



Ammonium Hydroxide MSDS

Effective Date: December 03, 2012

24 Hour Emergency Contact:

ChemTel: (800)255-3924

www.pioneerforensics.com

1. PRODUCT AND COMPANY IDENTIFICATION

Product: Ammonium Hydroxide
Product Number(s): PF011, PF012
CAS#: 1336-21-6
Synonyms: Aqueous ammonia; Ammonia aqueous
Manufacturer: Pioneer Forensics, LLC
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Emergency Number: (800) 255-3924 (CHEM-TEL)
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2. HAZARDS IDENTIFICATION

Emergency Overview: DANGER! Corrosive. Causes severe skin, eye, and digestive tract burns. Harmful if swallowed. Mist or vapor extremely irritating to eyes and respiratory tract.

Safety Ratings: Health: 2, Moderate Reactivity: 1, Slight
Flammability: 1, Slight Contact: 4, Extreme

OSHA Regulatory Status: This product is considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Acute Health Effects:

Routes of Exposure: Inhalation, ingestion, skin contact, eye contact

Inhalation: Corrosive. May cause damage to mucous membranes in nose, throat, lungs and bronchial system.

Ingestion: Corrosive. Harmful if swallowed. May produce burns to the lips, oral cavity, upper airway, esophagus and digestive tract.

Skin Contact: Corrosive. Causes severe burns.

Eye Contact: Corrosive. Causes severe burns. May cause eye damage, impaired sight or blindness.

Target Organs: Skin, respiratory system, eyes

Chronic Health Effects: Corrosive. Prolonged contact causes serious tissue damage.

Aggravation of: Repeated or prolonged exposure to the substance can produce target organs damage.
Medical Conditions: Persons with pre-existing skin disorders or eye problems may be more susceptible to the effects of the substance.

Potential Environmental Effects: Expected to be very toxic to aquatic organisms.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Components</u>	<u>CAS#</u>	<u>Chemical Formula</u>	<u>Formula Weight</u>	<u>Hazardous</u>	<u>% by Weight</u>
Ammonia, anhydrous	7664-41-7	NH ₃	17.03	Yes	28-30
Water	7732-18-5	H ₂ O	18.02	No	70-72

4. FIRST AID MEASURES

First Aid Procedures:

Inhalation: Remove to fresh air. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Get medical attention immediately.

Ingestion: Do not induce vomiting. If vomiting occurs, keep head low so that vomit does not enter lungs. Never give anything by mouth to an unconscious person. GET MEDICAL ATTENTION IMMEDIATELY.

Skin Contact: Flush affected area with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention immediately.

Eye Contact: Check for and remove contact lenses. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention immediately.

General Advice: In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

Notes to Physician: Treat symptomatically. Keep victim under observation.

5. FIRE FIGHTING MEASURES

NFPA Ratings: Health: 3 Flammability: 1 Reactivity: 0

Flammable Properties: The material is not flammable.

Flash Point: Not applicable

Auto-ignition Temp: Not applicable

Flammable Limits in Air (% by volume): Lower Explosion Limit: 15% NH₃
Upper Explosion Limit: 28% NH₃

Suitable Extinguishing Media: Water, Dry powder, Foam, Carbon dioxide

Unsuitable Extinguishing Media: No information found

Hazardous Combustion Products:	Nitrogen oxides, ammonia fumes
Specific Hazards:	Fire may produce irritating, corrosive, and/or toxic gases.
Special Protective Equipment For Firefighters:	As in any fire, wear MSHA/NIOSH approved (or equivalent) self-contained positive pressure or pressure-demand breathing apparatus and full protective gear.
Specific Methods:	Use water spray to cool unopened containers. Cool containers exposed to flames with flooding quantities of water until well after the fire is out. In the event of fire and/or explosion do not breathe fumes.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Ventilate area of leak or spill. Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Keep upwind. Keep out of low areas. Wear appropriate personal protective equipment as specified in the Exposure Control and Personal Protection Section 8. Avoid contact with eyes, skin, and clothing.
Environmental Precautions:	Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground. In case of large spill, dike if needed.
Methods for Containment:	Stop the flow of material, if this is without risk. Prevent entry into waterways, sewer, basements or confined areas. Dike the spilled material, where this is possible.
Methods for Cleaning Up:	Absorb spill with an inert material (e.g. vermiculite, dry sand, earth, cloth, fleece), and place in a suitable non-combustible container for reclamation or disposal. Do not use combustible materials, such as sawdust. Clean contaminated surface thoroughly. Neutralize spill area and washings with dilute acetic acid. Never return spills in original containers for re-use. Clean up in accordance with all applicable regulations.

