Section 1. Identification

1.1 Product identifier
Product name: Ammoniacal Silver Nitrate
Part no.: AR179, AR182
Validation date: 3/29/2019

1.2 Relevant identified uses of the substance or mixture and uses advised against
Material uses: Laboratory use
Container type: Dispenser Pack
AR179 // Ammoniacal Silver Nitrate // Artisan Reticulin-Nuclear Fast Red Stain Kit // 65 mL and 115 mL
AR182 // Ammoniacal Silver Nitrate // Artisan Reticulin-No Counterstain Kit // 115 mL
Reference number: SDS012

1.3 Details of the supplier of the safety data sheet
Supplier/Manufacturer: Dako North America, Inc.
6392 Via Real
Carpinteria, California 93013
United States
Tel: (805) 566-6655
www.Agilent.com
e-mail address of person responsible for this SDS: SDS@Agilent.com

1.4 Emergency telephone number
In case of emergency: CHEMTREC®: 1-800-424-9300

Section 2. Hazards identification

2.1 Classification of the substance or mixture
OSHA/HCS status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture
H314 SKIN CORROSION - Category 1B
H318 SERIOUS EYE DAMAGE - Category 1
H373 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (blood system, lungs, skin) - Category 2
H400 AQUATIC HAZARD (ACUTE) - Category 1
H410 AQUATIC HAZARD (LONG-TERM) - Category 1

Ingredients of unknown toxicity: Percentage of the mixture consisting of ingredient(s) of unknown acute dermal toxicity: 1 - 10%
Percentage of the mixture consisting of ingredient(s) of unknown acute inhalation toxicity: 1 - 10%

2.2 GHS label elements
Section 2. Hazards identification

Hazard pictograms:

Signal word: Danger

Hazard statements:
- H314 - Causes severe skin burns and eye damage.
- H373 - May cause damage to organs through prolonged or repeated exposure. (blood system, lungs, skin)
- H410 - Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention:
- P280 - Wear protective gloves. Wear eye or face protection. Wear protective clothing.
- P273 - Avoid release to the environment.
- P260 - Do not breathe vapor.
- P264 - Wash hands thoroughly after handling.

Response:
- P391 - Collect spillage.
- P314 - Get medical attention if you feel unwell.
- P304 + P340 + P310 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or physician.
- P301 + P310 + P330 + P331 - IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353 + P363 + P310 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician.
- P305 + P351 + P338 + P310 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

Storage:
- P405 - Store locked up.

Disposal:
- P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.

Supplemental label elements:
- Do not taste or swallow. Wash thoroughly after handling.

2.3 Other hazards:
- Hazards not otherwise classified: Causes digestive tract burns.

Section 3. Composition/information on ingredients

Substance/mixture: Mixture

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>%</th>
<th>CAS number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver nitrate</td>
<td>&lt;5</td>
<td>7761-88-8</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>≤2.9</td>
<td>1310-58-3</td>
</tr>
<tr>
<td>Ammonia</td>
<td>≤1.4</td>
<td>1336-21-6</td>
</tr>
</tbody>
</table>

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

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Section 4. First aid measures

4.1 Description of necessary first aid measures

Eye contact: Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

Inhalation: Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Skin contact: Get medical attention immediately. Call a poison center or physician. Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion: Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

4.2 Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact: Causes serious eye damage.
Inhalation: No known significant effects or critical hazards.
Skin contact: Causes severe burns.
Ingestion: Corrosive to the digestive tract. Causes burns.

Over-exposure signs/symptoms

Eye contact: Adverse symptoms may include the following: pain, watering, redness
Inhalation: No specific data.
Skin contact: Adverse symptoms may include the following: pain or irritation, redness, blistering may occur
Ingestion: Adverse symptoms may include the following: stomach pains

4.3 Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician: In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

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Section 4. First aid measures

Protection of first-aiders: No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

Specific treatments: No specific treatment.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media: None known.

