

SECTION 11. TOXICOLOGICAL INFORMATION

Toxicity by Ingestion: Oral rat, LD50: 350 mg/kg

SECTION 12. ECOLOGICAL INFORMATION

N/A

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal: Consult Federal, State, or Local authorities for proper disposal procedures.

SECTION 14. TRANSPORT INFORMATION

DOT Transport Information: DOT Proper Shipping Name: UN2672,Ammonia Solutions or Ammonium Hydroxide, 8, III

SECTION 15. REGULATORY INFORMATION

Toxicity by Ingestion: Oral rat, LD50: 350 mg/kg
IDLH Value*: 300 ppm *The Immediately Dangerous to Life and Health Value
Reportable Quantity: 1000 Pounds (454 Kilograms) (134 Gal.)
NFPA Rating: Health - 3; Fire - 1; Reactivity - 0
0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme
NFPA Rating is for Ammonia, Anhydrous, Liquefied Gas only. Ammonia Solutions are not rated by the NFPA (National Fire Protection Association).
Carcinogenicity Lists: NTP: No **IARC Monograph:** No**OSHA Regulated:** Yes

Section 313 Supplier Notification: This product contains the following toxic chemcial(s) subject to the reporting requirements of SARA TITLE III Section 313 of the Emergency Planning and Community Right-To Know Act of 1986 and of 40 CFR 372:

CAS #	Chemical Name	% By Weight
1336-21-6	Ammonium Hydroxide	14-30%

SECTION 16. OTHER INFORMATION

Synonyms/Common Names: Ammonium Hydroxide; Aqueous Ammonia; Water Ammonia; Aqua Ammonia

N/D= No data; N/A = Not available; N/E= Not established