Rocky Mountain Reagents
SCIENTIFIC SOLUTIONS SINCE 1951

SDS

Safety Data Sheet

1. IDENTIFICATION

Product Identifier: **Ammonium Chloride Hydroxide Buffer**

Product Code(s): A1030, A1031

Synonyms: Mixture.

Recommended Use: For manufacturing, industrial, and laboratory use only. Use as a solvent or as a laboratory reagent.

Uses Advised Against: Not for food, drug, or household use.

Supplier: Rocky Mountain Reagents, Inc.
4621 Technology Drive, Golden, CO 80403
Phone: (303) 762-0800 Fax: (303) 762-1240

Emergency Phone Number: (800) 255-3924 (VelocityEHS)

2. HAZARDS IDENTIFICATION

Hazard Classifications: Skin Corrosion/Irritation: Category 1A
Eye Damage/Irritation: Category 1

Signal Word: DANGER

Hazard Statements: Causes severe skin burns and serious eye damage.

Pictograms:



Precautionary Statements:

Prevention: Do not breathe fumes, mists, vapors, or spray.
Wash thoroughly after handling.
Wear protective gloves, protective clothing, eye protection, and face protection.

Response: Immediately call a poison center or doctor.
If swallowed: Rinse mouth. Do NOT induce vomiting.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Wash contaminated clothing before reuse.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Storage: Store locked up.

Disposal: Dispose of contents and container in accordance with local, regional, national, and international regulations.

Hazards Not Otherwise Classified: This product is harmful to aquatic life. Avoid release to the environment.
This product will continuously release hazardous ammonia vapor. Ensure proper storage and handling (see Section 7) and personal protection measures (see Section 8).

Toxicity Statement: Not applicable.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Component	Common Name / Synonyms	CAS#	Chemical Formula	% by Weight
Water	Water	7732-18-5	H_2O	85.6 – 92.1
Ammonia	Ammonium Hydroxide	1336-21-6	NH_3	1.85 – 8.00
Ammonium Chloride	Salmiac	12125-02-9	NH_4Cl	6.10 – 6.40

Trade Secret Statement: Not applicable.

4. FIRST AID MEASURES

First Aid Procedures:

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. WARNING! It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled or ingested material is toxic, infectious, or corrosive. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately.

Ingestion: Rinse mouth. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, keep head low so that vomit does not enter lungs. Never give anything by mouth to an unconscious person. Call a physician or poison control center immediately.

Skin Contact: Remove contaminated clothing and shoes. Wash skin with plenty of water for at least 15 minutes. Wash clothing before reuse. Call a physician immediately.

Eye Contact: Check for and remove contact lenses, if present and easy to do. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Call a physician immediately.

General Advice: Poison information centers in each state can provide additional assistance for scheduled poisons. Ensure that those providing first aid and medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Symptoms and Effects: Inhalation may cause coughing, sneezing, choking sensation, hoarseness, difficulty breathing, and headache. Ingestion may cause nausea, vomiting, diarrhea, abdominal pain, shock, and gastrointestinal burning. Skin and eye contact may cause severe burns. May enter lungs if swallowed or vomited.

Immediate Medical Care/ Special Treatment: If exposed or concerned, get medical attention immediately. Treat symptomatically.

5. FIREFIGHTING MEASURES

Suitable Extinguishing Media: Water spray, dry powder, alcohol resistant foam, carbon dioxide.

Unsuitable Extinguishing Media: Do not use a solid (straight) water stream, as it may scatter and spread fire.

Hazardous Combustion Products: Nitrogen oxides, ammonia.

Specific Hazards: Fire may produce corrosive and/or toxic fumes.

Special Protective Equipment/ Precautions 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.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions and Protective Equipment: 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. Wear appropriate personal protective equipment (see Section 8). Avoid contact with eyes, skin, and clothing.

Emergency Procedures: In case of chemical emergency, or if unsure how to address an accidental release, consult a professional (see Section 1).

