Safety Data Sheet

1. IDENTIFICATION:

Product Name: AMMONIA SOLUTION
Synonyms: Ammonium Hydroxide Solutions; Ammonia Aqueous
CAS Number: Mixture
HF Scientific Catalog Numbers: 10198 W2T11994 U409
Product Use: Analytical / Laboratory Reagent
Manufacturer: HF Scientific, Inc
Address: 3170 Metro Parkway Fort Myers, Fl 33916

General Information: 888-203-7248
Transportation Emergency Number: CHEMTREC® 24 hr US 800-424-9300
CHEMTREC® 24 hr International 703-527-3887

2. HAZARDS IDENTIFICATION

GHS Classification

Health	Environmental	Physical
Acute Toxicity: Category 3 Skin Irritation: Category 1B Eye Irritation: Category 1 Respiratory Sensitizer: Category 1	Aquatic Toxicity: 1	Flammable Liquid: No

GHS Label

Pictogram:	Signal Word:
	**WARNING** **DANGER**
Hazard Statements	**Precautionary Statements**
Toxic if swallowed. Toxic if inhaled. Causes severe skin burns and eye damage. Causes serious eye damage. May cause allergy or asthmatic symptoms or breathing difficulties if inhaled. Very toxic to aquatic life.	IF SWALLOWED: Seek medical attention immediately. IF ON SKIN: Water flush immediately and seek medical attention. IF INHALED: Give respiratory support and seek medical attention. IF IN EYES: Irrigate immediately and seek medical attention STORE in a well-ventilated place. DISPOSE of contents/container in accordance with local, regional, national and international regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	Cas Number	Weight %
Water	7732-18-5	82%
Ammonium Hydroxide	1336-21-6	18%

4. FIRST AID MEASURES

Eye Contact: : Irrigate immediately and seek medical attention.
Skin Contact: Water flush immediately and seek medical attention.
Inhalation: Remove to Fresh Air. If Not Breathing, Give Artificial Respiration. Seek Medical Attention.
Ingestion: Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Use any means suitable for extinguishing surrounding fire. Use water spray to blanket fire, cool fire exposed containers, and to flush non-ignited spills or vapors away from fire.
Fire Fighting Procedures: Wear self contained breathing apparatus and protective clothing.
Unusual Fire and Exposure Hazards: N/A
Combustion Products: Emits toxic fumes of ammonia and nitric oxides when heated to descomposition.
NFPA Classification HEALTH: 2 FLAMMABLE: 0 REACTIVITY: 0

6. ACCIDENTAL RELEASE MEASURES

Ventilate and evacuate area. Clean-up personnel require protective clothing and respiratory protection from vapors. Allow only qualify personnel to handle the spill. Contain and recover liquid when possible. Spills may be neutralized with dilute hydrochloric acid or dilute sulfuric acid and discharged to sewer with large amounts of water. Regulation for pH, ammonia content and salt for effluents must be considered. Do not flush directly into sewers. Alternately, spills may be absorbed with dry inert material and collected for disposal in a RCRA approved facility. Reportable quantity (RQ) (CWA / CERCLA): 1000 lbs.

7. HANDLING AND STORAGE

Handling: Use only in adequate ventilation. Avoid contact with eyes, skin and clothing. Avoid breathing fumes. Wash thoroughly after handling.
Storage: Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Separate from incompatibilities. Store below 25C. Protect from direct sunlight. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquid); observe all warnings and precautions listed for the product.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits: OSHA Permissible Exposure Limit (PEL): 50 ppm (TWA)
ACGIH Threshold Limit Value (TLV): 25 ppm (TWA); 35 ppm (STEL)
Engineering Controls: Local exhaust ventilation to keep below exposure limits.
Personal Protective Equipment:
Eyes: Use chemical safety goggles and/or full face shield where dusting or splashing of solutions is possible. Maintain eye wash fountain and quick-drench facilities in work area.
Skin: Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Neoprene and nitrile rubber are recommended materials. Polyvinyl alcohol is not recommended.
Respiratory: Local exhaust ventilation to keep below exposure limits. If the exposure limit is exceeded, a full face piece respirator with an ammonia/methylamine cartridge may be worn up to 50 times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.

