

Safety data sheet

according to 1907/2006/EC, Article 31

Printing date 06.11.2012

Revision: 06.11.2012

1 Identification of the substance/mixture and of the company/undertaking

· **Product identifier**

· **Trade name:** Silver nitrate 99%

· **Article number:** 50-2900-10

· **CAS Number:**

7761-88-8

· **EC number:**

231-853-9

· **Index number:**

047-001-00-2

· **Registration number** 01-2119513705-43

· **Relevant identified uses of the substance or mixture and uses advised against**

Manufacture and industrial use of silver nitrate solution (e.g. glass making, production of catalysts, production of contact materials, production of photographic materials, uses resulting in inclusion into a matrix); professional uses of silver nitrate solution (e.g. in the photographic sector).

· **Sector of Use**

SU5 Manufacture of textiles, leather, fur

SU6b Manufacture of pulp, paper and paper products

SU8 Manufacture of bulk, large scale chemicals (including petroleum products)

SU9 Manufacture of fine chemicals

SU10 Formulation [mixing] of preparations and/or re-packaging (excluding alloys)

SU13 Manufacture of other non-metallic mineral products, e.g. plasters, cement

SU16 Manufacture of computer, electronic and optical products, electrical equipment

SU19 Building and construction work

SU20 Health services

SU23 Electricity, steam, gas water supply and sewage treatment

· **Product category**

PC1 Adhesives, sealants

PC8 Biocidal products (e.g. Disinfectants, pest control)

PC9a Coatings and paints, thinners, paint removers

PC14 Metal surface treatment products, including galvanic and electroplating products

PC15 Non-metal-surface treatment products

PC16 Heat transfer fluids

PC18 Ink and toners

PC19 Intermediate

PC20 Products such as ph-regulators, flocculants, precipitants, neutralization agents

PC21 Laboratory chemicals

PC23 Leather tanning, dye, finishing, impregnation and care products

PC25 Metal working fluids

PC26 Paper and board dye, finishing and impregnation products: including bleaches and other processing aids

PC28 Perfumes, fragrances

PC30 Photo-chemicals

PC31 Polishes and wax blends

PC32 Polymer preparations and compounds

PC34 Textile dyes, finishing and impregnating products; including bleaches and other processing aids

PC35 Washing and cleaning products (including solvent based products)

PC36 Water softeners

PC37 Water treatment chemicals

PC38 Welding and soldering products (with flux coatings or flux cores.), flux products

· **Process category**

PROC1 Use in closed process, no likelihood of exposure

PROC2 Use in closed, continuous process with occasional controlled exposure

PROC3 Use in closed batch process (synthesis or formulation)

PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises

PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact)

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- PROC7 Industrial spraying
- PROC8a Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non-dedicated facilities
- PROC8b Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities
- PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
- PROC10 Roller application or brushing
- PROC13 Treatment of articles by dipping and pouring
- PROC14 Production of preparations or articles by tableting, compression, extrusion, pelletisation
- PROC15 Use as laboratory reagent
- PROC18 Greasing at high energy conditions
- PROC19 Hand-mixing with intimate contact and only PPE available
- PROC20 Heat and pressure transfer fluids in dispersive, professional use but closed systems
- PROC21 Low energy manipulation of substances bound in materials and/or articles
- PROC22 Potentially closed processing operations with minerals/metals at elevated temperature - Industrial setting
- PROC27b Production of metal powders (wet processes)
- **Environmental release category**
 - ERC1 Manufacture of substances
 - ERC5 Industrial use resulting in inclusion into or onto a matrix
 - ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)
 - **Article category AC8** Paper articles
 - **Application of the substance / the preparation** Laboratory chemical
 - **Details of the supplier of the safety data sheet**
 - **Manufacturer/Supplier:**
 - Severn Biotech Ltd.
 - Unit 2,
 - Park Lane,
 - Kidderminster,
 - Worcestershire.
 - DY11 6TJ
 - UK
 - Tel: 0044 1562 825286
 - Fax: 0044 1562 825284
 - email: info@severnbiotech.com
 - **Further information obtainable from:** Product safety department.
 - **Emergency telephone number:** Tel: 0044 1562 825286 (not 24 hours)

2 Hazards identification

- **Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS03 flame over circle

Ox. Sol. 2 H272 May intensify fire; oxidiser.



