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## SAFETY DATA SHEET

### Silver Nitrate Solution (0.1 M)

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#### 1. Product Identification

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##### 1.1. Product Identifiers

- 1.1.1. Name:  
Silver nitrate solution (0.1 M)
- 1.1.2. Part Number:  
2199
- 1.1.3. CAS Number:  
7761-88-8

##### 1.2. Relevant Identified Uses and Uses Advised Against

- 1.2.1. Identified Uses:  
Laboratory and manufacturing use only

##### 1.3. Details of Supplier of Safety Data Sheet

- 1.3.1. Company:  
ARTMS Inc  
8575 Commerce Court  
Burnaby, BC, V5A 4N5  
Canada
- 1.3.2. Phone Number:  
+1 (604) 228 4016

##### 1.4. Emergency Contact Phone Number

- 1.4.1. Emergency Phone Number:  
1-888-CANUTEC (226-8832) (North American use) and/or 1-613-996-6666 (International use)

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#### 2. Hazard Identification

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##### 2.1. Classification of Substance/Mixture

- Skin corrosion/irritation (Category 2), H315
- Eye damage/irritation (Category 2A), H319
- Short-term (acute) aquatic hazard (Category 3), H402
- Long-term (chronic) aquatic hazard (Category 3), H412

## 2.2. GHS Label Elements, Including Primary Statements

2.2.1. Pictogram:



2.2.2. Signal Word:

Warning

2.2.3. Hazard statement(s):

H315 - Causes skin irritation

H319 - Causes serious eye irritation

H412 - Harmful to aquatic life with long lasting effects

2.2.4. Precautionary statement(s):

P264 - Wash exposed skin thoroughly after handling

P273 - Avoid release to the environment P280 - Wear eye protection, protective gloves

P302+P352 - IF ON SKIN: Wash with plenty of soap and water

P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P332+P313 - If skin irritation occurs: Get medical advice/attention

P337+P313 - If eye irritation persists: Get medical advice/attention

P362 - Take off contaminated clothing and wash it before reuse

P501 - Dispose of contents/container to comply with local, state and federal regulations

## 2.3. Hazards Not Otherwise Classified (HNOC) or covered by GHS

None

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## 3. Composition/Information on Ingredients

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### 3.1. Substances/Mixtures

3.1.1. Formula: AgNO<sub>3</sub>

Synonyms: Nitric acid, silver salt

3.1.2. Formula Weight: 169.87 g/mol

Substance	Composition (%)	CAS Number	EC Number	Classification
Water	98.3 %	7732-18-5	231-791-2	N/A
Silver Nitrate	1.7 %	7761-88-8	231-853-9	Ox. Sol. 2, H272

				Acute Tox. 4 (Oral), H302 Skin Corr. 1B, H314 Eye Dam. 1, H318 Aquatic Acute 1, H400 Aquatic Chronic 1, H410
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#### 4. First Aid Measures


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##### 4.1. Description of First Aid Measures

- 4.1.1. General Advice:  
Consult a physician if person begins to feel unwell. Show this safety data sheet to the doctor in attendance.
- 4.1.2. If inhaled:  
Allow person to breathe fresh air. Allow the person to rest. Consult a physician.
- 4.1.3. In case of skin contact:  
Wash off with plenty of soap and water. Wash contaminated clothing before reuse. Consult a physician if skin irritation occurs.
- 4.1.4. In case of eye contact:  
Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, contact an ophthalmologist.
- 4.1.5. If swallowed:  
Make person drink up to 2 glasses of water. Do NOT induce vomiting. Obtain emergency medical attention.

##### 4.2. Most Important Symptoms and Effects (Both Acute and Delayed)

- 4.2.1. If inhaled:  
May cause respiratory irritation.
- 4.2.2. In case of skin contact:  
Causes skin irritation, may stain the skin.
- 4.2.3. In case of eye contact:  
Causes serious eye irritation.
- 4.2.4. If swallowed:  
Will cause nausea, vomiting and diarrhea. Blue/grey skin discolouration and m methemoglobinemia may occur. Watch for changes in urine output.

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4.2.5. Chronic symptoms:  
Blue/grey skin discolouration and methemoglobinemia.

**4.3. Indication of and Immediate Medical Attention and Special Treatment Needed**

No data available.

