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Revision Number 1

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

**Product Identifier**

**Product Name/Catalog ID** AAAG1

**Other means of identification**

**Product Description** 1000 µg/mL Silver

**Recommended use of the chemical and restrictions on use**

**Recommended Use** Laboratory chemicals.

**Uses advised against** No information available

**Details of the supplier of the safety data sheet**

**Company**

Inorganic Ventures  
300 Technology Drive  
Christiansburg, VA 24073  
web: www.inorganicventures.com

**E-mail Address** info@inorganicventures.com

**Emergency Telephone Number**

Chemtrec 1-800-424-9300 (US)  
Canutec - 1-613-996-6666 (Canada)

## 2. HAZARDS IDENTIFICATION

**GHS**

**Classification**

Skin corrosion/irritation	Category 1 Sub-category A
Serious Eye Damage/Eye Irritation	Category 1

**Label Elements**

**Danger**

**Hazard Statements**

Causes severe skin burns and eye damage



**Appearance** Clear / Colorless

**Physical State** Liquid

**Odor** Odorless

**Precautionary Statements - Prevention**

Do not breathe dust/fume/gas/mist/vapors/spray  
 Wash face, hands and any exposed skin thoroughly after handling  
 Wear protective gloves/protective clothing/eye protection/face protection

**Precautionary Statements - Response****Eyes**

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 doctor/physician

**Skin**

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
 Wash contaminated clothing before reuse

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 Immediately call a POISON CENTER or doctor/physician

**Ingestion**

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

**Precautionary Statements - Storage**

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

• Very toxic to aquatic life with long lasting effects

**Other Information**

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
Nitric acid	7697-37-2	5
Silver	7440-22-4	0.1

### 4. FIRST AID MEASURES

**First Aid Measures**

<b>General Advice</b>	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.
<b>Eye Contact</b>	Immediate medical attention is required. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area.
<b>Skin Contact</b>	Immediate medical attention is required. Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes.
<b>Inhalation</b>	Call a physician or Poison Control Center immediately. Move to fresh air. If breathing is difficult, give oxygen. If breathing is irregular or stopped, administer artificial respiration. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.
<b>Ingestion</b>	Immediate medical attention is required. Do NOT induce vomiting. Clean mouth with water and afterwards drink plenty of water. Never give anything by mouth to an unconscious person.
<b>Protection of First-aiders</b>	Use personal protective equipment. Avoid contact with skin, eyes and clothing.

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**Most important symptoms and effects, both acute and delayed**

**Most Important Symptoms/Effects** Burn. Difficulty breathing.

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician** Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Do not give chemical antidotes. Asphyxia from glottal edema may occur. Marked decrease in blood pressure may occur with moist rales, frothy sputum, and high pulse pressure

## 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

**Unsuitable Extinguishing Media** Decomposition by contact with water may generate vapors which can be ignited by heat or open flame.

**Special Exposure Hazards Arising from the Substance/Mixture**

The product causes burns of eyes, skin and mucous membranes Thermal decomposition can lead to release of irritating gases and vapors

**Explosion Data**

**Sensitivity to Mechanical Impact** None.

**Sensitivity to Static Discharge** None.

**Protective Equipment and Precautions for Firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures**

**Personal Precautions** Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Use personal protective equipment. Do not get in eyes, on skin, or on clothing.

**Environmental Precautions**

**Environmental Precautions** Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. Prevent product from entering drains. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.

**Methods and material for containment and cleaning up**

**Methods for Cleaning up** Dam up. Neutralise with lime milk; soda. Soak up with inert absorbent material. Sweep up and shovel into suitable containers for disposal. After cleaning, flush away traces with water.

## 7. HANDLING AND STORAGE

**Precautions for Safe Handling**

**Handling** Wear personal protective equipment. Ensure adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Do not get in eyes, on skin, or on clothing. Do not breathe vapors or spray mist.

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

**Technical measures/Precautions** Keep containers tightly closed in a dry, cool and well-ventilated place.

**Incompatible Products** None known based on information supplied.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

#### **Exposure Guidelines**

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Nitric acid 7697-37-2	4 ppm STEL TWA: 2 ppm	TWA: 2 ppm TWA: 5 mg/m <sup>3</sup> (vacated) TWA: 2 ppm (vacated) TWA: 5 mg/m <sup>3</sup> (vacated) STEL: 4 ppm (vacated) STEL: 10 mg/m <sup>3</sup>	IDLH: 25 ppm TWA: 2 ppm TWA: 5 mg/m <sup>3</sup> STEL: 4 ppm STEL: 10 mg/m <sup>3</sup>
Silver 7440-22-4	TWA: 0.1 mg/m <sup>3</sup>	TWA: 0.01 mg/m <sup>3</sup> (vacated) TWA: 0.01 mg/m <sup>3</sup>	IDLH: 10 mg/m <sup>3</sup> TWA: 0.01 mg/m <sup>3</sup>