7. HANDLING AND STORAGE

Handling:	Wear personal protective equipment (see section 8). Use only in well-ventilated areas. Provide sufficient air exchange and/or exhaust in work rooms. Avoid contact with skin, eyes and clothing. Do not breathe vapors or spray mist. Do not ingest. When using, do not eat, smoke, or drink. Keep away from incompatible materials. Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquids). Observe all warnings and precautions listed for the product. Use caution when combining with water. DO NOT add water to caustic. ALWAYS add caustic to water while stirring to prevent release of heat, steam, and fumes.
Storage:	Store in a cool, dry, ventilated area away from incompatible materials. Store in original container. Keep containers tightly closed and upright. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

Exposure Limits:	ACGIH:	TWA:	25 ppm
		STEL:	35 ppm
	OSHA:	PEL:	50 ppm
			35 mg/m ³

Engineering Controls: Ensure adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Explosion proof exhaust ventilation should be used.

Personal Protective Equipment:

Eye/Face Protection: Wear chemical safety goggles and a face shield.

Skin Protection: Wear appropriate chemical resistant clothing (with long sleeves) and appropriate chemical resistant gloves.

Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. Respirator type: Chemical respirator with specific cartridge and full face piece providing protection against the compound of concern. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.

General Hygiene Considerations: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Transparent
Color:	Colorless
Odor:	Ammonia
Molecular Formula:	NH ₄ OH
Molecular Weight:	35.05
pH:	13.8
Specific Gravity:	0.90
Freezing/Melting Point:	-74.4 °C (-101.6 °F)
Boiling Point:	27.2 °C (81 °F)
Flash Point:	Not applicable
Auto Ignition Temperature:	Not applicable
Flammable Limits in Air (% by Volume):	
Upper:	28% NH ₃
Lower:	15% NH ₃
Solubility:	Miscible with water
Vapor Pressure:	287.9 kPa at 25°C
Vapor Density:	No information found
Odor threshold (ppm):	5-50 ppm as Ammonia
Evaporation Rate:	No information found
Partition Coefficient (n-octanol/water):	No information found

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions.

Conditions to Avoid:	Heat and incompatibles
Incompatible Materials:	Oxidizing agents, acids, metals, halogens, nitromethane
Hazardous Decomposition Products:	Nitrogen oxides, ammonia fumes
Possibility of Hazardous Reactions:	Can react vigorously, violently or explosively with incompatible materials listed above.
Hazardous Polymerization:	Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological Data:	Oral Rat LD50:	350 mg/kg
Acute Effects:	Harmful if swallowed.	
Local Effects:	Causes severe burns. Mist or vapor extremely irritating to eyes and respiratory tract.	
Sensitization:	Not a skin sensitizer.	
Chronic Effects:	Corrosive. Prolonged or repeated skin contact causes serious tissue damage.	
Carcinogenic Effects:	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.	
Skin Corrosion/Irritation:	Corrosive to skin and eyes.	
Epidemiology:	No epidemiological data is available for this product.	
Mutagenicity:	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.	
Neurological Effects:	No information found.	
Reproductive Effects:	Contains no ingredient listed as toxic to reproduction.	
Teratogenic Effects:	No data available to indicate product or any components present at greater than 0.1% may cause birth defects.	
Target Organs and Symptoms:	Corrosive effects. Mucus membranes, skin, eyes	

12. ECOLOGICAL INFORMATION

Ecotoxicological Data:	LC50 Water flea (<i>Daphnia magna</i>):	0.66 mg/L 48 H
	LC50 Western mosquitofish (<i>Gambusia affinis</i>):	15 mg/L 96 H
Ecotoxicity:	Expected to be very toxic to aquatic organisms.	
Environmental Effects:	Very toxic to aquatic organisms. An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.	
Persistence and Degradability:	Expected to be readily biodegradable.	
Partition Coefficient (n-octanol/water):	No information found.	

13. DISPOSAL INFORMATION

Disposal Instructions: Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. All wastes must be handled in accordance with local, state and federal regulations.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

Waste Codes: D002: Waste corrosive material (pH ≤ 2 or pH ≥ 12.5, or corrosive to steel)

14. TRANSPORT INFORMATION

DOT:

UN Number: UN2672
Proper Shipping Name: Ammonia solutions
Hazard Class: 8
Packaging Group: III
ERG Number: 154

15. REGULATORY INFORMATION

U.S. Federal Regulations:

OSHA: This product is considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Inventory: Ammonium Hydroxide, Water

U.S. EPCRA (SARA Title III):

Sections 311/312:	<u>Hazard Categories</u>	<u>List (Yes/No)</u>
	Section 311 – Hazardous Chemical	Yes
	Immediate Hazard	Yes
	Delayed Hazard	No
	Fire Hazard	No
	Pressure Hazard	No
	Reactivity Hazard	No

Section 313: Toxic chemical or category: Ammonium Hydroxide

De minimis concentration: 1.0%

CERCLA: Ammonium Hydroxide: 1000 lbs

International Inventories:	<u>Country(s) or Region</u>	<u>Inventory Name</u>	<u>On Inventory (Yes/No)*</u>
	Australia	Australian Inventory of Chemical Substances (AICS)	Yes

Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*A "Yes" indicates that the listed component(s) of this product comply with the inventory requirements administered by the governing country(s)

16. OTHER INFORMATION

Product Use: Laboratory and/or field reagent

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Reason for Revision: Not applicable