19% Aqua Ammonia

Safety Data Sheet

SECTION 1. PRODUCT AND COMPANY INDENTIFICATION

Product/Chemical Name: Aqua Ammonia, 19%/Ammonium Hydroxide
Chemical Family: Inorganic nitrogen compounds
General use: Drinking water treatment, waste water treatment, papermaking, power plant emissions control, and other manufacturing applications

Company Information:
GAC Chemical Corporation
34 Kidder Point Road
Searsport, Maine 04974 U.S.A.
Phone: 207-548-2525 FAX: 207-548-2891 Toll Free: 800-266-5155

Emergency Phone:
1-800-424-9300 Chemtrec (USA)

SECTION 2. HAZARDS IDENTIFICATION

Signal Word: DANGER

Hazard Statements: Causes severe skin burns and eye damage
Toxic if inhaled
Toxic to aquatic life

Precautionary Statements: Do not get in eyes, on skin or on clothing
Wear gloves, eye and face protection and protective clothing
Avoid breathing gas, mist, vapors
Use only outdoors or in a well ventilated area
Avoid release to the environment
IF SWALLOWED: Rinse mouth. Do not induce vomiting
IF ON SKIN: Remove immediately all contaminated clothing. Rinse skin with shower.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Collect spillage

Store in a well ventilated place. Keep container tightly closed. Dispose of container in accordance with local, state, province and federal regulations.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

Substance: Ammonium Hydroxide CAS# 1336-21-6

Chemical Name:	Anhydrous Ammonia	CAS#: 7664-41-7	(18.0 – 20.0%)
	Water	CAS#: 7732-18-5	(80.0 – 82.0%)

Synonyms: Aqua ammonia, aqueous ammonia, Ammonia Solution
Impurities: NA. No impurities or additives which are themselves classified and which contribute to the classification of the substance.

SECTION 4. FIRST AID MEASURES

Inhalation of mist or liquid:
Remove person from source of exposure to fresh air. If breathing is difficult, administer oxygen. If not breathing, start CPR. Get medical attention immediately.
Skin contact:
Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing. Get medical attention immediately.
Eye contact:
Immediately flush eyes with plenty of water for at least 15 minutes while holding eyelids open. Get medical attention immediately.
Ingestion:
DO NOT induce vomiting. If fully conscious, drink as much water as can be tolerated and if possible, diluted vinegar or citrus juices to neutralize the ammonia. Get medical attention immediately.

Most Important Symptoms/Effects:
Inhalation:
Causes severe irritation of the nose, throat and respiratory tract. Causes difficulty breathing from edema and bronchospasm. Could cause chemical pneumonia and pulmonary edema. Concentrations over 2500 ppm can be fatal due to airway obstruction and respiratory arrest.
Skin contact:
Liquid contact causes severe irritation and/or corrosive alkali burns. Vapors are irritating to moist skin.
Eye contact:
Liquid contact causes severe irritation, corrosive burns, and/or blindness. Vapors are severely irritating to the eyes.
Ingestion:
Causes corrosive burns to the esophagus and stomach with perforation and peritonitis. May be fatal.

SECTION 5. FIRE FIGHTING MEASURES

Flammability:
Ammonia vapors in the range of 16-25% can ignite and/or explode on contact with ignition sources.

Suitable Extinguishing Media:
For fires in area use appropriate extinguishing media. Use water spray to keep containers cool. Use water fog/spray to knock down ammonia vapors.

Specific Hazards Arising from the Chemical:
When heated, aqua ammonia will give off ammonia vapor, which can be flammable, especially in confined areas. Closed containers exposed to heat may explode. Ammonia vapors are severely irritating and toxic. Combustion may form toxic nitrogen oxides.

Special Protective Equipment and Precautions for Firefighters:
Wear full protective fire fighting clothing including NIOSH approved self contained breathing apparatus. Remain upwind of fire to avoid hazardous vapors and decomposition products. Do not allow water runoff to enter sewers or waterways.

SECTION 6. ACCIDENTIAL RELEASE MEASURES

General:
Site specific procedures to address accidental spills are necessary as dictated by facility design, location, staffing, containment structures, and regulatory requirements. Consult engineers if needed.

Personal Precautions, Protective Equipment and Emergency Procedures:
In the event of a spill, clear unnecessary personnel from spill area. Approach spill from upwind and evacuate area downwind. Spilled material will release ammonia vapors. Maintain adequate ventilation. Use personal protective equipment recommended in Section 8.