#### **Appropriate engineering controls**

**Engineering Measures** Ensure adequate ventilation, especially in confined areas.

#### **Individual protection measures, such as personal protective equipment**

**Eye Protection** Tightly fitting safety goggles Face-shield  
**Skin and Body Protection** Impervious clothing Boots Chemical resistant apron  
**Hand Protection** Impervious gloves  
**Respiratory Protection** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn  
**Hygiene Measures** Handle in accordance with good industrial hygiene and safety practice. Wear suitable gloves and eye/face protection. Avoid contact with skin, eyes and clothing. Do not eat, drink or smoke when using this product. Wash hands before breaks and immediately after handling the product. Remove and wash contaminated clothing before re-use. Contaminated work clothing should not be allowed out of the workplace. Provide regular cleaning of equipment, work area and clothing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

<b>Physical State</b>	Liquid
<b>Appearance</b>	Clear / Colorless
<b>Odor</b>	Odorless
<b>Property</b>	<b>Values</b>
<b>pH VALUE</b>	No data available
<b>Melting Point/Range</b>	No data available
<b>Boiling Point/Range</b>	100 °C
<b>Evaporation rate</b>	No data available
<b>Flammability (solid, gas)</b>	No data available
<b>Vapor Pressure</b>	No data available
<b>Vapor Density</b>	No data available
<b>Relative Density</b>	No data available
<b>Specific Gravity</b>	No data available
<b>Water Solubility</b>	Miscible
<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	No data available
<b>Decomposition Temperature</b>	No data available
<b>Viscosity</b>	No data available
<b>Explosive Properties</b>	No information available
<b>Oxidizing Properties</b>	No information available

### Other information

**VOC Content**

No information available.

**10. STABILITY AND REACTIVITY****Reactivity**

No data available.

**Chemical Stability**

Stable under recommended storage conditions.

**Possibility of Hazardous Reactions**

None under normal processing.

**Hazardous Polymerization**

Hazardous polymerization does not occur.

**Conditions to Avoid**

None known.

**Incompatible Materials**

Reducing agents

**Hazardous Decomposition Products**

Nitrogen oxides (NOx).

**11. TOXICOLOGICAL INFORMATION****Information on likely routes of exposure****Product Information**

The product causes burns of eyes, skin and mucous membranes.

**Inhalation**

Contact with moist mucous membranes of the respiratory system can cause caustic condition resulting in burns. Aspiration may cause pulmonary edema and pneumonitis. Causes burns. Corrosive to respiratory system. Inhaled corrosive substances can lead to a toxic edema of the lungs. Silver in the form of a finely divided dust may cause discoloration in contact with skin, and argyrosis in case of inhalation.

**Eye Contact**

Causes burns. Silver in the form of a finely divided dust may cause discoloration in contact with skin, and argyrosis in case of inhalation.

**Skin Contact**

Causes burns. Silver in the form of a finely divided dust may cause discoloration in contact with skin, and argyrosis in case of inhalation.

**Ingestion**

Can burn mouth, throat, and stomach. Ingestion of soluble silver salts may cause argyria, characterized by permanent blue-gray pigmentation of the skin, mucous membranes, and eyes.

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Nitric acid 7697-37-2 ( 5 )	-	-	= 130 mg/m <sup>3</sup> ( Rat ) 4 h = 67 ppm ( Rat ) 4 h
Silver 7440-22-4 ( 0.1 )	> 2000 mg/kg ( Rat )	-	-

**Information on toxicological effects****Symptoms**

No information available.

**Delayed and immediate effects as well as chronic effects from short and long-term exposure****Sensitization**

No information available.

**Mutagenic Effects**

No information available.

**Carcinogenic effects**

Chemical Name	ACGIH	IARC	NTP	OSHA
Nitric acid 7697-37-2		Group 2A		X

<b>Reproductive Toxicity</b>	No information available.
<b>STOT - single exposure</b>	No information available.
<b>STOT - repeated exposure</b>	No information available.
<b>Target Organ Effects</b>	Skin, Eyes, Respiratory system.
<b>Aspiration Hazard</b>	No information available.

#### Numerical measures of toxicity - Product Information

The following values are calculated based on chapter 3.1 of the GHS document .