5.2 Special hazards arising from the substance or mixture

Specific hazards arising from the chemical: In a fire or if heated, a pressure increase will occur and the container may burst. This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products: Decomposition products may include the following materials: nitrogen oxides metal oxide/oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

6.3 Methods and materials for containment and cleaning up

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Section 6. Accidental release measures

Methods for cleaning up: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 7. Handling and storage

7.1 Precautions for safe handling

Protective measures: Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities: Specific storage conditions: Please consult the label. Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

7.3 Specific end use(s)

Recommendations: Industrial applications, Professional applications.

Industrial sector specific solutions: Not applicable.

Section 8. Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredient name</th>
<th>Exposure limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver nitrate</td>
<td>ACGIH TLV (United States, 3/2018). TWA: 0.01 mg/m³, (as Ag) 8 hours.</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL 1989 (United States, 3/1989). TWA: 0.01 mg/m³, (as Ag) 8 hours.</td>
</tr>
<tr>
<td></td>
<td>NIOSH REL (United States, 10/2016). TWA: 0.01 mg/m³, (as Ag) 10 hours. Form:</td>
</tr>
<tr>
<td></td>
<td>METAL DUST AND SOLUBLE</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL (United States, 5/2018). TWA: 0.01 mg/m³, (as Ag) 8 hours. Form:</td>
</tr>
<tr>
<td></td>
<td>MEASURES</td>
</tr>
<tr>
<td></td>
<td>ACGIH TLV (United States, 3/2018). C: 2 mg/m³</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL 1989 (United States, 3/1989). CEIL: 2 mg/m³</td>
</tr>
<tr>
<td></td>
<td>NIOSH REL (United States, 10/2016). TWA: 2 mg/m³ 10 hours.</td>
</tr>
</tbody>
</table>

Potassium hydroxide

<table>
<thead>
<tr>
<th>Date of issue</th>
<th>03/29/2019</th>
</tr>
</thead>
</table>
Section 8. Exposure controls/personal protection

8.2 Exposure controls

Appropriate engineering controls: If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection: Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state: Liquid. [Clear.]
Color: Colorless.
Odor: Ammoniacal.
Odor threshold: Not available.
pH: Not available.
Melting point: Not available.
Boiling point: Not available.
Section 9. Physical and chemical properties

Flash point : Not available.
Evaporation rate : Not available.
Flammability (solid, gas) : Not applicable.
Lower and upper explosive (flammable) limits : Not available.
Vapor pressure : Not available.
Vapor density : Not available.
Relative density : Not available.
Solubility : Soluble in the following materials: cold water and hot water.
Partition coefficient: n-octanol/water : Not available.
Auto-ignition temperature : Not available.
Decomposition temperature : Not available.
Viscosity : Not available.

Section 10. Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.
10.2 Chemical stability : The product is stable.
10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.
10.4 Conditions to avoid : No specific data.
10.5 Incompatible materials : May react or be incompatible with oxidizing materials.
10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Dose</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver nitrate</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>1173 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>273 mg/kg</td>
<td>-</td>
</tr>
<tr>
<td>Ammonia</td>
<td>LD50 Oral</td>
<td>Rat</td>
<td>350 mg/kg</td>
<td>-</td>
</tr>
</tbody>
</table>

Irritation/Corrosion

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Score</th>
<th>Exposure</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver nitrate</td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>10 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>1 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 1 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Severe irritant</td>
<td>Guinea pig</td>
<td>-</td>
<td>24 hours 50 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>Eyes - Moderate irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 5 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>24 hours 50 milligrams</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Skin - Severe irritant</td>
<td>Guinea pig</td>
<td>-</td>
<td>24 hours 50 milligrams</td>
<td>-</td>
</tr>
<tr>
<td>Ammonia</td>
<td>Eyes - Severe irritant</td>
<td>Rabbit</td>
<td>-</td>
<td>250</td>
<td>-</td>
</tr>
</tbody>
</table>

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## Section 11. Toxicological information

<table>
<thead>
<tr>
<th></th>
<th>Eyes - Severe irritant</th>
<th>Rabbit</th>
<th>Micrograms 0.5 minutes 1 milligrams</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sensitization</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not available.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mutagenicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conclusion/Summary :</td>
<td>Not available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Carcinogenicity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conclusion/Summary :</td>
<td>Not available.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Classification</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Product/ingredient name</td>
<td>OSHA</td>
<td>IARC</td>
<td>NTP</td>
</tr>
<tr>
<td>Ammonia</td>
<td>-</td>
<td>2A</td>
<td>-</td>
</tr>
<tr>
<td>Silver nitrate</td>
<td>-</td>
<td>2A</td>
<td>-</td>
</tr>
</tbody>
</table>

**Reproductive toxicity**

Conclusion/Summary : Not available.

