

Safety Data Sheet acc. to OSHA HCS (HazCom 2012)

Printing date 11/10/2022

Reviewed on 11/10/2022

1 Identification

- **Product identifier**
- **Trade name:** KS493 - 0.04N Silver Nitrate N/25
- **Catalogue number:** 56Z049398, 56L049397, 56U049397, 56L049398, 56U049398
- **Application of the substance / the mixture:** Reagent for water analysis
- **Manufacturer/Supplier:**
Tintometer Inc.
6456 Parkland Drive
Sarasota, FL 34243
USA
phone: (941) 756-6410
fax: (941) 727-9654
www.lovibond.us
Made in Germany
- **Emergency telephone number:** + 1 866 928 0789 (English, French, Spanish)

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS05 Corrosion

Corrosive to Metals 1 H290 May be corrosive to metals.



GHS09 Environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.

- **Label elements**

· **GHS label elements** The product is classified and labeled according to the Hazard Communication Standard (HCS).

- **Hazard pictograms**



GHS05



GHS09

- **Signal word** Warning

- **Hazard statements**

H290 May be corrosive to metals.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

- **Precautionary statements**

P273 Avoid release to the environment.

P234 Keep only in original container.

P391 Collect spillage.

- **Other hazards** No further relevant information available.

3 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** aqueous solution

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Composition and Information on Ingredients:

Percent ranges are used due to the confidential product information.

CAS: 7761-88-8	silver nitrate	0.25-<1%
EINECS: 231-853-9	⚠ Oxidizing Solids 2, H272; ⚠ Skin Corrosion 1B, H314; ⚠ Aquatic Acute 1, H400	
Index number: 047-001-00-2	(M=1000); Aquatic Chronic 1, H410 (M=100); ⚠ Acute Toxicity - Oral 4, H302	

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

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 wash with water and soap and rinse thoroughly.

· **After eye contact:**

Rinse opened eye for several minutes (at least 15 min) under running water. If symptoms persist, consult a doctor.

· **After swallowing:**

Rinse out mouth and then drink 1-2 glasses of water.

If symptoms persist consult doctor.

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

after resorption:

gastric or intestinal disorders

cardiovascular disorders

· **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**

The product is not combustible.

Formation of toxic gases is possible during heating or in case of fire.

In case of fire, the following can be released:

nitrous gases

· **Advice for firefighters**

· **Protective equipment:**

Wear self-contained respiratory protective device.

Wear fully protective suit.

· **Additional information**

Collect contaminated fire fighting water separately. It must not enter the sewage system.

Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

Ambient fire may liberate hazardous vapours.

6 Accidental release measures

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

· **Advice for non-emergency personnel:**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

· **Advice for emergency responders:** Protective equipment: see section 8

· **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.

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

Ensure adequate ventilation.

Absorb with liquid-binding material (sand, diatomite, universal binders).

Dispose contaminated material as waste according to item 13.

· **Reference to other sections**

See Section 8 for information on personal protection equipment.

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See Section 13 for disposal information.

7 Handling and storage

- **Precautions for safe handling**
- **Advice on safe handling:** No special precautions are necessary if used correctly.
- **Hygiene measures:**
Take off immediately all contaminated clothing.
Wash hands before breaks and at the end of work.
Do not eat, drink or smoke when using this product.
- **Conditions for safe storage, including any incompatibilities**
- **Requirements to be met by storerooms and receptacles:**
Store in a cool location.
Store only in the original receptacle.
- **Information about storage in one common storage facility:**
Store away from metals.
see chapter 10
- **Further information about storage conditions:**
Protect from heat and direct sunlight.
Store in the dark.
Protect from exposure to the light.
Protect from humidity and water.
- **Recommended storage temperature:** 20°C +/- 5°C (approx. 68°F)
- **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**

CAS: 7761-88-8 silver nitrate

PEL (USA)	Long-term value: 0.01 mg/m ³ as Ag
REL (USA)	Long-term value: 0.01 mg/m ³ as Ag
TLV (USA)	Long-term value: 0.01 mg/m ³ as Ag
EL (Canada)	Short-term value: 0.03 mg/m ³ Long-term value: 0.01 mg/m ³ as Ag

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Engineering measures:**
Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.
See item 7.
- **Personal protective equipment:**
Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled.
- **Breathing equipment:** Use respiratory protective device against the effects of fume/dust/aerosol.
- **Recommended filter device for short term use:** Filter ABEK
- **Protection of hands:**
Preventive skin protection by use of skin-protecting agents is recommended.
After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves**
Nitrile rubber, NBR
Recommended thickness of the material: ≥ 0.11 mm
- **Penetration time of glove material**
Value for the permeation: Level ≤ 1 (10 min)
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
- **Eye protection:**
Safety glasses

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use against the effects of fumes / dust

Use protective goggles that have been tested and approved in accordance with government standards (like NIOSH).

