SECTION 1 : Identification of the substance/mixture and of the supplier

Product name: Hardness Buffer Solution

Manufacturer/Supplier Trade name:

Manufacturer/Supplier Article number: ANDHA7405-A

Recommended uses of the product and restrictions on use:

Manufacturer Details:
   AquaPhoenix Scientific, Inc  
   9 Barnhart Drive, Hanover, PA 17331  
   (717) 632-1291

Supplier Details:
   Anderson Chemical Company  
   325 South David Avenue, Litchfield, MN 55355  
   (320) 693-2477

Emergency telephone number:
   Anderson Chemical Company  Emergency Telephone No.: (800) 255-3924

SECTION 2 : Hazards identification

Classification of the substance or mixture:

- **Corrosive**
  - Skin corrosion, category 1B

- **Environmentally Damaging**
  - Acute hazards to the aquatic environment, category 1

- **Irritant**
  - Eye irritation, category 2A
  - Acute toxicity (oral, dermal, inhalation), category 4
  - Specific target organ toxicity following single exposure, category 3

Acute Tox. 4
Eye Irrit. 2
STOT SE 3
AcAq Tox 1
Skin Corr. 1B

Signal word: Danger

Hazard statements:
- Causes severe skin burns and eye damage
- May cause respiratory irritation
- Harmful if swallowed
- Causes serious eye irritation
- Very toxic to aquatic life

Precautionary statements:
- If medical advice is needed, have product container or label at hand
- Keep out of reach of children
- Read label before use
Do not breathe dust/fume/gas/mist/vapours/spray
Wash … thoroughly after handling
Avoid release to the environment
Use personal protective equipment as required
Wear protective gloves/protective clothing/eye protection/face protection
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing
Rinse mouth
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing
If eye irritation persists get medical advice/attention
IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
Immediately call a POISON CENTER or doctor/physician
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
Collect spillage
Specific treatment (see supplemental first aid instructions on this label)
Wash contaminated clothing before reuse
Store locked up
Store in a dry place
Store in a well ventilated place. Keep container tightly closed
Dispose of contents/container to ...

Combustible Dust Hazard: :
May form combustible dust concentrations in air (during processing).

Other Non-GHS Classification:

SECTION 3 : Composition/information on ingredients

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS 1336-21-6, Ammonium Hydroxide, ACS</td>
<td>50.34 %</td>
</tr>
<tr>
<td>CAS 12125-02-9, Ammonium Chloride</td>
<td>6.76 %</td>
</tr>
</tbody>
</table>
SECTION 4: First aid measures

Description of first aid measures

After inhalation: Move exposed individual to fresh air. Loosen clothing as necessary and position individual in a comfortable position. If breathing difficult, give oxygen. Get medical assistance if cough or other symptoms appear. Loosen clothing as necessary and position individual in a comfortable position. Give artificial respiration if necessary.

After skin contact: Wash affected area with soap and water. Seek medical advice if discomfort or irritation persists. Wash affected area with soap and water. Rinse/flush exposed skin gently using water for 15-20 minutes. Get medical assistance.

After eye contact: Protect unexposed eye. Remove contact lens(es) if able to do so during rinsing. Rinse or flush exposed eye gently using water for 15-20 minutes. Immediately get medical assistance.

After swallowing: Rinse mouth thoroughly. Have exposed individual drink sips of water. Dilute mouth with water or milk after rinsing. Get medical assistance. Do not induce vomiting. Never give anything by mouth to an unconscious person. Seek medical attention if irritation, discomfort, or vomiting persists.

Most important symptoms and effects, both acute and delayed:

Shortness of breath. Nausea, Headache, Irritation;

Indication of any immediate medical attention and special treatment needed:

If seeking medical attention, provide SDS document to physician. If seeking medical attention, provide SDS document to physician. If seeking medical attention, provide SDS document to physician. Physician should treat symptomatically.

SECTION 5: Firefighting measures

Extinguishing media

Suitable extinguishing agents: Use appropriate fire suppression agents for adjacent combustible materials or sources of ignition. Use water, dry chemical, chemical foam, carbon dioxide, or alcohol-resistant foam.

For safety reasons unsuitable extinguishing agents:

Special hazards arising from the substance or mixture:

Combustion products may include carbon oxides or other toxic vapors. Thermal decomposition can lead to release of irritating gases and vapors.

Advice for firefighters:

Protective equipment: Wear protective eyeware, gloves, and clothing.

Additional information (precautions): Ensure adequate ventilation. Avoid contact with skin, eyes, and clothing. Avoid generating dust. Do not inhale gases, fumes, dust, mist, vapor, and aerosols.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Ensure adequate ventilation. When necessary use NIOSH approved breathing equipment.