**Teratogenicity**

Conclusion/Summary : Not available.

Specific target organ toxicity (single exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonia</td>
<td>Category 3</td>
<td>Not applicable.</td>
<td>Respiratory tract irritation</td>
</tr>
</tbody>
</table>

Specific target organ toxicity (repeated exposure)

<table>
<thead>
<tr>
<th>Name</th>
<th>Category</th>
<th>Route of exposure</th>
<th>Target organs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver nitrate</td>
<td>Category 2</td>
<td>Not determined</td>
<td>blood system, lungs and skin</td>
</tr>
</tbody>
</table>

Aspiration hazard

Not available.

### Information on the likely routes of exposure

Routes of entry anticipated: Oral, Dermal, Inhalation.

### Potential acute health effects

- **Eye contact** : Causes serious eye damage.
- **Inhalation** : No known significant effects or critical hazards.
- **Skin contact** : Causes severe burns.
- **Ingestion** : Corrosive to the digestive tract. Causes burns.

### Symptoms related to the physical, chemical and toxicological characteristics

- **Eye contact** : Adverse symptoms may include the following: pain, watering, redness
- **Inhalation** : No specific data.

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Section 11. Toxicological information

Skin contact: Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Ingestion: Adverse symptoms may include the following:
stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

**Short term exposure**

- **Potential immediate effects**: Not available.
- **Potential delayed effects**: Not available.

**Long term exposure**

- **Potential immediate effects**: Not available.
- **Potential delayed effects**: Not available.

**Potential chronic health effects**

- **General**: May cause damage to organs through prolonged or repeated exposure.
- **Carcinogenicity**: No known significant effects or critical hazards.
- **Mutagenicity**: No known significant effects or critical hazards.
- **Teratogenicity**: No known significant effects or critical hazards.
- **Developmental effects**: No known significant effects or critical hazards.
- **Fertility effects**: No known significant effects or critical hazards.

**Numerical measures of toxicity**

### Acute toxicity estimates

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Oral (mg/kg)</th>
<th>Dermal (mg/kg)</th>
<th>Inhalation (gases) (ppm)</th>
<th>Inhalation (vapors) (mg/l)</th>
<th>Inhalation (dusts and mists) (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammoniacal Silver Nitrate</td>
<td>7356.6</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Silver nitrate</td>
<td>1173</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>273</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Ammonia</td>
<td>350</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Section 12. Ecological information

**12.1 Toxicity**

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>Result</th>
<th>Species</th>
<th>Exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver nitrate</td>
<td>Acute EC50 0.0026 ppm Fresh water</td>
<td>Algae - Pseudokirchneriella subcapitata</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Acute EC50 2 ng/L Marine water</td>
<td>Crustaceans - Acartia tonsa - Adult</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 0.18 µg/l Fresh water</td>
<td>Daphnia - Daphnia magna - Neonate</td>
<td>48 hours</td>
</tr>
<tr>
<td></td>
<td>Acute LC50 0.4 µg/l Fresh water</td>
<td>Fish - Pimephales promelas</td>
<td>96 hours</td>
</tr>
<tr>
<td></td>
<td>Chronic IC10 2 µg/l Fresh water</td>
<td>Algae - Staurastrum cristatum</td>
<td>4 days</td>
</tr>
<tr>
<td></td>
<td>Chronic NOEC 0.9 µg/l Fresh water</td>
<td>Crustaceans - Hyalella azteca - Adult</td>
<td>21 days</td>
</tr>
</tbody>
</table>

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### Section 12. Ecological information

#### 12.2 Persistence and degradability

Not available.

