

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/26/2021

Reviewed on 05/26/2021

1 Identification

- **Product identifier**
- **Trade name:** Silver Nitrate 0.01 N in IPA
NIST Traceable, ASTM D3227-16
- **Article number:** BP164
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586
- **Information department:**
Technical Coordinator
Sherman Nelson shermann@aquasolutions.org
Technical Coordinator
Sherman Nelson shermann@aquasolutions.org
- **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666



2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS07

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT SE 3 H336 May cause drowsiness or dizziness.

- **Label elements**
- **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS02



GHS07

- **Signal word** Danger
- **Hazard-determining components of labeling:**
Isopropanol
- **Hazard statements**
Highly flammable liquid and vapor.
Causes serious eye irritation.
May cause drowsiness or dizziness.

(Contd. on page 2)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/26/2021

Reviewed on 05/26/2021

Trade name: Silver Nitrate 0.01 N in IPA
NIST Traceable, ASTM D3227-16

(Contd. of page 1)

· **Precautionary statements**

- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
 Ground/bond container and receiving equipment.
 Use explosion-proof electrical/ventilating/lighting/equipment.
 Use only non-sparking tools.
 Take precautionary measures against static discharge.
 Avoid breathing dust/fume/gas/mist/vapors/spray
 Wash thoroughly after handling.
 Use only outdoors or in a well-ventilated area.
 Wear protective gloves/protective clothing/eye protection/face protection.
 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
 Continue rinsing.
 Call a poison center/doctor if you feel unwell.
 If eye irritation persists: Get medical advice/attention.
 In case of fire: Use for extinction: CO₂, powder or water spray.
 Store in a well-ventilated place. Keep container tightly closed.
 Store in a well-ventilated place. Keep cool.
 Store locked up.
 Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



· **HMIS-ratings (scale 0 - 4)**



· **Other hazards**

· **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.
 · **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 67-63-0	Isopropanol	98.515%
CAS: 7761-88-8	Silver Nitrate	0.216%

· **Table of Nonhazardous Ingredients**

CAS: 7732-18-5	Water	1.27%
----------------	-------	-------

US

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/26/2021

Reviewed on 05/26/2021

Trade name: Silver Nitrate 0.01 N in IPA
NIST Traceable, ASTM D3227-16

(Contd. of page 2)

4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** Supply fresh air; consult doctor in case of complaints.
- **After skin contact:** Immediately rinse with water.
- **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:** If symptoms persist consult doctor.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** No further relevant information available.
- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

- **PAC-1:**

CAS: 67-63-0	Isopropanol	400 ppm
CAS: 7761-88-8	Silver Nitrate	0.047 mg/m ³

- **PAC-2:**

CAS: 67-63-0	Isopropanol	2000* ppm
CAS: 7761-88-8	Silver Nitrate	0.9 mg/m ³

- **PAC-3:**

CAS: 67-63-0	Isopropanol	12000** ppm
--------------	-------------	-------------

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/26/2021

Reviewed on 05/26/2021

Trade name: Silver Nitrate 0.01 N in IPA
NIST Traceable, ASTM D3227-16

CAS: 7761-88-8 Silver Nitrate

(Contd. of page 3)

5.4 mg/m³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
 Ensure good ventilation/exhaustion at the workplace.
 Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
 Keep ignition sources away - Do not smoke.
 Protect against electrostatic charges.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store in a cool location.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
 Keep receptacle tightly sealed.
 Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
 The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
 At this time, the remaining constituent has no known exposure limits.

CAS: 67-63-0 Isopropanol

PEL	Long-term value: 980 mg/m ³ , 400 ppm
REL	Short-term value: 1225 mg/m ³ , 500 ppm Long-term value: 980 mg/m ³ , 400 ppm
TLV	Short-term value: 984 mg/m ³ , 400 ppm Long-term value: 492 mg/m ³ , 200 ppm
BEI	

- **Ingredients with biological limit values:**

CAS: 67-63-0 Isopropanol

BEI	40 mg/L LD50 Intraperitoneal: urine Time: end of shift at end of workweek LD50: Acetone (background, nonspecific)
-----	--

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 Keep away from foodstuffs, beverages and feed.
 Immediately remove all soiled and contaminated clothing.

