

Silver nitrate solution 0.1mol/l

Version number: GHS 3.0
Replaces version of: 2019-02-18 (GHS 2)

Revision: 2019-02-18

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

1.1 Product identifier

Trade name	Silver nitrate solution 0.1mol/l
Registration number (REACH)	not relevant (mixture)
CAS number	7761-88-8
Article number	A0250469

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses	General use
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1.3 Details of the supplier of the safety data sheet

Chemos GmbH & Co. KG
Sonnenring 7
84032 Altdorf
Germany

Telephone: +49 871-966346-0
Telefax: +49 871-966346-13
e-mail: chemos@chemos.de
Website: <http://www.chemos.de/>

e-mail (competent person) chemos@chemos.de

1.4 Emergency telephone number

Emergency information service
This number is only available during the following office hours: Mon - Thu 08:00 AM - 05:00 PM, Fri 08:00 AM - 12:00 PM

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 (CLP)

Section	Hazard class	Category	Hazard class and category	Hazard statement
2.16	substance or mixture corrosive to metals	1	Met. Corr. 1	H290
3.2	skin corrosion/irritation	2	Skin Irrit. 2	H315
3.3	serious eye damage/eye irritation	2	Eye Irrit. 2	H319
4.1A	hazardous to the aquatic environment - acute hazard	1	Aquatic Acute 1	H400
4.1C	hazardous to the aquatic environment - chronic hazard	1	Aquatic Chronic 1	H410

For full text of abbreviations: see SECTION 16.

The most important adverse physicochemical, human health and environmental effects

Spillage and fire water can cause pollution of watercourses.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP)

- Signal word warning

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- Pictograms

GHS05, GHS09



- Hazard statements

H290 May be corrosive to metals.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H410 Very toxic to aquatic life with long lasting effects.

- Precautionary statements

P273 Avoid release to the environment.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P337+P313 If eye irritation persists: Get medical advice/attention.
P390 Absorb spillage to prevent material damage.
P391 Collect spillage.
P501 Dispose of contents/container to industrial combustion plant.

2.3 Other hazards

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Substances

Not relevant (mixture)

Identifiers

CAS No 7761-88-8
EC No 231-853-9
Index No 047-001-00-2
Molecular formula AgNO₃
Molar mass 169.9 g/mol

3.2 Mixtures

Description of the mixture

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms
silver nitrate	CAS No 7761-88-8 EC No 231-853-9 Index No 047-001-00-2	1 - <5	Ox. Sol. 2 / H272 Met. Corr. 1 / H290 Skin Corr. 1B / H314 Eye Dam. 1 / H318 Aquatic Acute 1 / H400 Aquatic Chronic 1 / H410	

For full text of abbreviations: see SECTION 16.

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SECTION 4: First aid measures**4.1 Description of first aid measures**

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. In case of respiratory tract irritation, consult a physician. Provide fresh air.

Following skin contact

Wash with plenty of soap and water.

Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures**5.1 Extinguishing media**

Suitable extinguishing media

Water spray, BC-powder, Carbon dioxide (CO₂)

Unsuitable extinguishing media

Water jet

5.2 Special hazards arising from the substance or mixture

Substance or mixture corrosive to metals.

Hazardous combustion products

Nitrogen oxides (NO_x)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

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SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel

Remove persons to safety.

For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority.

6.3 Methods and material for containment and cleaning up

Advices on how to contain a spill

Covering of drains

Advices on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: sawdust, kieselgur (diatomite), sand, universal binder

Appropriate containment techniques

Use of adsorbent materials.

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

- Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation. Use only in well-ventilated areas.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

- Corrosive conditions

Store in corrosive resistant container with a resistant inner liner.

Control of effects

Protect against external exposure, such as

Frost

- Packaging compatibilities

Only packagings which are approved (e.g. acc. to ADR) may be used.

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7.3 Specific end use(s)

See section 16 for a general overview.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

This information is not available.