Methods and Materials for Containment and Cleaning Up:
Shut off source of leak if safe to do so. Manage spill using containment structures or inert materials and collect for reuse. Product not reused can be neutralized using weak (10%) sulfuric acid or phosphoric acid. Neutralized residue can be captured using absorbent materials for disposal in accordance with local, state, province, and federal regulations. Avoid direct discharge to sewers and surface waters. Notify authorities if entry occurs.

SECTION 7. HANDLING AND STORAGE

Incompatible Chemicals:
Avoid contact with acids and acidic (low pH) materials. Avoid contact with strong oxidizers, halogens and non-ferrous metals.

Containment:
To minimize the possibility of a release into the environment and contact with other incompatible chemicals, storage tanks and containers should have a dedicated liquid tight secondary containment system. Consult engineers if needed.

General Hygiene:
Do not eat, drink, take medication or smoke when direct contact is possible.
Always thoroughly wash hands after leaving a work area where contact is possible or has occurred.

Storage:
Keep storage tanks and containers closed and contents protected from dust, dirt, and moisture.
Vent storage tanks through a scrubber system. Store containers in a cool, dry, well ventilated area.
Have storage tanks, containers, and transfer systems properly labeled for contents.
Have procedures for determining product quantity in storage tanks and for accepting deliveries.
Use tanks, transfer lines, pumps valves and process instrumentation designed for this material using approved materials of construction. Some materials commonly used are mild steel and stainless steel. Non-ferrous metals will be damaged by corrosion. Consult engineers if needed.

Temperature for Storage:
Preferred storage temperature range is -18°C-27°C (0°F-80°F).
Temperatures over 119 °F will affect product stability and shelf life.

Ventilation:
Local exhaust is essential. Mechanical ventilation should be explosion proof. Fans and ducts should be located at ceiling level and lead upwards to the outside.

Personal Protection:
If direct contact with material is likely use personal protective equipment.

SECTION 8. EXPOSURE CONTROL / PERSONAL PROTECTION

Exposure Limits
Ingredient: ammonia (NH3) vapor

OSHA PEL		ACGIH TLV		NIOSH TLV		NIOSH
TWA	STEL	TWA	STEL	TWA	STEL	IDLH
50 ppm	35 ppm	25 ppm	none est.	25 ppm	35 ppm	300 ppm

Respiratory - Ventilation:
Local mechanical ventilation is typically used. Under normal conditions respiratory protective equipment is not needed. If work requires direct exposure to product vapor or mist, use appropriate, NIOSH approved respiratory protection. Consult engineers if necessary.

Eye - Skin wash:
Have appropriate eye wash and safety shower stations available in the work area.

Eyes:
Use protective eye glasses with side shields/goggles and face shield protection to prevent direct contact.

Skin:
Wear impervious pants, jacket, gloves, boots and hardhat with face shield. For spill cleanup, use impervious pants, jacket, gloves, boots, hardhat and full face NIOSH approved respiratory protection.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Liquid, clear, colorless
Odor: sharp, pungent ammonia odor
Odor Threshold: 5 ppm
pH: >13
Melting/Freeze point: -34°C (-30°F)
Boiling point-range: 48°C-51°C (119°F- 124°F) approx.
Flash point: NA
Evaporation rate: <1 (water=1)
Flammability: vapor will burn/explode
Upper/lower flammability limits: 16-25% (ammonia vapor)
Vapor pressure: 202 mm Hg @ 60°F
Vapor density: .6 approx. (air=1)
Relative Density (Specific Gravity): .929 S.G. @ 15.5°C (60°F)
Water Solubility: Completely miscible
Partial coefficient: n-octanol/water: NA
Auto ignition: NA
Decomposition temperature: >450°C (842°F)

Viscosity: NA

SECTION 10. STABILITY AND REACTIVITY

Reactivity:
Reacts exothermally with strong mineral acids. Reacts with hypochlorites or other halogens to form explosive compounds that are sensitive to pressure and temperature increases.
Chemical Stability:
Product is chemically stable under normal ambient temperature and conditions while stored or used.
Possibility of Hazardous Reactions:
Product will not polymerize.
Conditions to Avoid:
Avoid elevated temperatures. Will rapidly release ammonia vapors at temperatures above 119^{o}F. Keep away from incompatibles.
Incompatible Materials:
Acidic materials, strong acids, oxidizing agents, hypochlorites, halogens, and non-ferrous metals. Consult engineers if necessary.
Hazardous Decomposition Products:
At temperatures above 450^{o}C (842^{o}F) hydrogen and nitrogen oxides may be produced.