GHS05 corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

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GHS09 environment

Aquatic Acute 1 H400 Very toxic to aquatic life.

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

Classification according to Directive 67/548/EEC or Directive 1999/45/EC


C; Corrosive

R34: Causes burns.



O; Oxidising

R8: Contact with combustible material may cause fire.



N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Information concerning particular hazards for human and environment: Not applicable.

Label elements
Labelling according to Regulation (EC) No 1272/2008

The substance is classified and labelled according to the CLP regulation.

Hazard pictograms GHS03, GHS05, GHS09

Signal word Danger

Hazard statements

H272 May intensify fire; oxidiser.

H314 Causes severe skin burns and eye damage.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

P221 Take any precaution to avoid mixing with combustibles.

P260 Do not breathe dust.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P273 Avoid release to the environment.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Other hazards
Results of PBT and vPvB assessment
PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances
CAS No. Description

7761-88-8 silver nitrate

Identification number(s)
EC number: 231-853-9

Index number: 047-001-00-2

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4 First aid measures

- **Description of first aid measures**

- **General information:**

Immediately remove any clothing soiled by the product.
Rinse contaminated clothes (fire hazard) with plenty of water.

- **After inhalation:**

DO NOT DELAY!

Supply fresh air; consult doctor in case of complaints.

In case of unconsciousness place patient stably in side position for transportation.

- **After skin contact:**

DO NOT DELAY!

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

- **After eye contact:**

DO NOT DELAY!

Check for and remove any contact lenses.

Rinse opened eye for several minutes under running water. Then consult a doctor.

- **After swallowing:**

DO NOT DELAY!

Drink plenty of water and provide fresh air. Call for a doctor immediately.

Do not induce vomiting; call for medical help immediately.

- **Information for doctor:**

Symptoms: The absorption of this product into the body may lead to the formation of methemoglobin that, in sufficient concentration, causes cyanosis.

Treatment: Since reversion of methemoglobin to hemoglobin occurs spontaneously after termination of exposure, moderate degrees of cyanosis need to be treated only by supportive measures. Thorough cleansing of the entire contaminated area of the body, including scalp and nails, is of utmost importance. If cyanosis is severe, intravenous injection of methylene blue, one milligram per kilogram of body weight, may be of value.

- **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 Firefighting measures

- **Extinguishing media**

- **Suitable extinguishing agents:** Water

- **For safety reasons unsuitable extinguishing agents:** Foam

- **Special hazards arising from the substance or mixture**

In case of fire, the following can be released:

Nitrogen oxides (NO_x)

Oxidizer. Greatly increases the burning rate of combustible materials.

Not combustible but enhances combustion of other substances.

Gives off irritating or toxic fumes (or gases) in a fire.

- **Advice for firefighters**

- **Protective equipment:**

Do not inhale explosion gases or combustion gases.

Wear self-contained respiratory protective device.

Wear fully protective suit.

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6 Accidental release measures

· Personal precautions, protective equipment and emergency procedures

Wear protective equipment. Keep unprotected persons away.

Avoid formation of dust.

Ensure adequate ventilation

· Environmental precautions:

Do not allow to enter sewers/ surface or ground water.

Do not allow to penetrate the ground/soil.

· Methods and material for containment and cleaning up:

Ensure adequate ventilation.

Pick up mechanically.

Send for recovery or disposal in suitable receptacles.

Do not use combustible materials such as paper towels to clean up spills.

· 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.

7 Handling and storage

· Handling:**· Precautions for safe handling**

Prevent formation of dust.

Ensure good ventilation/exhaustion at the workplace.

Avoid contact with clothing and other combustible materials.

Safety showers and eye wash facilities should be available at the work area.