Environmental precautions:

Prevent from reaching drains, sewer or waterway. Do not let product enter drains.

Methods and material for containment and cleaning up:
If necessary use trained response staff or contractor. Wear protective eyewear, gloves, and clothing. Refer to Section 8. Clean up spills immediately observing precautions. Sweep up and containerize for disposal. Always obey local regulations. Dispose of empty containers as unused product. Refer to Section 13. Absorb with suitable material. Follow good hygiene procedures when handling chemical materials. Refer to Section 8. Wear protective eyewear, gloves, and clothing. Refer to Section 8. Always obey local regulations. For disposal instructions refer to Section 13. If necessary use trained response staff or contractor. Sweep up and shovel. Keep in suitable closed containers for disposal.

Reference to other sections:

**SECTION 7 : Handling and storage**

**Precautions for safe handling:**
Wash hands after handling. Use only in well ventilated areas. Avoid contact with eyes, skin, and clothing. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Do not eat, drink, smoke, or use personal products when handling chemical substances. Minimize dust generation and accumulation. Wash hands after handling. Wear protective eyewear, gloves, and clothing. Refer to Section 8. Do not eat, drink, smoke, or use personal products when handling chemical substances.

**Conditions for safe storage, including any incompatibilities:**

**SECTION 8 : Exposure controls/personal protection**

**Control Parameters:**
- 1336-21-6, Ammonium Hydroxide, ACGIH TLV: 17 mg/m3
- 1336-21-6, Ammonium Hydroxide, OSHA PEL: 35 mg/m3
- 1336-21-6, Ammonium Hydroxide, OSHA TWA 25 ppm (18 mg/m3) ST 35 ppm (27 mg/m3)
- 12125-02-9, Ammonium Chloride, ACGIH TLV: 10 mg/m3

**Appropriate Engineering controls:** Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling. Normal ventilation is adequate. Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mists below the applicable workplace exposure limits (Occupational Exposure Limits-OELs) indicated above. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of use or handling. Ensure that dust-handling systems (exhaust ducts, dust collectors, vessels, and processing equipment) are designed to prevent the escape of dust into the work area.

**Respiratory protection:** Not required under normal conditions of use. Where risk assessment shows air-purifying respirators are refer to Section 6. When necessary use NIOSH approved breathing equipment.

**Protection of skin:** Select glove material impermeable and resistant to the substance. Select glove material based on rates of diffusion and degradation. Wear protective clothing.

**Eye protection:** Safety glasses with side shields or goggles.
General hygienic measures: Wash hands before breaks and at the end of work. Keep away from food, beverages and feed sources. Immediately remove all soiled and contaminated clothing. Do not inhale gases/fumes/dust/mist/vapor/aerosols. Avoid contact with the eyes and skin. Before wearing again wash contaminated clothing. Perform routine housekeeping to prevent dust generation.

SECTION 9 : Physical and chemical properties

<table>
<thead>
<tr>
<th>Appearance (physical state, color):</th>
<th>Clear, colorless liquid.</th>
<th>Explosion limit lower:</th>
<th>Not Determined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odor:</td>
<td>Ammonia-like</td>
<td>Explosion limit upper:</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Odor threshold:</td>
<td>Not Determined</td>
<td>Vapor pressure:</td>
<td>Not Determined</td>
</tr>
<tr>
<td>pH-value:</td>
<td>Not Determined</td>
<td>Vapor density:</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Melting/Freezing point:</td>
<td>Not Determined</td>
<td>Relative density:</td>
<td>Approx 1</td>
</tr>
<tr>
<td>Boiling point/Boiling range:</td>
<td>Not Determined</td>
<td>Solubilities:</td>
<td>Infinite solubility in water.</td>
</tr>
<tr>
<td>Flash point (closed cup):</td>
<td>Not Determined</td>
<td>Partition coefficient (n-octanol/water):</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Evaporation rate:</td>
<td>Not Determined</td>
<td>Auto/Self-ignition temperature:</td>
<td>Not Determined</td>
</tr>
<tr>
<td>Flammability (solid, gaseous):</td>
<td>Not Determined</td>
<td>Decomposition temperature:</td>
<td>Not Determined</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b. Dynamic: Not Determined</td>
</tr>
</tbody>
</table>

SECTION 10 : Stability and reactivity

Reactivity: None under normal processing.
Chemical stability: Stable under normal conditions.
Possible hazardous reactions: Reacts explosively with potassium chlorate or bromine trifluoride. Reacts violently with bromide pentafluoride, ammonium compounds, nitrates, and iodine heptafluoride. Hazardous decomposition products formed under fire conditions.