#### 12.3 Bioaccumulative potential

<table>
<thead>
<tr>
<th>Product/ingredient name</th>
<th>LogP&lt;sub&gt;ow&lt;/sub&gt;</th>
<th>BCF</th>
<th>Potential</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver nitrate</td>
<td>-</td>
<td>70</td>
<td>low</td>
</tr>
</tbody>
</table>

#### 12.4 Mobility in soil

Soil/water partition coefficient (K<sub>OC</sub>) : Not available.

#### 12.5 Other adverse effects : No known significant effects or critical hazards.

### Section 13. Disposal considerations

#### 13.1 Waste treatment methods

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.
Section 14. Transport information

<table>
<thead>
<tr>
<th>DOT Classification</th>
<th>TDG Classification</th>
<th>Mexico Classification</th>
<th>IMDG</th>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN number</td>
<td>UN3266</td>
<td>UN3266</td>
<td>UN3266</td>
<td>UN3266</td>
</tr>
<tr>
<td>UN proper shipping name</td>
<td>Corrosive liquid, basic, inorganic, n.o.s. (Potassium hydroxide, Ammonia)</td>
<td>CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Potassium hydroxide, Ammonia)</td>
<td>LIQUIDO CORROSIVO, BASICO, INORGANICO, N.E.P. (Potassium hydroxide, Ammonia)</td>
<td>CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (Potassium hydroxide, Ammonia)</td>
</tr>
<tr>
<td>Transport hazard class(es)</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Packing group</td>
<td>II</td>
<td>II</td>
<td>II</td>
<td>II</td>
</tr>
<tr>
<td>Environmental hazards</td>
<td>No.</td>
<td>Yes.</td>
<td>Yes. The environmentally hazardous substance mark is not required.</td>
<td>Yes.</td>
</tr>
</tbody>
</table>

Additional information
If shipped as part of a kit "UN3316 (Chemical kit), Class 9, PG II" can be used. Precondition: UN3316 must be allowed for the remaining vials in same kit too.

**DOT Classification**
- **Reportable quantity** 25 lbs / 11.35 kg. Package sizes shipped in quantities less than the product reportable quantity are not subject to the RQ (reportable quantity) transportation requirements.
- **Limited quantity** Yes.
- **Quantity limitation** Passenger aircraft/rail: 1 L. Cargo aircraft: 30 L.
- **Special provisions** 386, B2, IB2, T11, TP2, TP27

**TDG Classification**
- Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.40-2.42 (Class 8), 2.7 (Marine pollutant mark).
- The marine pollutant mark is not required when transported by road or rail.
- **Explosive Limit and Limited Quantity Index** 1
- **Passenger Carrying Road or Rail Index** 1
- **Special provisions** 16

**Mexico Classification**
- **Special provisions** 274

**IMDG**
- The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
- **Emergency schedules** F-A, S-B
- **Special provisions** 274

**IATA**
- The environmentally hazardous substance mark may appear if required by other transportation regulations.
- **Quantity limitation** Passenger and Cargo Aircraft: 1 L. Packaging instructions: 851.
- Cargo Aircraft Only: 30 L. Packaging instructions: 855. Limited Quantities - Passenger Aircraft: 0.5 L. Packaging instructions: Y840.
- **Special provisions** A3, A803
Section 14. Transport information

Special precautions for user: Transport within user’s premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code: Not available.

Section 15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

U.S. Federal regulations

Clean Water Act (CWA) 307: Silver nitrate
Clean Water Act (CWA) 311: Silver nitrate; Potassium hydroxide; Ammonia

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs): Not listed
Clean Air Act Section 602 Class I Substances: Not listed
Clean Air Act Section 602 Class II Substances: Not listed
DEA List I Chemicals (Precursor Chemicals): Not listed
DEA List II Chemicals (Essential Chemicals): Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ: Not applicable.

