SAFETY DATA SHEET
AMMONIACAL SILVER SOLUTION

Section 1 - Chemical Product and Company Identification

SDS Name: Ammoniacal Silver Solution
Catalog Numbers: SO-134
Company Identification: ROWLEY BIOCHEMICAL
10 ELECTRONICS AVENUE
DANVERS, MA 01923
For information, call: 978-739-4883
Emergency Number: 800-424-9300
For CHEMTREC assistance, call: 800-424-9300

Section 2 - Hazards Identification

GHS Classifications
HEALTH HAZARDS

H302-Acute Oral Toxicity: 4
H315-Skin Corrosion/Skin Irritation: 2
H320-Eye damage/Irritation: 2BS

PHYSICAL HAZARDS

H290-Corrosive to Metals: 1

ENVIRONMENTAL HAZARDS

Aquatic acute environmental Hazards: Not classified
Chronic environmental Hazards: Not classified

Pictograms or Hazard symbols and Hazard statement.

Warning: Causes skin irritation.
Causes eye irritation.
Harmful If swallowed.
**Precautionary Statement**

H315  
P264 - Wash thoroughly after handling.  
P280 - Wear protective gloves.  
P302+P352 - IF ON SKIN: Wash with plenty of soap and water.  
P332+P313 - If skin irritation occurs: Get medical advice/attention.  
P362 - Take off contaminated clothing and wash before reuse

H320  
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337+P313 - If eye irritation persists: Get medical advice/attention.

H290  
P234 - Keep only in original container.  
P390 - Absorb spillage to prevent material damage.  
P406 - Store in corrosive resistant/container with a resistant inner liner.

H302  
P264 - Wash thoroughly after handling.  
P270 - Do not eat, drink, or smoke when using this product.  
P301 + P312 - If swallowed, call a physician if you feel unwell.  
P501 - Dispose of contents/container in accordance with local/regional/national/international regulations.  
P330 - Rinse mouth.

**Section 3 - Composition, Information on Ingredients**

<table>
<thead>
<tr>
<th>CAS#</th>
<th>Chemical Name</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>7761-88-8</td>
<td>Silver Nitrate</td>
<td>1.02 w/v</td>
</tr>
<tr>
<td>1336-21-6</td>
<td>Ammonium Hydroxide</td>
<td>Approx. 1 v/v</td>
</tr>
<tr>
<td>1310-73-2</td>
<td>Sodium Hydroxide</td>
<td>0.31 v/v</td>
</tr>
<tr>
<td>7732-18-5</td>
<td>Water</td>
<td>99 v/v</td>
</tr>
</tbody>
</table>

**Section 4 - First Aid Measures**

**Eye Exposure**: In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

**Dermal Exposure**: In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes.

**Oral Exposure**: If Swallowing seek immediate medical advice.

**Inhalation Exposure**: If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.
Section 5 - Fire Fighting Measures

Firefighters should wear proper protective clothing and self contained breathing apparatus with full piece operated in positive pressure mode to prevent contact with skin and eyes. **Extinguishing Media:** Use water spray, dry chemical powder, or appropriate foam. **Flash Point:** N/A

**NFPA Rating:** (estimated) Health: 1; Flammability: 0; Instability: 0

Section 6 - Accidental Release Measures

**Procedure(s) of Personal Precaution(s):**
Wear protective gear.

**Methods for Cleaning up:** Absorb with sand, earth or vermiculite. Carefully sweep up and containerize for proper disposal.

Section 7 - Handling and Storage

Use care when handling. Wash thoroughly after handling. Store capped at room temperature. Keep away from incompatible materials.

Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

**Personal Protective Equipment**

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.
Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: Clear
Odor: Ammonia
pH: 13.8 (29% solution)
Vapor Pressure: 115 @ 20C for 10% solution; 580 @ 20C for 28% solution.
Vapor Density: 0.60 NH3
Evaporation Rate: N/A
Viscosity: N/A
Boiling Point: 118 C
Solubility: Infinitely soluble

Section 10 - Stability and Reactivity

Chemical Stability: Stable under ordinary conditions of use and storage. Heat and sunlight can contribute to instability.
Conditions to Avoid: Heat, freezing.
Incompatibilities with Other Materials: Chromic Acid, ethylene glycol, perchloric acid, phosphorous trichloride, oxidizers, sodium peroxide, strong caustics, most metals (except aluminum), carbonates, hydroxides, oxides, and phosphates.
Hazardous Decomposition Products: Carbon monoxide, irritating and toxic fumes.
Hazardous Polymerization: Will not occur.

Section 11 - Toxicological Information

RTECS#:

LD50/LC50:
CAS#1336-21-6
Rat LD50: 350mg/kg
Carcinogenicity:
CAS#1336-21-6: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

LD50/LC50:
CAS# 1310-73-2:
Skin, rabbit: 500 mg/24H severe
Eye, rabbit: 50 ug/24H, investigated as a mutagen
Carcinogenicity:
CAS# 1310-73-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65
**LD50/LC50:**
CAS#: 7761-88-8 Silver Nitrate ORAL (LD50): Acute: 1173mg/kg [Rat] 50mg/kg [Mouse] 473mg/kg [Guinea pig]
LC50: Not Listed

**Carcinogenicity:**
CAS#7761-88-8 : Not listed by ACGIH, IARC, NTP, or CA Prop 65.

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**Section 12 - Ecological Information**

**Ecotoxicity:**

CAS#1336-21-6. This material is expected to be slightly toxic to aquatic life. The LC50 0.1ppm 24 hours [Rainbow trout] 8.2mg/l 96 hours [Fathead minnow]. 0.1 ppm 48 hours [Bluegill]

**Environmental:** When released into the air, this material may be moderately degraded by reaction with photochemically produced hydroxyl radicals.

**Physical:** No information available.
**Other:** No information available.

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**Section 13 - Disposal Considerations**

**Appropriate method of disposal of substance or preparation:**
Handled as hazardous waste and sent to an RCRA approved incinerator or disposed in an RCRA approved wasted facility.

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**Section 14 - Transport Information**

**DOT**
Non-Regulated

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**Section 15 - Regulatory Information**

Canada Regulatory Information
WHMIS Classification: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.

**European/International Regulations**
European Labeling in Accordance with EC Directives
**Risk Phrases:**

R22 Harmful by inhalation, in contact with skin and if swallowed
R36/38 Irritating to eyes and skin

**Safety Phrases:**

S20/21 When using do not eat, drink or smoke
S2 Keep out of the reach of children.
S 7 Keep container tightly closed.
S 9 Keep container in a well-ventilated place

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**MSDS Creation Date:** 10/15/12

**Revision #1. YM 5/15/2014-Co-sign RC**

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