Avoid direct contact (skin contact, ingestion and/or inhalation of fume/mist/dust) with the product.

· Information about fire - and explosion protection:

Potentially explosive when mixed with organic substances.

· Conditions for safe storage, including any incompatibilities**· Storage:****· Requirements to be met by storerooms and receptacles:**

Do not store on combustible materials such as wooden floors or wooden pallets.

Prevent any seepage into the ground.

· Information about storage in one common storage facility:

Store away from flammable substances.

Store away from reducing agents.

Store away from foodstuffs.

· Further information about storage conditions:

Keep container tightly sealed.

Store in a bonded area.

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 facilities:** No further data; see item 7.

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- **Control parameters**

Ingredients with limit values that require monitoring at the workplace:
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7761-88-8 silver nitrate

WEL	Long-term value: 0.01 mg/m ³ as Ag
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- **DNELs**

WORKERS

Long-term exposure - systemic effects

Inhalation DN(M)EL

- DNEL (Derived No Effect Level): 0.016 mg/m³

GENERAL POPULATION

Long-term exposure - systemic effects

Inhalation DN(M)EL

- DNEL (Derived No Effect Level): 0.0063 mg/m³

Oral DN(M)EL

- DNEL (Derived No Effect Level): 0.031 mg/kg bw/day

- **PNECs**

PNEC aqua (freshwater): 0.04 µg/L

PNEC aqua (marine water): 0.86 µg/L

PNEC STP: 0.025 mg/L

PNEC sediment (freshwater): 438.13 mg/kg sediment dw

PNEC sediment (marine water): 438.13 mg/kg sediment dw

PNEC soil: 0.794 mg/kg soil dw

- **Additional information:** The lists valid during the making were used as basis.

- **Exposure controls**

- **Personal protective equipment:**

Select PPE appropriate for the operations taking place taking into account the product properties.

- **General protective and hygienic measures:**

Take note of assigned Workplace Exposure Limits.

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.

Do not eat, drink, smoke or sniff while working.

Do not breath dust

A safe system of work must be formulated and followed to ensure safe working with this product.

Relevant workers must receive suitable and sufficient training and supervision.

Ensure that eyewash stations and safety showers are close to the workstation location.

- **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

Dust mask class P2. Breathing equipment A-filter.

- **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation. Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

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· 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.

Materials: butylrubber (thickness ≥ 0.70 mm, breakthrough time > 480 min).(EN 374).

The use of protective gloves should conform to the specifications of E C directive 89/686/EC and the resultant standard EN374.

· 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:

Safety glasses

Safety glasses. EN166. Face shield.

· Body protection:

Protective work clothing

Body protection must be chosen depending on activity and possible exposure.

9 Physical and chemical properties

· Information on basic physical and chemical properties
· General Information
· Appearance:

Form: Crystalline

Colour: Colourless

· Odour: Characteristic

· Odour threshold: Not determined.

· pH-value: Not applicable.

· Change in condition

Melting point/Melting range: 212 °C

Boiling point/Boiling range: 250 °C (decomp)

· Flash point: Not applicable.

· Flammability (solid, gaseous): Contact with combustible material may cause fire.

· Ignition temperature:

Decomposition temperature: Not determined.

· Self-igniting: Not determined.

· Danger of explosion: Not determined.

· Explosion limits:

Lower: Not determined.

Upper: Not determined.

· Vapour pressure: Not applicable.

· Density at 20 °C: 4.35 g/cm³

· Relative density Not determined.

· Vapour density Not applicable.

· Evaporation rate Not applicable.

· Solubility in / Miscibility with

water at 20 °C: 2160 g/l

· Partition coefficient (n-octanol/water): Not determined.

