

according to Regulation (EC) No 1907/2006

Silver nitrate solution 0.1 mol/l - 0.1 N solution

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

Silver nitrate solution 0.1 mol/l - 0.1 N solution

UFI: 1UY0-X3A1-D00V-25NT

1.2. Relevant identified uses of the substance or mixture and uses advised against**Use of the substance/mixture**

Reagents and laboratory chemicals

Only for laboratory and analysis purposes.

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name: AnalytiChem GmbH

ACD

Street: Stempelstraße 6

Place: D-47167 Duisburg

Telephone: 0203/5194-0

Telefax: 0203/5194-290

E-mail: info@analytichem.de

Contact person: Abteilung Produktsicherheit

Telephone: 0203/5194-107/117

E-mail: produktsicherheit@analytichem.de

Internet: www.analytichem.de

Responsible Department: Abteilung Produktsicherheit

1.4. Emergency telephone**number:**

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

Für Österreich: Vergiftungsinformationszentrale (VIZ) Notruf 0–24 Uhr: 01 406 43 43

This product is a mixture. REACH Registration Number see section 3.

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Regulation (EC) No 1272/2008**

Aquatic Acute 1; H400

Aquatic Chronic 2; H411

Full text of hazard statements: see SECTION 16.

2.2. Label elements**Regulation (EC) No 1272/2008**

Signal word: Warning

Pictograms:

**Hazard statements**

H411

Toxic to aquatic life with long lasting effects.

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Precautionary statements

P273 Avoid release to the environment.
P391 Collect spillage.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients**3.2. Mixtures****Chemical characterization**

Mixtures in aqueous solution

Relevant ingredients

| CAS No | Chemical name | | | Quantity |
|-----------|---|--------------|------------------|----------|
| | EC No | Index No | REACH No | |
| | Classification (Regulation (EC) No 1272/2008) | | | |
| 7761-88-8 | silver nitrate | | | < 1 % |
| | 231-853-9 | 047-001-00-2 | 01-2119513705-43 | |
| | Ox. Sol. 2, Met. Corr. 1, Skin Corr. 1B, Eye Dam. 1, Aquatic Acute 1, Aquatic Chronic 1; H272 H290 H314 H318 H400 H410 | | | |

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

| CAS No | EC No | Chemical name | Quantity |
|-----------|---|----------------|----------|
| | Specific Conc. Limits, M-factors and ATE | | |
| 7761-88-8 | 231-853-9 | silver nitrate | < 1 % |
| | dermal: LD50 = > 348 mg/kg; oral: LD50 = > 2000 mg/kg Aquatic Acute 1; H400: M=1000 Aquatic Chronic 1; H410: M=100 | | |

Further Information

This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of = 0.1 % (w/w).

SECTION 4: First aid measures**4.1. Description of first aid measures****General information**

No data available

After inhalation

Provide fresh air.

After contact with skin

Wash immediately with: Water

Take off immediately all contaminated clothing and wash it before reuse.

After contact with eyes

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.

Remove contact lenses, if present and easy to do. Continue rinsing.

After ingestion

Rinse mouth immediately and drink plenty of water.

Call a physician immediately.

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4.2. Most important symptoms and effects, both acute and delayed

No data available

4.3. Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures**5.1. Extinguishing media****Suitable extinguishing media**

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Non-combustible liquids

Hazardous combustion products

In case of fire may be liberated:

Nitrogen oxides (NO_x)**5.3. Advice for firefighters**

In case of fire: Wear self-contained breathing apparatus.

Avoid contact with skin, eyes and clothes.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Use water spray jet to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures****General advice**

Avoid contact with skin, eyes and clothes.

For non-emergency personnel

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

Emergency procedures

Consult an expert

Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up**For containment**

Cover drains.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Collect in closed and suitable containers for disposal.

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

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Other information

- Provide adequate ventilation.
- Do not breathe dust/fume/gas/mist/vapours/spray.
- Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

- Safe handling: see section 7
- Personal protection equipment: see section 8
- Disposal: see section 13

SECTION 7: Handling and storage**7.1. Precautions for safe handling****Advice on safe handling**

- Read label before use. Handle and open container with care.
- When using do not eat, drink, smoke, sniff. Use personal protection equipment.
- Provide adequate ventilation. Avoid contact with skin, eyes and clothes.
- Do not breathe vapour/aerosol.