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/26/2021

Reviewed on 05/26/2021

Trade name: Silver Nitrate 0.01 N in IPA
NIST Traceable, ASTM D3227-16

(Contd. of page 4)

Wash hands before breaks and at the end of work.

Avoid contact with the eyes.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

· **Body protection:** Protective work clothing

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

· Form:	Liquid
· Color:	Clear
· Odor:	Alcohol
· Odor threshold:	Not determined.

· **pH-value:** Not determined.

· **Change in condition**

· Melting point/Melting range:	-89.5 °C (-129.1 °F)
· Boiling point/Boiling range:	Undetermined.

· **Flash point:** 13 °C (55.4 °F)

· **Flammability (solid, gaseous):** Not applicable.

· **Ignition temperature:** 425 °C (797 °F)

· **Decomposition temperature:** Not determined.

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/26/2021

Reviewed on 05/26/2021

Trade name: Silver Nitrate 0.01 N in IPA
NIST Traceable, ASTM D3227-16

(Contd. of page 5)

· Auto igniting:	Product is not selfigniting.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	2 Vol %
Upper:	12 Vol %
· Vapor pressure at 20 °C (68 °F):	43 hPa (32.3 mm Hg)
· Density at 20 °C (68 °F):	0.79059 g/cm ³ (6.59747 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Fully miscible.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
Organic solvents:	98.5 %
Water:	1.3 %
VOC content:	98.51 %
	778.8 g/l / 6.50 lb/gal
Solids content:	0.2 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· LD/LC50 values that are relevant for classification:		
ATE (Acute Toxicity Estimate)		
Oral	LD50	23,180 mg/kg (mouse)

(Contd. on page 7)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/26/2021

Reviewed on 05/26/2021

Trade name: Silver Nitrate 0.01 N in IPA
NIST Traceable, ASTM D3227-16

(Contd. of page 6)

CAS: 7761-88-8 Silver Nitrate		
Oral	LD50	5 mg/kg (ATE)

- **Primary irritant effect:**

- **on the skin:** No irritant effect.

- **on the eye:** Irritating effect.

- **Sensitization:** No sensitizing effects known.

- **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:
 Irritant

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

CAS: 67-63-0	Isopropanol	3
--------------	-------------	---

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information

- **Toxicity**

- **Aquatic toxicity:** No further relevant information available.

- **Persistence and degradability:** No further relevant information available.

- **Behavior in environmental systems:**

- **Bioaccumulative potential:** No further relevant information available.

- **Mobility in soil:** No further relevant information available.

- **Additional ecological information:**

- **General notes:**

Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **Other adverse effects:** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**

- **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

- **Uncleaned packagings:**

- **Recommendation:** Disposal must be made according to official regulations.

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

US

(Contd. on page 8)

Safety Data Sheet

acc. to OSHA HCS



Printing date 05/26/2021

Reviewed on 05/26/2021

Trade name: Silver Nitrate 0.01 N in IPA
NIST Traceable, ASTM D3227-16

(Contd. of page 7)

14 Transport information

<ul style="list-style-type: none"> · UN-Number · DOT, IMDG, IATA 	<p style="margin: 0;">UN1993</p>
<ul style="list-style-type: none"> · UN proper shipping name · DOT · IMDG, IATA 	<p style="margin: 0;">Flammable liquids, n.o.s. (Isopropanol) FLAMMABLE LIQUID, N.O.S. (Isopropanol)</p>
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT 	<div style="text-align: center;">  <p style="margin: 0;">3</p> </div>
<ul style="list-style-type: none"> · Class · Label 	<p style="margin: 0;">3 Flammable liquids 3</p>
<ul style="list-style-type: none"> · IMDG, IATA 	<div style="text-align: center;">  <p style="margin: 0;">3</p> </div>
<ul style="list-style-type: none"> · Class · Label 	<p style="margin: 0;">3 Flammable liquids 3</p>
<ul style="list-style-type: none"> · Packing group · DOT, IMDG, IATA 	<p style="margin: 0;">II</p>
<ul style="list-style-type: none"> · Environmental hazards: · Marine pollutant: 	<p style="margin: 0;">No</p>
<ul style="list-style-type: none"> · Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Segregation groups · Stowage Category 	<p style="margin: 0;">Warning: Flammable liquids 33 F-E, S-E Heavy metals and their salts (including their organometallic compounds) B</p>
<ul style="list-style-type: none"> · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code 	<p style="margin: 0;">Not applicable.</p>
<ul style="list-style-type: none"> · Transport/Additional information: · DOT · Quantity limitations 	<p style="margin: 0;">On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L</p>
<ul style="list-style-type: none"> · IMDG · Limited quantities (LQ) · Excepted quantities (EQ) 	<p style="margin: 0;">1L Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml</p>