· **Body protection:** Protective work clothing· **Limitation and supervision of exposure into the environment:**

Avoid release to the environment.

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

* 9 Physical and chemical properties

· Information on basic physical and chemical properties

· **Appearance:**· **Form / Physical state:**

Liquid

· **Color:**

Colorless

· **Odor:**

Odorless

· **Odor threshold:**

Not applicable.

· **pH-value at 20°C (68°F):**

~6

· **Melting point/freezing point:**

0°C (32°F)

· **Initial boiling point and boiling range:**

100°C (212°F) (CAS: 7732-18-5 water)

· **Flash point:**

Not applicable.

· **Flammability (solid, gas):**

The product is not combustible.

· **Ignition temperature:**

Not applicable.

· **Decomposition temperature:**

Not determined.

· **Auto-ignition temperature:**

Product is not self-igniting.

· **Danger of explosion:**

Product does not present an explosion hazard.

· **Flammability or explosive limits:**· **Lower:**

Not applicable.

· **Upper:**

Not applicable.

· **Oxidizing properties:**

none

· **Vapor Pressure at 20°C (68°F):**

23 hPa (17.3 mm Hg)

· **Density at 20°C (68°F):**1.02 g/cm³ (8.51 lbs/gal)· **Relative density:**

Not determined.

· **Vapor density:**

Not determined.

· **Evaporation rate:**

Not determined.

· **Solubility(ies)**· **Water:**

Fully miscible.

· **Partition coefficient (n-octanol/water):**

Not applicable (mixture).

· **Viscosity:**· **Kinematic:**

Not determined.

· **Other information**· **Solids content:**

< 1 %

· **Solvent content:**· **Water:**

> 99 %

· Information with regard to physical hazard classes

· **Corrosion Rate of Metal:**· **Corrosion rate (steel)**

KS493 - 0.04N Silver Nitrate N/25 > 7,14 mm/a

10 Stability and reactivity

· **Reactivity** see section "Possibility of hazardous reactions"· **Chemical stability** Stable at ambient temperature (room temperature).· **Possibility of hazardous reactions**

Corrosive action on metals.

Violent reactions possible with:

The generally known reaction partners of water.

· **Conditions to avoid** Exposure to light· **Incompatible materials:** No further relevant information available.

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· **Hazardous decomposition products:** see section 5

11 Toxicological information

· **Information on toxicological effects**· **Acute toxicity:** Based on available data, the classification criteria are not met.· **LD/LC50 values that are relevant for classification:****CAS: 7761-88-8 silver nitrate**

Oral	LD50	1173 mg/kg (rat) (RTECS)
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· **Primary irritant effect:**· **on the skin:** Based on available data, the classification criteria are not met.· **on the eye:** Based on available data, the classification criteria are not met.· **Sensitization:** Based on available data, the classification criteria are not met.· **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.

· **Other information:** see section 8 / 15· **Synergistic Products:** None· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction):** The following statements refer to the mixture:· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.· **Carcinogenicity** Based on available data, the classification criteria are not met.· **Reproductive toxicity** Based on available data, the classification criteria are not met.· **STOT (specific target organ toxicity) -single exposure** Based on available data, the classification criteria are not met.· **STOT (specific target organ toxicity) -repeated exposure** Based on available data, the classification criteria are not met.· **Aspiration hazard** Based on available data, the classification criteria are not met.· **Additional toxicological information:****CAS: 7761-88-8 silver nitrate**

(source: GESTIS)

Main toxic effects:

Acute: Irritant to caustic effect on mucous membranes and skin.

After ingestion of high doses: gastrointestinal complaints, disorders of the cardiovascular system and disorders of the central nervous system.

chronic: silver deposits in the tissues (argyria)

Further information:

Depending on the concentration, dust and solutions have an irritating to highly caustic effect on mucous membranes and skin. 5-50% solutions caused severe eye damage, in some cases permanent corneal opacity.