Conditions to avoid:

SECTION 11 : Toxicological information

Acute Toxicity:

| Oral:     | LD50: 350 mg/kg (rat) | Ammonium Hydroxide (1336-21-6) |
| Oral:     | LD50: 1650 mg/kg (rat) | Ammonium Chloride (12125-02-9) |
| Oral:     | LD50: 2000 mg/kg (rat) | Disodium Anhydrous (6381-92-6) |

Chronic Toxicity: No additional information.
Safety Data Sheet
according to 29CFR1910/1200 and GHS Rev. 3

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Hardness Buffer Solution

**Corrosion Irritation:** No additional information.

<table>
<thead>
<tr>
<th>Sensitization:</th>
<th>No additional information.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single Target Organ (STOT):</td>
<td>No additional information.</td>
</tr>
<tr>
<td>Numerical Measures:</td>
<td>No additional information.</td>
</tr>
<tr>
<td>Carcinogenicity:</td>
<td>No additional information.</td>
</tr>
<tr>
<td>Mutagenicity:</td>
<td>No additional information.</td>
</tr>
<tr>
<td>Reproductive Toxicity:</td>
<td>No additional information.</td>
</tr>
</tbody>
</table>

SECTION 12: Ecological information

Ecotoxicity Persistence and degradability: Not persistent.
Bioaccumulative potential: No information available. Not readily biodegradable.
Mobility in soil:
Other adverse effects:

SECTION 13: Disposal considerations

Waste disposal recommendations:
Dilute with water and flush to sewer. Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations. Ensure complete and accurate classification. Do not allow product to reach sewage system or open water. Offer surplus and non-recyclable solutions to a licensed disposal company. Dispose of empty containers as unused product. It is the responsibility of the waste generator to properly characterize all waste materials according to applicable regulatory entities (US 40CFR262.11).

SECTION 14: Transport information

UN-Number
2672

UN proper shipping name
Ammonia Solution,

Transport hazard class(es)

- Class: 8 Corrosive substances

Packing group: III

Environmental hazard:

Transport in bulk:

Special precautions for user:

SECTION 15: Regulatory information

United States (USA)

SARA Section 311/312 (Specific toxic chemical listings):
None of the ingredients is listed

SARA Section 313 (Specific toxic chemical listings):
None of the ingredients is listed

**RCRA (hazardous waste code):**
None of the ingredients is listed

**TSCA (Toxic Substances Control Act):**
29932-54-5 Not Regulated.

**CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act):**
1336-21-6 Ammonium Hydroxide 1000 lbs
12125-02-9 Ammonium Chloride 5000 lbs

**Proposition 65 (California):**

Chemicals known to cause cancer:
None of the ingredients is listed

Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed

Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed

Chemicals known to cause developmental toxicity:
None of the ingredients is listed

**Canada**

**Canadian Domestic Substances List (DSL):**
12125-02-9 Not Regulated.
29932-54-5 Not Regulated.

**Canadian NPRI Ingredient Disclosure list (limit 0.1%):**
None of the ingredients is listed

**Canadian NPRI Ingredient Disclosure list (limit 1%):**
None of the ingredients is listed

**SECTION 16 : Other information**

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations. The responsibility to provide a safe workplace remains with the user. The user should consider the health hazards and safety information contained herein as a guide and should take those precautions required in an individual operation to instruct employees and develop work practice procedures for a safe work environment. The information contained herein is, to the best of our knowledge and belief, accurate. However, since the conditions of handling and use are beyond our control, we make no guarantee of results, and assume no liability for damages incurred by the use of this material. It is the responsibility of the user to comply with all applicable laws and regulations applicable to this material.

**GHS Full Text Phrases:**

**Abbreviations and acronyms:**

IMDG: International Maritime Code for Dangerous Goods
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
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HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
DNEL: Derived No-Effect Level (REACH)
IMDG: International Maritime Code for Dangerous Goods
PNEC: Predicted No-Effect Concentration (REACH)
CFR: Code of Federal Regulations (USA)
PNEC: Predicted No-Effect Concentration (REACH)
SARA: Superfund Amendments and Reauthorization Act (USA)
RCRA: Resource Conservation and Recovery Act (USA)
TSCA: Toxic Substances Control Act (USA)
NPRI: National Pollutant Release Inventory (Canada)
DOT: US Department of Transportation
IATA: International Air Transport Association
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstracts Service (division of the American Chemical Society)
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