Advice on protection against fire and explosion

- Usual measures for fire prevention.

Advice on general occupational hygiene

- Keep away from food, drink and animal feedingstuffs. Remove contaminated, saturated clothing immediately.
- Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink. Avoid: aerosol or mist formation Do not breathe vapour/aerosol.

Further information on handling

- Draw up and observe skin protection programme.
- Wash hands and face before breaks and after work and take a shower if necessary.
- Take off immediately all contaminated clothing and wash it before reuse.

7.2. Conditions for safe storage, including any incompatibilities**Requirements for storage rooms and vessels**

- Unsuitable container/equipment material: Metal
- Protect against: Light

Hints on joint storage

- national regulations

Further information on storage conditions

- Keep container tightly closed.
- storage temperature: +15°C - +25°C

7.3. Specific end use(s)

- Laboratory chemicals

SECTION 8: Exposure controls/personal protection**8.1. Control parameters**

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DNEL/DMEL values

| CAS No | Substance | | | |
|--------------------------|----------------|----------------|----------|----------------------|
| DNEL type | | Exposure route | Effect | Value |
| 7761-88-8 | silver nitrate | | | |
| Worker DNEL, long-term | | inhalation | systemic | 0,016 mg/m³ |
| Consumer DNEL, long-term | | inhalation | systemic | 0,006 mg/m³ |
| Consumer DNEL, long-term | | oral | systemic | 0,02 mg/kg bw/day |

PNEC values

| CAS No | Substance | | |
|--|----------------|--|--|
| Environmental compartment | Value | | |
| 7761-88-8 | silver nitrate | | |
| Freshwater | 0,00004 mg/l | | |
| Marine water | 0,00086 mg/l | | |
| Freshwater sediment | 438,13 mg/kg | | |
| Marine sediment | 438,13 mg/kg | | |
| Micro-organisms in sewage treatment plants (STP) | 0,025 mg/l | | |
| Soil | 1,41 mg/kg | | |

8.2. Exposure controls**Appropriate engineering controls**

Technical measures and the application of suitable work processes have priority over personal protection equipment.

Individual protection measures, such as personal protective equipment**Eye/face protection**

goggles

Hand protection

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact

Recommended glove articles: KCL 741 Dermatril® L

Recommended material: NBR (Nitrile rubber) 0,11 mm

Wearing time with permanent contact: > 480min

By short-term hand contact

Recommended glove articles: KCL 741 Dermatril® L

Recommended material: NBR (Nitrile rubber) 0,11 mm

Wearing time with occasional contact (splashes): > 480 min

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types. This recommendation applies only to the product stated in the safety data sheet (>, <) supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Skin protection

Wear suitable protective clothing. Take off immediately all contaminated clothing.

Wash hands before breaks and after work.

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The choice of body protection depends on the concentration and quantity of hazardous substances. The chemical resistance of protective agents must be clarified with their suppliers.

Respiratory protection

Respiratory protection necessary at: aerosol or mist formation

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Thermal hazards

No data available

Environmental exposure controls

Do not allow to enter into surface water or drains.

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

| | | |
|---|-------------------|----------------------|
| Physical state: | Liquid | |
| Colour: | colourless | |
| Odour: | odourless | |
| Odour threshold: | No data available | |
| Melting point/freezing point: | | No data available |
| Boiling point or initial boiling point and boiling range: | | No data available |
| Flammability: | | No data available |
| Lower explosion limits: | | No data available |
| Upper explosion limits: | | No data available |
| Flash point: | | No data available |
| Auto-ignition temperature: | | No data available |
| Decomposition temperature: | | No data available |
| pH-Value: | | 5-8 |
| Viscosity / kinematic: | | No data available |
| Water solubility: | | completely miscible |
| Solubility in other solvents | | |
| No data available | | |
| Dissolution rate: | | No data available |
| Partition coefficient n-octanol/water: | | No data available |
| Dispersion stability: | | No data available |
| Vapour pressure: | | No data available |
| Vapour pressure: | | No data available |
| Density: | | ~1 g/cm ³ |
| Relative density: | | No data available |
| Bulk density: | | No data available |
| Relative vapour density: | | No data available |
| Particle characteristics: | | No data available |