9. PHYSICAL AND CHEMICAL PROPERTIES

Flashpoint: N/A
Autoignition Temperature: 1204°F
Boiling Point: -28°F
Melting Point: -108°F
Vapor Pressure: 8.5 atm

Vapor Density: 0.60 as NH_3
% Solubility in Water: 34%

Pour Point: N/A
Molecular Formula: NH_4OH
Odor / Appearance: Clear liquid with ammonia odor

Lower Flammability Limit: 15%
Upper Flammability Limit: (200°F) 28%
Specific Gravity: 0.90
% Volatile: N/A
Evaporation Rate (Water=1): N/A
Viscosity: N/A
Octanol / Water Partition Coefficient: N/A
pH: 11.6
Molecular Weight: 35.1 AMU

10. STABILITY AND REACTIVITY

Stability / Incompatibility: Stable under ordinary conditions of use and storage. Incompatible with acids, acrolein, dimethyl sulfate, halogens, silver nitrate, propylene oxide, nitromethane, silver oxide, silver permanganate, oleum, beta-propiolactone and most common metals.
Hazardous Reactions / Decomposition Products: Emits toxic fumes of ammonia and nitric oxides when heated to descomposition. Hazardous Polymerization will nor occur.

11. TOXICOLOGICAL INFORMATION

Symptoms of Overexposure: Symptoms may include pain in the mouth, chest, and abdomen, with coughing, vomiting and collapse.
Acute Effects: May cause irritation to the respiratory tract, symptoms may include coughing, sore throat, and labored breathing. High concentrations may cause laryngitis, tracheitis, pulmonary edema, chest pains or pneumonitis. Toxic if ingested. May cause corrosion to the esophagus and stomach with perforation and peritonitis. May cause skin burns with vesication. Vapor may cause irritation to the eyes. Splashes may cause severe pain and eye injuries such as glaucoma, corneal scars, iris atrophy, and cataracts.
Eye Contact: Serious eye damage.
Skin Conatct: Severe burns to skin.
Inhalation: May cause allergy or asthmatic symptoms or breathing difficulties if inhaled.
Ingestion: Toxic if ingested.
Target Organs Effects: Eyes, Skin, Gastrointestinal and Respiratory Tract
Chronic Effects: None
Medical Conditions Aggravated by Exposure: Pre-Existing Eye, Skin, or Respiratory System Conditions
Acute Toxicity Values: OSHA Permissible Exposure Limit (PEL): 50 ppm (TWA)
ACGIH Threshold Limit Value (TLV): 25 ppm (TWA); 35 ppm (STEL)

12. ECOLOGICAL INFORMATION

Environmental Fate: This material is not expected to significantly bioaccumulate.
Environmental Toxicity:

24 Hr LC50 rainbow trout: 0.008 mg/L;
96 Hr LC50 fathead minnow: 8.2 mg/L;
48 Hr LC50 bluegill: 0.024 mg/L;
48 Hr EC50 water flea: 0.66 mg/L

13. DISPOSAL CONSIDERATIONS

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste facility. Although not a listed RCRA hazardous waste, this material may exhibit one or more characteristics of a hazardous waste and require appropriate analysis to determine specific disposal requirements. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

14. TRANSPORT INFORMATION

Proper Name: Ammonia Solution
Hazard Class: 8
Identification Number: UN2672
Packing Group: III

15. REGULATORY INFORMATION

CERCLA: 1000
SARA/Title III: None
TSCA Inventory: None
Cal. Proposition 65: None
WHMIS: N/A
DSL: Yes
NDSL: N/A

16. OTHER INFORMATION

THE ABOVE INFORMATION IS BELIEVED TO BE ACCURATE AND REPRESENTS THE BEST INFORMATION CURRENTLY AVAILABLE TO US. ALL PRODUCTS ARE OFFERED IN ACCORDANCE WITH THE MANUFACTURER'S CURRENT PRODUCTION SPECIFICATIONS AND ARE INTENDED SOLELY FOR USE IN ANALYTICAL TESTING. THE MANUFACTURER SHALL IN NO EVENT BE LIABLE FOR ANY INJURY, LOSS OR DAMAGE RESULTING FROM THE HANDLING, USE OR MISUSE OF THESE PRODUCTS.