(Contd. on page 9)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/26/2021

Reviewed on 05/26/2021

Trade name: Silver Nitrate 0.01 N in IPA
NIST Traceable, ASTM D3227-16

(Contd. of page 8)

· **UN "Model Regulation":** UN 1993 FLAMMABLE LIQUID, N.O.S. (ISOPROPANOL), 3, II

15 Regulatory information

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

No further relevant information available.

· **Sara**

· **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**

CAS: 67-63-0	Isopropanol
CAS: 7761-88-8	Silver Nitrate

· **TSCA (Toxic Substances Control Act):**

Isopropanol	ACTIVE
Water	ACTIVE
Silver Nitrate	ACTIVE

· **Hazardous Air Pollutants**

None of the ingredients is listed.

· **Proposition 65**

· **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.

· **Carcinogenic categories**

· **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

· **TLV (Threshold Limit Value)**

CAS: 67-63-0	Isopropanol	A4
--------------	-------------	----

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02 GHS07

· **Signal word** *Danger*

(Contd. on page 10)

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/26/2021

Reviewed on 05/26/2021

Trade name: Silver Nitrate 0.01 N in IPA
NIST Traceable, ASTM D3227-16

(Contd. of page 9)

- **Hazard-determining components of labeling:**

- Isopropanol

- **Hazard statements**

- Highly flammable liquid and vapor.

- Causes serious eye irritation.

- May cause drowsiness or dizziness.

- **Precautionary statements**

- Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

- Ground/bond container and receiving equipment.

- Use explosion-proof electrical/ventilating/lighting/equipment.

- Use only non-sparking tools.

- Take precautionary measures against static discharge.

- Avoid breathing dust/fume/gas/mist/vapors/spray

- Wash thoroughly after handling.

- Use only outdoors or in a well-ventilated area.

- Wear protective gloves/protective clothing/eye protection/face protection.

- If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

- IF INHALED: Remove person to fresh air and keep comfortable for breathing.

- If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

- Continue rinsing.

- Call a poison center/doctor if you feel unwell.

- If eye irritation persists: Get medical advice/attention.

- In case of fire: Use for extinction: CO₂, powder or water spray.

- Store in a well-ventilated place. Keep container tightly closed.

- Store in a well-ventilated place. Keep cool.

- Store locked up.

- Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Environment protection department.

- **Contact:**

- **Date of preparation / last revision**

- Revision 1.0 05-07-2021: updated hazard information. STN

- Creation date for SDS 07-11-2014. STN

- 05/26/2021 / -

- **Abbreviations and acronyms:**

- IMDG: International Maritime Code for Dangerous Goods

- DOT: US Department of Transportation

- IATA: International Air Transport Association

- EINECS: European Inventory of Existing Commercial Chemical Substances

- ELINCS: European List of Notified Chemical Substances

- CAS: Chemical Abstracts Service (division of the American Chemical Society)

- NFPA: National Fire Protection Association (USA)

- HMIS: Hazardous Materials Identification System (USA)

- VOC: Volatile Organic Compounds (USA, EU)

- LC50: Lethal concentration, 50 percent

- LD50: Lethal dose, 50 percent

- PBT: Persistent, Bioaccumulative and Toxic

- vPvB: very Persistent and very Bioaccumulative

- NIOSH: National Institute for Occupational Safety

- OSHA: Occupational Safety & Health

(Contd. on page 11)

Safety Data Sheet
acc. to OSHA HCS

Printing date 05/26/2021

Reviewed on 05/26/2021

Trade name: Silver Nitrate 0.01 N in IPA
NIST Traceable, ASTM D3227-16

(Contd. of page 10)

*TLV: Threshold Limit Value**PEL: Permissible Exposure Limit**REL: Recommended Exposure Limit**BEI: Biological Exposure Limit**Flam. Liq. 2: Flammable liquids – Category 2**Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A**STOT SE 3: Specific target organ toxicity (single exposure) – Category 3*

US