9.2. Other information**Information with regard to physical hazard classes**

Explosive properties

No data available

Sustained combustibility:

No data available

Self-ignition temperature

Solid:

No data available

Gas:

No data available

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Oxidizing properties

No data available

Other safety characteristics

Evaporation rate:

No data available

Solvent separation test:

No data available

Solvent content:

0

Solid content:

0

Sublimation point:

No data available

Softening point:

No data available

Pour point:

No data available

No data available:

Viscosity / dynamic:

No data available

Flow time:

No data available

Further Information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

Protect against: Light

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

Light

10.5. Incompatible materials

Metal

10.6. Hazardous decomposition products

In case of fire may be liberated:

SECTION 5: Firefighting measures

Further information

No data available

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicokinetics, metabolism and distribution

There are no data available on the mixture itself.

Acute toxicity

Based on available data, the classification criteria are not met.

ATEmix calculated

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

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| CAS No | Chemical name | | | | |
|-----------|----------------|-------------------|------------|--|--------------------|
| | Exposure route | Dose | Species | Source | Method |
| 7761-88-8 | silver nitrate | | | | |
| | oral | LD50 > 2000 mg/kg | Rat | Study report (1993) | OECD Guideline 401 |
| | dermal | LD50 > 348 mg/kg | Guinea pig | J. Vet. Med. Sci.73: 1417 - 1423. (2011) | OECD Guideline 434 |

Irritation and corrosivity

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Serious eye damage/eye irritation: Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

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-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Information on likely routes of exposure

There are no data available on the mixture itself.

Specific effects in experiment on an animal

There are no data available on the mixture itself.

Additional information on tests

There are no data available on the mixture itself.

Practical experience

There are no data available on the mixture itself.

11.2. Information on other hazards**Endocrine disrupting properties**

There are no data available on the mixture itself.

Other information

There are no data available on the mixture itself.

Further information

There are no data available on the mixture itself.

SECTION 12: Ecological information**12.1. Toxicity**

Very toxic to aquatic life.

Toxic to aquatic life with long lasting effects.

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| CAS No | Chemical name | | | | | |
|-----------|--------------------------|---------------------|-----------|---------------------------------|--|---|
| | Aquatic toxicity | Dose | [h] [d] | Species | Source | Method |
| 7761-88-8 | silver nitrate | | | | | |
| | Acute fish toxicity | LC50 0,0012 mg/l | 96 h | Pimephales promelas | Environmental Toxicology and Chemistry. | A guideline was not specified. The test |
| | Acute algae toxicity | ErC50 0,0099 mg/l | 96 h | Pseudokirchneriella subcapitata | Environmental Science and Technology. 44 | eline: U.S. Environmental Protection Agency |
| | Acute crustacea toxicity | EC50 0,00022 mg/l | 48 h | Daphnia magna | Environmental Toxicology and Chemistry. | The protective effect of reactive sulphur |
| | Fish toxicity | NOEC > 0,00125 mg/l | 73 d | Oncorhynchus mykiss | Environmental Toxicology and Chemistry 2 | other: ASTM 1241-98 |
| | Algae toxicity | NOEC 0,0012 mg/l | 14 d | Champia parvula | in Bishop WE, Cardwell RD Heidolph BB (E | The toxicity tests lasted 11 days for th |
| | Crustacea toxicity | NOEC 0,00031 mg/l | 20 d | Isonychia bicolor | Environmental Toxicology and Chemistry. | 20 day sublethal effects on representati |

12.2. Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3. Bioaccumulative potential

There are no data available on the mixture itself.

BCF

| CAS No | Chemical name | BCF | Species | Source |
|-----------|----------------|-----|-----------------|---------------------|
| 7761-88-8 | silver nitrate | 70 | Cyprinus carpio | Water, Air and Soil |

12.4. Mobility in soil

There are no data available on the mixture itself.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

Discharge into the environment must be avoided.

Further information

Do not allow to enter into surface water or drains.

Discharge into the environment must be avoided.

SECTION 13: Disposal considerations**13.1. Waste treatment methods****Disposal recommendations**

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Send to a physico-chemical treatment facility under observation of official regulations.

Do not mix with other wastes.

Do not empty into drains.