SECTION 11. TOXICOLOGICAL INFORMATION

Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and the following selected endpoints are published:
Ammonium Hydroxide (1336-21-6)
Oral LD50 Rat 350mg/kg
Carcinogenicity:
Not considered to be a human carcinogen.
Mutagenic Effects:
Not considered to be mutagenic.
Reproductive Effects:
Not considered to be a human reproductive or developmental toxicant.
HEALTH EFFECTS
Inhalation - Acute Exposure
Causes severe irritation of the nose, throat and respiratory tract. Causes difficulty breathing from edema and bronchospasm. Could cause chemical pneumonia and pulmonary edema. Concentrations over 2500 ppm can be fatal due to airway obstruction and respiratory arrest.
Inhalation - Chronic Exposure
Chronic inhalation has been associated with increased cough, phlegm, wheeze and asthma.
Skin Contact - Acute Exposure
Liquid contact causes severe irritation and/or corrosive alkali burns. Vapors are irritating to moist skin.
Skin Contact - Chronic Exposure
No data available.
Eye Contact - Acute Exposure
Liquid contact causes severe irritation, corrosive burns, and/or blindness. Vapors are severely irritating to the eyes.

Eye Contact - Chronic Exposure

No data available.

Ingestion - Acute Exposure

Causes corrosive burns to the esophagus and stomach with perforation and peritonitis. May be fatal.

Ingestion - Chronic Exposure

No data available.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity (aquatic):

Ammonium Hydroxide (1336-21-6)

Fish: 96 hr LC50 Western Mosquitofish, 16,000 ug/L: 24 hr LC50 Fathead Minnow, 12,000 ug/L

Invertebrate: 50 hr LC50 Daphnia magna: 37,000 ug/L

Persistence and Degradability:

No information available

Bioaccumulation Potential:

This product is not expected to bioaccumulate.

Mobility in Soil:

No information available.

Other Adverse Effects:

No information available

SECTION 13. DISPOSAL CONSIDERATIONS

RCRA Hazardous Waste: Not listed. Waste product may be D002 under §261.22(a)(2) if the pH >12.5.

Neutralization:

Product can be neutralized using weak (10%) sulfuric acid or phosphoric acid. Neutralized residue can be captured using absorbent materials for disposal in accordance with local, state, province, and federal regulations.

Contaminated Packaging:

Packaging and storage containers that cannot be thoroughly cleaned must be disposed of in accordance with local, state, province, and federal regulations.

SECTION 14. TRANSPORTATION INFORMATION

Land (DOT), Sea (IMDG), Air (ICAO/IATA)

Identification Number: UN2672

Proper Shipping Name: Ammonia Solutions

Hazard Class: 8

Packing Group: III

Environmental Hazards: Marine pollutant: no; Hazardous substance: yes (RQ=1000lbs.)

Special Precautions: None known

SECTION 15. REGULATORY INFORMATION

RCRA Hazardous Waste: Not Listed.

Unused, un-neutralized product may be a Characteristic Waste (D002). Consult engineers if necessary.

CERCLA Hazardous Substance: Yes

CERCLA Reportable Quantity (RQ): 1000 lbs.

SARA 311/312 Categories:

Acute (immediate) health effects: Yes

Chronic (delayed) health effects: No
Sudden release of pressure hazard: No
Reactivity hazard: No
Fire hazard: No

SARA 313 Toxic Chemical Listing: Not Listed
SARA Extremely Hazardous Substance (EHS): Not Listed
OSHA Air (29CFR 1910.10000, Table Z-1, Z-1A): Listed as ammonia
OSHA Special Regulated Substance (29CFR 1910): Not listed
California Prop 65 Chemical: No
United States TSCA Section Inventory Status: Product listed on the TSCA Inventory.
State Regulations: State specific regulations have not been determined by GAC Chemical Corporation. Consult engineers if necessary.

SECTION 16. OTHER INFORMATION

NSF/ANSI 60 Drinking Water Treatment Chemicals:
Maximum use 14mg/L

HMIS Rating:
Health: 3
Flammability: 0
Reactivity: 1

NFPA Rating:
Health: 3
Fire: 1
Reactivity: 0
Special: Corrosive

Preparatory Statement:
The information in this Safety Data Sheet (SDS) is correct to the best of our knowledge, information we have available, and belief as of the publication date. The information is designed solely as guidance for handling, storage, transportation, release, and disposal and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with other materials or in any process unless specified in the text.

Date Sources for the SDS:
Literature, databases, practice, publications, own tests, regulations

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