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. Product should not be released to the environment. Contain and recover liquid when possible.

Methods for Cleanup: Absorb spill with an inert material (e.g. vermiculite, dry sand, earth, cloth, or fleece) and place in a non-combustible container for reclamation or disposal. Do not flush to sewer. Clean contaminated surface thoroughly. Residues from spills can be diluted with water and neutralized with a weakly acidic material. Never return spills in original containers for reuse. 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, drink, or smoke. Keep away from incompatible materials (see Section 10). Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Use caution when opening product container, as pressure buildup may occur. Containers of this material may be hazardous when empty, as they retain product residues. Observe all warnings and precautions listed for this product. As with all bases, never add water directly to this product. Instead, add product to water to prevent violent eruption of the solution.

Storage: Store in a cool, dry, ventilated area. Keep out of direct sunlight. Store in a segregated and approved area away from heat and incompatible materials (see Section 10). Store in original container. Do not store in metallic or pressure-sensitive containers. Keep containers tightly closed and upright. Keep away from food, drink, and animal foodstuffs. Keep out of the reach of children. Comply with all national, state, and local codes pertaining to the storage, handling, dispensing, and disposal of this product.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Limits:	Water:	No information found.
	Ammonia:	OSHA: PEL: 35 mg/m^3 ACGIH: TWA: 25 ppm STEL: 35 ppm
	Ammonium Chloride:	ACGIH: TWA: 10 mg/m^3 STEL: 20 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.

Personal Protective Measures:

Eye/Face Protection: Wear safety glasses with side shields or safety goggles. Wear a face shield. Maintain approved eye wash station and accessible rinse facilities in work area.

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

Respiratory Protection: An air-purifying, NIOSH-approved respirator with appropriate cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Use a full-face, positive-pressure, air-supplied respirator if there is any potential for an uncontrolled release, if exposure levels are unknown, or if any other circumstances exist where air-purifying respirators may not provide adequate protection.

Specific Requirements for Personal Protective Equipment: Ensure that glove material is compatible with this product. This information is available from glove manufacturers.

9. PHYSICAL AND CHEMICAL PROPERTIES

Unless otherwise indicated, all properties are given at 25 °C and standard pressure.

Appearance:	Colorless, transparent liquid.
Odor:	Ammoniac, pungent.
Odor Threshold:	5-50 ppm as ammonia.
Formula Weight:	Mixture.
pH:	9.4 – 10.1 at 25 °C
Melting/Freezing Point:	No information found.
Boiling Point/Range:	No information found.
Decomposition Temperature:	No information found.
Flash Point:	Not applicable.
Auto-ignition Temperature:	Not applicable.
Flammability:	Not flammable.
Flammability/Explosive Limits:	No information found.
Solubility:	Miscible with water.

Vapor Pressure:	No information found.
Vapor Density (Relative):	0.60 as ammonia (Air = 1)
Specific Gravity:	0.980 – 1.01 (Water = 1)
Evaporation Rate:	No information found.
Viscosity:	No information found.
Partition Coefficient (n-octanol/water):	No information found.

10. STABILITY AND REACTIVITY

Reactivity Data:	No information found.
Chemical Stability:	Product may release ammonia vapor over time or in elevated thermal conditions.
Conditions to Avoid:	Heat, direct sunlight, incompatible materials.
Incompatible Materials:	Strong acids, oxidizers, metals, halogens.
Hazardous Decomposition Products:	Ammonia, nitrogen oxides.
Possibility of Hazardous Reactions:	May react vigorously, violently, or explosively with the incompatible materials listed above. Excessive thermal conditions may yield pressurized ammonia vapor. Combustion of ammonia vapor will yield nitrogen oxides.
Hazardous Polymerization:	Will not occur.