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Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information**Land transport (ADR/RID)**

| | |
|--|--|
| 14.1. UN number or ID number: | UN 3082 |
| 14.2. UN proper shipping name: | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver nitrate) |
| 14.3. Transport hazard class(es): | 9 |
| 14.4. Packing group: | III |
| Hazard label: | 9 |
| Classification code: | M6 |
| Special Provisions: | 274 335 375 601 |
| Limited quantity: | 5 L |
| Excepted quantity: | E1 |
| Transport category: | 3 |
| Hazard No: | 90 |
| Tunnel restriction code: | - |

Inland waterways transport (ADN)

| | |
|--|--|
| 14.1. UN number or ID number: | UN 3082 |
| 14.2. UN proper shipping name: | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver nitrate) |
| 14.3. Transport hazard class(es): | 9 |
| 14.4. Packing group: | III |
| Hazard label: | 9 |
| Classification code: | M6 |
| Special Provisions: | 274 335 375 601 |
| Limited quantity: | 5 L |
| Excepted quantity: | E1 |

Marine transport (IMDG)

| | |
|--|--|
| 14.1. UN number or ID number: | UN 3082 |
| 14.2. UN proper shipping name: | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver nitrate) |
| 14.3. Transport hazard class(es): | 9 |
| 14.4. Packing group: | III |
| Hazard label: | 9 |
| Special Provisions: | 274, 335, 969 |
| Limited quantity: | 5 L |
| Excepted quantity: | E1 |
| EmS: | F-A, S-F |

Air transport (ICAO-TI/IATA-DGR)

| | |
|--|--|
| 14.1. UN number or ID number: | UN 3082 |
| 14.2. UN proper shipping name: | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver nitrate) |
| 14.3. Transport hazard class(es): | 9 |
| 14.4. Packing group: | III |
| Hazard label: | 9 |
| Special Provisions: | A97 A158 A197 |
| Limited quantity Passenger: | 30 kg G |
| Passenger LQ: | Y964 |
| Excepted quantity: | E1 |

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| | |
|--|-------|
| IATA-packing instructions - Passenger: | 964 |
| IATA-max. quantity - Passenger: | 450 L |
| IATA-packing instructions - Cargo: | 964 |
| IATA-max. quantity - Cargo: | 450 L |

14.5. Environmental hazards

| | |
|-----------------------------|----------------|
| ENVIRONMENTALLY HAZARDOUS: | Yes |
| Danger releasing substance: | silver nitrate |

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 75

| | |
|---|---|
| Information according to Directive 2012/18/EU (SEVESO III): | E1 Hazardous to the Aquatic Environment |
|---|---|

National regulatory information

| | |
|-------------------------|-------------------------------|
| Water hazard class (D): | 3 - highly hazardous to water |
|-------------------------|-------------------------------|

SECTION 16: Other information**Changes**

This data sheet contains changes from the previous version in section(s): 1,6,8,9,12.

Abbreviations and acronyms

Ox. Sol. 2: Oxidising solids, hazard category 2
Met. Corr. 1: Corrosive to metals, hazard category 1
Skin Corr. 1B: Skin corrosion, sub-category 1B
Eye Dam. 1: Serious eye damage, hazard category 1
Aquatic Acute 1: Hazardous to the aquatic environment, hazard category: Acute 1
Aquatic Chronic 1: Hazardous to the aquatic environment, long-term hazard category: Chronic 1

Classification for mixtures and used evaluation method according to Regulation (EC) No 1272/2008 [CLP]

| Classification | Classification procedure |
|-------------------------|--------------------------|
| Aquatic Acute 1; H400 | Calculation method |
| Aquatic Chronic 2; H411 | Calculation method |

Relevant H and EUH statements (number and full text)

| | |
|------|---|
| H272 | May intensify fire; oxidiser. |
| H290 | May be corrosive to metals. |
| H314 | Causes severe skin burns and eye damage. |
| H318 | Causes serious eye damage. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |
| H411 | Toxic to aquatic life with long lasting effects. |

Further Information

Provide appropriate information, instructions and training to users

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

The information is based on the present level of our knowledge. It does not, however, give assurance of product

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properties and establishes no contract legal rights.

The receiver of our product is singularly responsible for adhering to existing laws and regulations.

(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)