<b>ATEmix (inhalation-dust/mist)</b>	436 mg/L
<b>ATEmix (inhalation-vapor)</b>	1340 mg/L

## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

#### Ecotoxicity effects

0% of the mixture consists of component(s) of unknown hazards to the aquatic environment

Chemical Name	Toxicity to Algae	Toxicity to Fish	Microtox	Daphnia Magna (Water Flea)
Nitric acid 7697-37-2		72: 96 h Gambusia affinis mg/L LC50		
Silver 7440-22-4		0.00155 - 0.00293: 96 h Pimephales promelas mg/L LC50 static 0.0062: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.064: 96 h Lepomis macrochirus mg/L LC50 static		EC50 48 h = 0.00024 mg/L (Daphnia magna)

#### Persistence and Degradability

No information available.

#### Bioaccumulation/Accumulation

No information available.

Chemical Name	Log Pow
Nitric acid 7697-37-2	-2.3

#### Other Adverse Effects

## 13. DISPOSAL CONSIDERATIONS

### Waste treatment methods

<b>Waste from Residues/Unused Products</b>	Dispose of in accordance with federal, state and local regulations
<b>Contaminated Packaging</b>	Do not re-use empty containers.

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
Silver 7440-22-4		Included in waste stream: F039	5.0 mg/L regulatory level	

Chemical Name	California Hazardous Waste Status
Nitric acid 7697-37-2	Toxic Corrosive Ignitable
Silver 7440-22-4	Toxic

## 14. TRANSPORT INFORMATION

### IMDG/IMO

14.1. UN-No	UN3264
14.2. Proper Shipping Name	Corrosive liquid, acidic, inorganic, n.o.s
14.3. Hazard Class	8
14.4. Packing Group	III
Description	Not applicable.
14.5. Marine Pollutant	None.
14.6. Special Provisions	None
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	No information available.

### RID

14.1. UN-No	UN3264
14.2. Proper Shipping Name	Corrosive liquid, acidic, inorganic, n.o.s
14.3. Hazard Class	8
14.4. Packing Group	III
Description	Not applicable.
14.5. Environmental hazard	None
14.6. Special Provisions	None

### ADR

14.1. UN-No	UN3264
14.2. Proper Shipping Name	Corrosive liquid, acidic, inorganic, n.o.s
14.3. Hazard Class	8
14.4. Packing Group	III
Description	Not applicable.
14.5. Environmental hazard	None
14.6. Special Provisions	None

### ICAO

14.1. UN-No	UN3264
14.2. Proper Shipping Name	Corrosive liquid, acidic, inorganic, n.o.s
14.3. Hazard Class	8
14.4. Packing Group	III
Description	Not applicable.
14.5. Environmental hazard	None
14.6. Special Provisions	None

### IATA-DGR

14.1. UN-No	UN3264
14.2. Proper Shipping Name	Corrosive liquid, acidic, inorganic, n.o.s
14.3. Hazard Class	8
14.4. Packing Group	III
Description	Not applicable
14.5. Environmental hazard	None
14.6. Special Provisions	None

## 15. REGULATORY INFORMATION

### International Inventories

TSCA	Complies
DSL/NDSL	Complies
EINECS/ELINCS	Complies
ENCS	Complies
IECSC	Complies
KECL	Complies
PICCS	Complies

**AICS** Complies

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory  
 DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List  
 EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances  
 ENCS - Japan Existing and New Chemical Substances  
 IECSC - China Inventory of Existing Chemical Substances  
 KECL - Korean Existing and Evaluated Chemical Substances  
 PICCS - Philippines Inventory of Chemicals and Chemical Substances  
 AICS - Australian Inventory of Chemical Substances

### U.S. Federal Regulations

#### SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

#### SARA 311/312 Hazard Categories

<b>Acute Health Hazard</b>	No
<b>Chronic Health Hazard</b>	No
<b>Fire Hazard</b>	No
<b>Sudden Release of Pressure Hazard</b>	No
<b>Reactive Hazard</b>	No

#### Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Nitric acid 7697-37-2	1000 lb			X
Silver 7440-22-4		X	X	

#### CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302)

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Nitric acid 7697-37-2	1000 lb	1000 lb	RQ 1000 lb final RQ RQ 454 kg final RQ
Silver 7440-22-4	1000 lb 1 lb		RQ 1000 lb final RQ RQ 454 kg final RQ RQ 1 lb final RQ RQ 0.454 kg final RQ

### U.S. State Regulations

#### California Proposition 65

This product does not contain any Proposition 65 chemicals.

### U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Nitric acid 7697-37-2	X	X	X
Silver 7440-22-4	X	X	X

#### U.S. EPA Label Information

## 16. OTHER INFORMATION



**Revision Date** 13-Aug-2015

**Revision Note**

No information available

**Disclaimer**

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

**End of MSDS**