**5. Fire Fighting Measures**

**5.1. Extinguishing Media**

- 5.1.1. Suitable extinguishing media  
Use foam, dry powder, carbon dioxide, light water spray or sand.
- 5.1.2. Unsuitable extinguishing media  
Do not use a heavy water stream.

**5.2. Special Hazards Arising from the Substance/Mixture**

Not a fire or explosion hazard.

**5.3. Advice for Firefighters**

Use water spray or fog for cooling exposed containers and prevent fire-fighting water from entering the environment. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

**5.4. Further Information**

Not applicable.

**6. Accidental Release Measures**

**6.1. Personal Precautions, Protective Equipment and Emergency Procedures**

Wear chemically protective gloves, lab coat or apron to prevent prolonged or repeated skin contact.

**6.2. Environmental Precautions**

Do not let product enter drains. Discharge into the environment must be avoided.

**6.3. Methods and Materials for Containment and Cleaning**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent and neutralizing material (e.g. Chemisorb® H<sup>+</sup>, Merck Art. No. 101595). Dispose of properly. Clean up affected area.

**6.4. Reference to Data Sheet Sections**

For disposal see section 13.

## 7. Handling and Storage

### 7.1. Precautions for Safe Handling

Wash hands and other exposed areas with mild soap and water before eating, drinking, smoking, or leaving the work area. Ventilate the process area properly to prevent formation of vapors. For precautions see section 2.2.

### 7.2. Conditions for Safe Storage, Including Any Incompatibilities

#### 7.2.1. Storage conditions

Store in original container in a cool, well ventilated place. Keep container closed when not in use.

#### 7.2.2. Incompatible products/materials/conditions

Avoid contact with chlorides, strong acids and strong bases.

Keep away from direct sunlight, sources of ignition and heat sources.

### 7.3. Specific End Use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

## 8. Exposure Controls/Personal Protection

### 8.1. Control Parameters

Component	CAS Number	Value	Control Parameters	Basis
Silver nitrate	7761-88-8	TWA	0.1 mg/m <sup>3</sup>	Canada. Alberta, Occupational Health and Safety Code (table 2: OEL)
		TWAEV	0.1 mg/m <sup>3</sup>	Québec. Regulation respecting occupational health and safety, Schedule 1, Part 1: Permissible exposure values for airborne contaminants
		TWA	0.1 mg/m <sup>3</sup>	Canada. British Columbia OEL
		STEL	0.1 mg/m <sup>3</sup>	Canada. British Columbia OEL
		TWA	0.1 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)


### 8.2. Exposure Controls

#### 8.2.1. Appropriate engineering controls:

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

#### 8.2.2. Personal Protective Equipment:

##### 8.2.2.1. Eye/face protection:

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Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

8.2.2.2. Skin protection:

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet [www.kcl.de](http://www.kcl.de)).

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:KCL 741 Dermatril® L

8.2.2.3. Body protection:

Protective clothing

8.2.2.4. Respiratory protection:

Required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

8.2.2.5. Control of environmental exposure:

Do not let product enter drains.

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## 9. Physical and Chemical Properties

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### 9.1. Information on Basic Physical and Chemical Properties

Property	Data/Value
Appearance	Liquid; Colorless
Odor	Odorless
Odor Threshold	No data available
pH	4 – 5 at 20°C (68°F)

Melting/Freezing Point	No data available
Initial Boiling Point and Range	No data available
Flash Point	Not applicable
Evaporation Rate	No data available
Flammability	No data available
Upper/Lower Flammability/Explosive Limits	No data available
Vapor Pressure	No data available
Vapor Density	No data available
Relative Density	1.01 g/cm <sup>3</sup> at 20°C (68°F)
Water Solubility	Soluble
Partition Coefficient: n-octanol/water	No data available
Auto-Ignition Temperature	Not applicable
Decomposition Temperature	No data available
Viscosity	No data available
Explosive Properties	No data available
Oxidizing Properties	No data available

**9.2. Other Safety Information**

No data available

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**10. Stability and Reactivity**

**10.1. Reactivity**

No data available


**10.2. Chemical Stability**

Sensitivity to light. The product is chemically stable under standard ambient conditions (room temperature).