12 Ecological information

· **Toxicity**· **Aquatic toxicity:****CAS: 7761-88-8 silver nitrate**

LC50	0.00022 mg/l/48h (Daphnia magna) (OECD 202) (Merck, Ag-Ion)
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EC10	0.0021 mg/l (Daphnia magna) (21) (Registrant, ECHA)
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NOEC	0.00037 mg/l (fathhead minnow) (OECD 210) (Merck)
LC50	0.0012 mg/l/96h (fathhead minnow) (US-EPA) (Merck, Ag-Ion)

- **Persistence and degradability** .
- **Other information:**
Mixture of inorganic compounds.
Methods for the determination of biodegradability are not applicable to inorganic substances.
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Other adverse effects** Avoid transfer into the environment.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
Hand over to hazardous waste disposers.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport information

<ul style="list-style-type: none"> · UN-Number · DOT, IMDG, IATA 	UN1760
<ul style="list-style-type: none"> · UN proper shipping name · DOT · IMDG · IATA 	Corrosive liquids, n.o.s. (Silver nitrate) CORROSIVE LIQUID, N.O.S. (SILVER NITRATE), MARINE POLLUTANT CORROSIVE LIQUID, N.O.S. (SILVER NITRATE)
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT 	<div style="text-align: center;">  <p>CORROSIVE 8</p> </div>
<ul style="list-style-type: none"> · Class · Label 	8 Corrosive substances 8
<ul style="list-style-type: none"> · IMDG 	<div style="text-align: center;">  </div>
<ul style="list-style-type: none"> · Class · Label 	8 Corrosive substances 8
<ul style="list-style-type: none"> · IATA 	<div style="text-align: center;">  </div>
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· Packing group · DOT, IMDG, IATA	III
· Environmental hazards: · Marine pollutant:	Symbol (fish and tree)
· Special precautions for user · Hazard identification number (Kemler code): · EMS Number: · Segregation groups	Warning: Corrosive substances 80 F-A, S-B (SGG7) Heavy metals and their salts (including their organometallic compounds)
· Stowage Category · Stowage Code	A SW2 Clear of living quarters.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information: · DOT · Quantity limitations	On passenger aircraft/rail: 5 L On cargo aircraft only: 60 L
· IMDG · Limited quantities (LQ) · Excepted quantities (EQ)	5L Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml

15 Regulatory information

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

· Section 355 (Extremely hazardous substances):	None of the ingredients is listed.
· Section 313 (Specific toxic chemical listings):	CAS: 7761-88-8 silver nitrate
· TSCA (Toxic Substances Control Act):	All components have the value 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.
· New Jersey Right-to-Know List:	CAS: 7761-88-8 silver nitrate
· New Jersey Special Hazardous Substance List:	CAS: 7761-88-8 silver nitrate
· Pennsylvania Right-to-Know List:	CAS: 7761-88-8 silver nitrate
· Pennsylvania Special Hazardous Substance List:	CAS: 7761-88-8 silver nitrate

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· EPA (Environmental Protection Agency)
None of the ingredients is listed.
· NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.

- **Information about limitation of use:** Not required.
- **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.

· Relevant phrases

- H272 May intensify fire; oxidizer.
- H302 Harmful if swallowed.
- H314 Causes severe skin burns and eye damage.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.

· Date of preparation / last revision 11/10/2022

· Abbreviations and acronyms:

- STOT: specific target organ toxicity
- SE: single exposure
- RE: repeated exposure
- EC50: half maximal effective concentration
- IC50: half maximal inhibitory concentration
- NOEL or NOEC: No Observed Effect Level or Concentration
- ACGIH® - American Conference of Governmental Industrial Hygienists
- A1 - Confirmed human carcinogen
- A2 - Suspected human carcinogen
- A3 - Confirmed animal carcinogen with unknown relevance to humans
- A4 - Not classifiable as a human carcinogen
- A5 - Not suspected as a human carcinogen
- IARC - International Agency for Research on Cancer
- Group 1 - Carcinogenic to humans
- Group 2A - Probably carcinogenic to humans
- Group 2B - Possibly carcinogenic to humans
- Group 3 - Not classifiable as to carcinogenicity to humans
- Group 4 - Probably not carcinogenic to humans
- NTP - National Toxicology Program, U.S. Department of Health and Human Services
- Group K - Known to be Human Carcinogens
- Group R - Reasonably Anticipated to be Human Carcinogens
- 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)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- NIOSH: National Institute for Occupational Safety
- OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit
- Oxidizing Solids 2: Oxidizing solids – Category 2
- Corrosive to Metals 1: Corrosive to metals – Category 1
- Acute Toxicity - Oral 4: Acute toxicity – Category 4
- Skin Corrosion 1B: Skin corrosion/irritation – Category 1B
- Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
- Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1

· Sources

- Data arise from safety data sheets, reference works and literature.
- ECHA: European Chemicals Agency <http://echa.europa.eu>
- GESTIS- Stoffdatenbank (Substance Database, Germany)
- GisChem (Hazardous Substance Information System Chemicals of BG RCI and BGHM)

· * Data compared to the previous version altered.