

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/19/2024

Reviewed on 06/19/2024

1 Identification

- **Product identifier**
- **Trade name:** Silver Nitrate
Nitric Acid Reagent
- **Article number:** 8470
- **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**



GHS07

Skin Irritation 2 H315 Causes skin irritation.
Eye Irritation 2A H319 Causes serious eye irritation.

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



GHS07

- **Signal word** Warning
- **Hazard statements**
Causes skin irritation.
Causes serious eye irritation.
- **Precautionary statements**
Wash thoroughly after handling.
Wear protective gloves / eye protection / face protection.
If on skin: Wash with plenty of water.
Specific treatment (see on this label).
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing.
Take off contaminated clothing and wash it before reuse.
If skin irritation occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/19/2024

Reviewed on 06/19/2024

Trade name: Silver Nitrate
Nitric Acid Reagent

(Contd. of page 1)

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: 7761-88-8	Silver Nitrate	1.671%
CAS: 7697-37-2	Nitric Acid	0.148%

· **Table of Nonhazardous Ingredients**

CAS: 7732-18-5	Water	98.181%
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4 First-aid measures

- **Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.
- **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:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture** No further relevant information available.

(Contd. on page 3)

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/19/2024

Reviewed on 06/19/2024

Trade name: Silver Nitrate
Nitric Acid Reagent

(Contd. of page 2)

- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:**
 - Do not allow product to reach sewage system or any water course.
 - Inform respective authorities in case of seepage into water course or sewage system.
 - 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 section 13.
- **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: 7761-88-8	Silver Nitrate	0.047 mg/m ³
CAS: 7697-37-2	Nitric Acid	0.16 ppm

- **PAC-2:**

CAS: 7761-88-8	Silver Nitrate	0.9 mg/m ³
CAS: 7697-37-2	Nitric Acid	24 ppm

- **PAC-3:**

CAS: 7761-88-8	Silver Nitrate	5.4 mg/m ³
CAS: 7697-37-2	Nitric Acid	92 ppm

7 Handling and storage

- **Handling:**
- **Precautions for safe handling** No special precautions are necessary if used correctly.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **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 section 7.

(Contd. on page 4)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/19/2024

Reviewed on 06/19/2024

**Trade name: Silver Nitrate
Nitric Acid Reagent**

(Contd. of page 3)

- **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: 7697-37-2 Nitric Acid

PEL	Long-term value: 5 mg/m ³ , 2 ppm
REL	Short-term value: 10 mg/m ³ , 4 ppm Long-term value: 5 mg/m ³ , 2 ppm
TLV	Short-term value: (4) NIC-0.025 ppm Long-term value: (2) ppm NIC-A4

- **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.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

- **Breathing equipment:** Not required.

- **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

US

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 06/19/2024

Reviewed on 06/19/2024

Trade name: Silver Nitrate
Nitric Acid Reagent

(Contd. of page 4)

9 Physical and chemical properties

· <i>Information on basic physical and chemical properties</i>	
· <i>General Information</i>	
· <i>Appearance:</i>	
<i>Form:</i>	<i>Liquid</i>
<i>Color:</i>	<i>Clear</i>
· <i>Odor:</i>	<i>Odorless</i>
· <i>Odor threshold:</i>	<i>Not determined.</i>
· <i>pH-value:</i>	<i>Not determined.</i>
· <i>Change in condition</i>	
<i>Melting point/Melting range:</i>	<i>0 °C (32 °F)</i>
<i>Boiling point/Boiling range:</i>	<i>100 °C (212 °F)</i>
· <i>Flash point:</i>	<i>Not applicable.</i>
· <i>Flammability (solid, gaseous):</i>	<i>Not applicable.</i>
· <i>Decomposition temperature:</i>	<i>Not determined.</i>
· <i>Ignition temperature:</i>	<i>Product is not selfigniting.</i>
· <i>Danger of explosion:</i>	<i>Product does not present an explosion hazard.</i>
· <i>Explosion limits:</i>	
<i>Lower:</i>	<i>Not determined.</i>
<i>Upper:</i>	<i>Not determined.</i>
· <i>Vapor pressure at 20 °C (68 °F):</i>	<i>23 hPa (17.3 mm Hg)</i>
· <i>Density at 20 °C (68 °F):</i>	<i>1.01734 g/cm³ (8.4897 lbs/gal)</i>
· <i>Relative density</i>	<i>Not determined.</i>
· <i>Vapor density</i>	<i>Not determined.</i>
· <i>Evaporation rate</i>	<i>Not determined.</i>
· <i>Solubility in / Miscibility with</i>	
<i>Water:</i>	<i>Fully miscible.</i>
· <i>Partition coefficient (n-octanol/water):</i> <i>Not determined.</i>	
· <i>Viscosity:</i>	
<i>Dynamic:</i>	<i>Not determined.</i>
<i>Kinematic:</i>	<i>Not determined.</i>
· <i>Solvent content:</i>	
<i>Water:</i>	<i>98.2 %</i>
<i>VOC content:</i>	<i>0.00 %</i>
	<i>0.0 g/l / 0.00 lb/gal</i>
<i>Solids content:</i>	<i>1.7 %</i>
· <i>Other information</i>	<i>No further relevant information available.</i>

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.*

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

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Reviewed on 06/19/2024

Trade name: Silver Nitrate
Nitric Acid Reagent

(Contd. of page 5)

- **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	2,992 mg/kg (mouse)
Inhalative	LC50/4h	2,031 mg/l

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **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)**

None of the ingredients is listed.

- **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.

US

(Contd. on page 7)

Safety Data Sheet

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Reviewed on 06/19/2024

Trade name: Silver Nitrate
Nitric Acid Reagent

(Contd. of page 6)

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.

14 Transport information

· UN-Number	
· DOT, ADN, IMDG, IATA	Not regulated
· UN proper shipping name	
· DOT	Not regulated
	Not regulated
· ADN, IMDG, IATA	Not regulated
· Transport hazard class(es)	
· DOT	Not applicable
· Class	Not regulated
· ADN/R Class:	Not regulated
· Packing group	
· DOT, IMDG, IATA	Not regulated
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Not applicable.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· UN "Model Regulation":	Not regulated

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):	
CAS: 7697-37-2	Nitric Acid
· Section 313 (Specific toxic chemical listings):	
CAS: 7761-88-8	Silver Nitrate
CAS: 7697-37-2	Nitric Acid
· TSCA (Toxic Substances Control Act):	
Water	ACTIVE
Silver Nitrate	ACTIVE

(Contd. on page 8)

-US

Safety Data Sheet

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Trade name: Silver Nitrate
Nitric Acid Reagent

(Contd. of page 7)

Nitric Acid

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)**

None of the ingredients is listed.

· **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**



GHS07

· **Signal word** Warning

· **Hazard statements**

Causes skin irritation.

Causes serious eye irritation.

· **Precautionary statements**

Wash thoroughly after handling.

Wear protective gloves / eye protection / face protection.

If on skin: Wash with plenty of water.

Specific treatment (see on this label).

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

Continue rinsing.

Take off contaminated clothing and wash it before reuse.

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

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

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

US

(Contd. on page 9)

Safety Data Sheet

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Trade name: Silver Nitrate
Nitric Acid Reagent

(Contd. of page 8)

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:

· **Date of preparation / last revision**

Revision 0.1, 06/19/2024: Reviewed SDS for accuracy. MH/STN

Revision 0.0 Creation date for SDS 11-6-2020. STN

06/19/2024 / 1.0

· **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

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Skin Irritation 2: Skin corrosion/irritation – Category 2

Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A

· *** Data compared to the previous version altered.**