**10.3. Possibility of Hazardous Reactions**

Violent reactions possible with the generally known reaction partners of water.



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**10.4. Conditions to Avoid**

Exposure to light.

**10.5. Incompatible Materials**

Aluminum, mild steel.

**10.6. Hazardous Decomposition Properties**

In the event of fire, see section 5.

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**11. Toxicology**

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**11.1. Information on Toxicological Effects**

11.1.1. Acute toxicity:

Acute toxicity estimate Oral - > 5,000 mg/kg


Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Possible symptoms: mucosal irritations

LD50 Oral - Rat - male and female - 3,804 mg/kg (OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - > 0.075 mg/l (OECD Test Guideline 403)

LD50 Dermal - Rat - male and female - > 2,000 mg/kg (OECD Test Guideline 402)

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11.1.2. Inhalation:

No data available

11.1.3. Dermal:

No data available

11.1.4. Skin corrosion/irritation:

Mixture causes skin irritation.

Skin - reconstructed human epidermis (RhE)

Result: Corrosive - 3 - 60 min (OECD Test Guideline 431) (Regulation (EC) No 1272/2008, Annex VI)

11.1.5. Serious eye damage/eye irritation:

Mixture causes serious eye irritation. Risk of permanent damage due to staining of the cornea.

11.1.6. Respiratory or skin sensitization:

No data available.

11.1.7. Germ cell mutagenicity:

Micronucleus test - Human lymphocytes

Result: negative

In vitro mammalian cell gene mutation test - mouse lymphoma cells

Result: Positive results were obtained in some in vitro tests.

11.1.8. Carcinogenicity:

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No data available.

OSHA: No data available.

11.1.9. Reproductive toxicity:

No data available.

11.1.10. Specific target organ toxicity – single exposure:

Acute oral toxicity - Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute inhalation toxicity - Possible symptoms; mucosal irritations

11.1.11. Specific target organ toxicity – repeated exposure:


No data available.

11.1.12. Aspiration hazard:

No data available.

11.1.13. Additional information:

Other dangerous properties cannot be excluded. Handle in accordance with good industrial hygiene and safety practice.

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## **12. Ecological Information**

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### **12.1. Toxicity**

No data available.

### **12.2. Persistence and Degradability**

No data available.

### **12.3. Bio-accumulative Potential**

No data available.

### **12.4. Mobility in Soil**

No data available.

### **12.5. Results of PBT and vPvB Assessment**

No data available.


### **12.6. Other Adverse Effects**

Toxicity to fish semi-static test

LC50 - Pimephales promelas (fathead minnow) - 0.0012 mg/l - 96 h (US-EPA)

Toxicity to daphnia and other aquatic invertebrates semi-static test

LC50 - Daphnia magna (Water flea) - 0.00022 mg/l - 48 h (ECHA)

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## 13. Disposal Considerations

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### 13.1. Waste Treatment Methods

#### 13.1.1. Product:

Waste material must be disposed of in accordance with the national and local restrictions. No mixing with other waste. Handle uncleaned containers like the product. See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers.

#### 13.1.2. Contaminated Packaging:

Dispose of packaging like product.

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## 14. Transport Information

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### 14.1. DOT (US)

UN number: 1760 Class: 8 Packing group: III

Proper shipping name: CORROSIVE LIQUID, N.O.S. (Silver nitrate)

Labels: 8

ERG Code: 154

Marine pollutant: no

### 14.2. IMDG

UN number: 1760 Class: 8 Packing group: III EMS-No: F-A, S-B


Proper shipping name: CORROSIVE LIQUID, N.O.S. (Silver nitrate)

Marine pollutant : yes

### 14.3. IATA

UN number: 1760 Class: 8 Packing group: III

Proper shipping name: Corrosive liquid, n.o.s. (Silver nitrate)

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**15. Regulatory Information**

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This product has been classified in accordance with the hazard criteria of the Hazardous Products Regulations (HPR) and the SDS contains all the information required by the HPR.

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**16. Other Information**

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**16.1. Further Information**

No data available.

**Disclaimer:**

**The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product regarding appropriate safety precautions. It does not represent any guarantee of the properties of the product. ARTMS Inc. shall not be held liable for any damage resulting from handling or from contact with the above product.**

**END OF SDS**