SARA 311/312

Classification: SKIN CORROSION - Category 1B
SERIOUS EYE DAMAGE - Category 1
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (blood system, lungs, skin) - Category 2
HNOC - Corrosive to digestive tract

Composition/information on ingredients

<table>
<thead>
<tr>
<th>Name</th>
<th>%</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver nitrate</td>
<td>&lt;5</td>
<td>OXIDIZING SOLIDS - Category 2, ACUTE TOXICITY (oral) - Category 4, SKIN CORROSION - Category 1B, SERIOUS EYE DAMAGE - Category 1, SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (blood system, lungs, skin) - Category 2, HNOC - Corrosive to digestive tract</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>≤2.9</td>
<td>CORROSIVE TO METALS - Category 1, ACUTE TOXICITY (oral) - Category 3, SKIN CORROSION - Category 1A, SERIOUS EYE DAMAGE - Category 1, HNOC - Corrosive to digestive tract</td>
</tr>
<tr>
<td>Ammonia</td>
<td>≤1.4</td>
<td>ACUTE TOXICITY (oral) - Category 4, SKIN CORROSION - Category 1B, SERIOUS EYE DAMAGE - Category 1A, SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract)</td>
</tr>
</tbody>
</table>

Date of issue: 03/29/2019
Section 15. Regulatory information

Form R - Reporting requirements

<table>
<thead>
<tr>
<th>Product name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver nitrate</td>
<td>7761-88-8</td>
<td>&lt;5</td>
</tr>
<tr>
<td>Ammonia</td>
<td>1336-21-6</td>
<td>≤1.4</td>
</tr>
<tr>
<td>Supplier notification</td>
<td>Silver nitrate</td>
<td>7761-88-8</td>
</tr>
<tr>
<td></td>
<td>Ammonia</td>
<td>1336-21-6</td>
</tr>
</tbody>
</table>

Sara 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts: The following components are listed: SILVER NITRATE; POTASSIUM HYDROXIDE; AMMONIUM HYDROXIDE; AMMONIUM WATER

New York: The following components are listed: Silver nitrate; Potassium hydroxide; Ammonium hydroxide

New Jersey: The following components are listed: SILVER NITRATE; NITRIC ACID SILVER(1+) SALT; POTASSIUM HYDROXIDE; CAUSTIC POTASH; AMMONIUM HYDROXIDE

Pennsylvania: The following components are listed: NITRIC ACID SILVER(1+) SALT; POTASSIUM HYDROXIDE; AMMONIUM HYDROXIDE

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNCEC Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia: All components are listed or exempted.
Canada: All components are listed or exempted.
China: All components are listed or exempted.
Europe: All components are listed or exempted.
Japan: Japan inventory (ENCS): All components are listed or exempted. Japan inventory (ISHL): All components are listed or exempted.
New Zealand: All components are listed or exempted.
Philippines: All components are listed or exempted.
Republic of Korea: All components are listed or exempted.
Taiwan: All components are listed or exempted.
Thailand: Not determined.
Turkey: All components are listed or exempted.

Date of issue: 03/29/2019
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United States : All components are listed or exempted.
Viet Nam : Not determined.

Section 16. Other information

History

Date of issue : 03/29/2019
Date of previous issue : 06/09/2017
Version : 4

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
N/A = Not available
UN = United Nations

Procedure used to derive the classification

<table>
<thead>
<tr>
<th>Classification</th>
<th>Justification</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKIN CORROSION - Category 1B</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SERIOUS EYE DAMAGE - Category 1</td>
<td>Calculation method</td>
</tr>
<tr>
<td>SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) (blood system, lungs, skin) - Category 2</td>
<td>Calculation method</td>
</tr>
<tr>
<td>AQUATIC HAZARD (ACUTE) - Category 1</td>
<td>Calculation method</td>
</tr>
<tr>
<td>AQUATIC HAZARD (LONG-TERM) - Category 1</td>
<td>Calculation method</td>
</tr>
</tbody>
</table>

Notice to reader

Disclaimer: The information contained in this document is based on Dako state of knowledge at the time of preparation. No warranty as to its accurateness, completeness or suitability for a particular purpose is expressed or implied.