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- | | |
|---|---|
| <ul style="list-style-type: none"> · Viscosity: Dynamic: Kinematic: · Other information | <p>Not applicable.</p> <p>Not applicable.</p> <p>No further relevant information available.</p> |
|---|---|

10 Stability and reactivity

- **Reactivity**
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
To avoid thermal decomposition do not overheat.
No decomposition if used and stored according to specifications.
- **Possibility of hazardous reactions**
Decomposes on heating. This produces toxic fumes including nitrogen oxides.
The substance is a strong oxidant. It reacts violently with combustible and reducing materials.
Reacts with incompatible substances such as acetylene; alkalis and halides and many other compounds.
This generates fire and explosion hazard.
Attacks some forms of plastic, rubber and coatings.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:**
Flammable materials
Strong bases.
Combustible materials.
Reducing agents
Aqueous ammonia
Halides
Acetylene
- **Hazardous decomposition products:** Nitrogen oxides (NO_x)

11 Toxicological information

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

- **LD/LC50 values relevant for classification:**

Oral	LD50	>2000 mg/kg (rat)
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- **Primary irritant effect:**
- **on the skin:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.
- **Subacute to chronic toxicity:**
Effects of long-term or repeated exposure: The substance may have effects on the blood. This may result in formation of methaemoglobin. The substance may cause a grey discolouration of the eyes and skin. The substance may cause a brown discolouration of the fingernails.
- **Additional toxicological information:**
Depending on the degree of exposure, periodic medical examination is suggested.
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
Routes of exposure: The substance can be absorbed into the body by inhalation of its aerosol and by ingestion.
Inhalation risk: Evaporation at 20 degs. C is negligible; a harmful concentration of airborne particles can, however, be reached quickly on spraying or when dispersed, especially if powdered.

Effects of short-term exposure: The substance is corrosive to the eyes, skin and respiratory tract.

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Corrosive on ingestion. The substance may cause effects on the blood. This may result in formation of methaemoglobin. The effects may be delayed. Medical observation is indicated.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Very toxic for fish
- **Additional ecological information:**
- **General notes:**
 Water hazard class 3 (German Regulation) (Assessment by list): extremely hazardous for water
 Do not allow product to reach ground water, water course or sewage system, even in small quantities.
 Must not reach sewage water or drainage ditch undiluted or unneutralized.
 Danger to drinking water if even extremely small quantities leak into the ground.
 Also poisonous for fish and plankton in water bodies.
 Very toxic for aquatic organisms
- **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 together with household garbage. Do not allow product to reach sewage system.
 Contact waste processors for recycling information.
 Used, degraded or contaminated product may be classified as hazardous waste. Anyone classifying hazardous waste and determining its fate must be qualified in accordance with state and international legislation.
- **European waste catalogue**
 Waste material is currently classified as hazardous under Council Directive 91/689/EEC. The European Waste Catalogue Code is 06 03 13 Solid salts and solutions containing heavy metals.
- **Uncleaned packaging:**
- **Recommendation:**
 Disposal must be made according to official regulations.
 Container remains hazardous when empty. Continue to observe all precautions.
 Do not mix with other waste streams.
- **Recommended cleansing agents:** Water, if necessary together with cleansing agents.

14 Transport information

- **UN-Number**
- **ADR, IMDG, IATA** UN1493

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· UN proper shipping name	
· ADR	1493 SILVER NITRATE, ENVIRONMENTALLY HAZARDOUS
· IMDG, IATA	SILVER NITRATE
· Transport hazard class(es)	
· ADR	
· Class	5.1 Oxidising substances.
· Label	5.1
· IMDG, IATA	
· Class	5.1 Oxidising substances.
· Label	5.1
· Packing group	
· ADR, IMDG, IATA	II
· Environmental hazards:	Environmentally hazardous substance, solid; Marine Pollutant
· Marine pollutant:	No
· Special marking (ADR):	Symbol (fish and tree)
· Special precautions for user	Warning: Oxidising substances.
· Danger code (Kemler):	50
· EMS Number:	F-A,S-Q
· Segregation groups	Heavy metals and their salts (including their organometallic compounds)
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· ADR	
· Limited quantities (LQ)	1 kg
· Transport category	2
· Tunnel restriction code	E
· UN "Model Regulation":	UN1493, SILVER NITRATE, ENVIRONMENTALLY HAZARDOUS, 5.1, II

15 Regulatory information

· **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.