11. TOXICOLOGICAL INFORMATION

Routes of Exposure:	Inhalation, ingestion, skin contact, eye contact.	
Acute Effects:	Harmful if swallowed, inhaled, or exposed to the skin or eyes. Corrosive. Liquid and vapors may cause burns to the eyes, skin, respiratory tract, and gastrointestinal tract. May enter lungs if swallowed or vomited.	
Chronic Effects:	Prolonged or repeated exposure may cause tissue damage, inflammation, and mutagenic effects.	
Toxicological Data:	Water:	Not applicable.
	Ammonia:	LD_{50} Oral, Rat: 350 mg/kg Corrosive to skin and eyes based on animal data. May be mutagenic based on animal data.
	Ammonium Chloride:	LD_{50} Oral, Rat: 1650 mg/kg Causes eye irritation based on animal data.
Symptoms of Exposure:	Irritation, burning, coughing, sneezing, choking sensation, hoarseness, difficulty breathing, shock, headache, nausea, vomiting, diarrhea.	
Carcinogenic Effects:	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.	

12. ECOLOGICAL INFORMATION

Ecotoxicological Data:

Water:

Not applicable.

Ammonia:

EC_{50}, Water Flea (Daphnia magna):	0.66 mg/L 48 h

Ammonium Chloride:

EC_{50}, Water Flea (Daphnia magna):	161 mg/L 48 h
LC_{50}, Fathead Minnow (Pimephales promelas):	1.51 mg/L 96 h
LC_{50}, Rainbow Trout (Oncorhynchus mykiss):	3.98 mg/L 96 h

Persistence and Degradability: No information found.

Environmental Effects: Harmful to aquatic organisms. May adversely affect pH of aquatic ecosystems. Avoid exposure to the environment.

13. DISPOSAL INFORMATION

Disposal Instructions: All wastes must be handled in accordance with local, state, and federal regulations. Minimize exposure to product waste (see Section 8). Do not dispose unused waste down drains or into sewers.

Contaminated Packaging: Because 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: UN3266

Proper Shipping Name: Corrosive liquid, acidic, inorganic, n.o.s. (Ammonia)

Hazard Class: 8

Packing Group: III

ERG Number: 154

Environmental Hazard Regulations: No information found.

Other Transport Precautions: No information found.

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: All components of this product are on the U.S. TSCA Inventory.

U.S. EPCRA (SARA Title III):

Section 302: Ammonia

Sections 311/312:

Hazard Category	List (Yes/No)
Section 311 – Hazardous Chemical	Yes
Immediate Hazard	Yes
Delayed Hazard	No
Fire Hazard	No
Pressure Hazard	No
Reactivity Hazard	No

Section 313: Ammonium Hydroxide

CERCLA Reportable Quantities: Ammonium Hydroxide: 1000 lb

International Inventories:

Country or Region	Inventory Name	On Inventory (Yes/No)*
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
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

*A "Yes" indicates that the listed components of this product comply with the inventory requirements administered by the governing country or region.

16. OTHER INFORMATION

Disclaimer: Rocky Mountain Reagents, Inc. provides the information in this Safety Data Sheet in the belief that it is reliable but assumes no responsibility for its completeness or accuracy. The physical properties reported in this SDS are obtained from literature and do not constitute product specifications. Rocky Mountain Reagents, Inc. makes and gives no representations or warranties with respect to the information contained herein or the product to which it refers, whether express, implied, or statutory, including without limitation, warranties of accuracy, completeness, merchantability, non-infringement, performance, safety, suitability, stability, and fitness for a particular purpose. No warranty against infringement of any patent, copyright or trademark is made or implied. This SDS is intended only as a guide to the appropriate handling of the material by a properly trained person. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. Accordingly, Rocky Mountain Reagents, Inc. assumes no liability whatsoever for the use of or reliance upon this information including results obtained, incidental or consequential damages, or lost profits.

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Reason for Revision: Updated property information in Section 9 and DOT information in Section 14 over 05/18/2015 version.