Relevant DNELs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
silver nitrate	7761-88-8	DNEL	0.016 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects

Relevant PNECs of components of the mixture						
Name of substance	CAS No	Endpoint	Threshold level	Organism	Environmental compartment	Exposure time
silver nitrate	7761-88-8	PNEC	0.04 µg/l	aquatic organisms	freshwater	short-term (single instance)
silver nitrate	7761-88-8	PNEC	0.86 µg/l	aquatic organisms	marine water	short-term (single instance)
silver nitrate	7761-88-8	PNEC	0.025 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
silver nitrate	7761-88-8	PNEC	438.1 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
silver nitrate	7761-88-8	PNEC	438.1 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
silver nitrate	7761-88-8	PNEC	1.41 mg/kg	terrestrial organisms	soil	short-term (single instance)

8.2 Exposure controls

Appropriate engineering controls

General ventilation.

Individual protection measures (personal protective equipment)

Eye/face protection

Wear eye/face protection.

Skin protection

- Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. In the case of wanting to use the gloves again, clean them before taking off and air them well. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

- Other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.

Respiratory protection

In case of inadequate ventilation wear respiratory protection.

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Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	liquid
Colour	colourless
Odour	odourless

Other safety parameters

pH (value)	4 – 6 (20 °C)
Melting point/freezing point	0 °C at 1,013 mbar
Initial boiling point and boiling range	100 °C at 1,013 mbar
Flash point	not determined
Evaporation rate	not determined
Flammability (solid, gas)	not relevant, (fluid)
Explosive limits	not determined
Vapour pressure	not determined
Density	1.005 g/cm ³ at 20 °C
Vapour density	this information is not available
Solubility(ies)	not determined

Partition coefficient

- n-octanol/water (log KOW)	this information is not available
Auto-ignition temperature	not determined
Viscosity	not determined
Explosive properties	none
Oxidising properties	none

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9.2 Other information

Solvent content	98.33 %
Solid content	0 %

SECTION 10: Stability and reactivity**10.1 Reactivity**

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials". Substance or mixture corrosive to metals.

10.2 Chemical stability

See below "Conditions to avoid".

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

There are no specific conditions known which have to be avoided.

10.5 Incompatible materials

There is no additional information.

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information**11.1 Information on toxicological effects**

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification according to GHS (1272/2008/EC, CLP)**Acute toxicity**

Shall not be classified as acutely toxic.

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

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Specific target organ toxicity - single exposure
Shall not be classified as a specific target organ toxicant (single exposure).
Specific target organ toxicity - repeated exposure
Shall not be classified as a specific target organ toxicant (repeated exposure).
Aspiration hazard
Shall not be classified as presenting an aspiration hazard.

SECTION 12: Ecological information

12.1 Toxicity

Very toxic to aquatic life with long lasting effects.

Aquatic toxicity (acute) of components of the mixture					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
silver nitrate	7761-88-8	LC50	1.2 µg/l	fish	96 h

Aquatic toxicity (chronic) of components of the mixture					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
silver nitrate	7761-88-8	EC50	0.8 µg/l	aquatic invertebrates	7 d

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

Bioaccumulative potential of components of the mixture				
Name of substance	CAS No	BCF	Log KOW	BOD5/COD
silver nitrate	7761-88-8	70		

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Data are not available.

12.6 Other adverse effects

Data are not available.

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SECTION 13: Disposal considerations

13.1 Waste treatment methods

Waste treatment-relevant information

Recycling/reclamation of other inorganic materials.

Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

Waste treatment of containers/packagings

It is a dangerous waste; only packagings which are approved (e.g. acc. to ADR) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks


Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

- | | |
|--|--|
| 14.1 UN number | 1760 |
| 14.2 UN proper shipping name | CORROSIVE LIQUID, N.O.S. |
| Technical name (hazardous ingredients) | silver nitrate |
| 14.3 Transport hazard class(es) | |
| Class | 8 (corrosive substances) |
| 14.4 Packing group | III (substance presenting low danger) |
| 14.5 Environmental hazards | hazardous to the aquatic environment |
| 14.6 Special precautions for user | |
| | Provisions for dangerous goods (ADR) should be complied within the premises. |
| 14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code | |
| | The cargo is not intended to be carried in bulk. |

Information for each of the UN Model Regulations

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)

- | | |
|---|--|
| UN number | 1760 |
| Proper shipping name | CORROSIVE LIQUID, N.O.S. |
| Class | 8 |
| Classification code | C9 |
| Packing group | III |
| Danger label(s) | 8, fish and tree |
|  | |
| Environmental hazards | YES (hazardous to the aquatic environment) |
| Special provisions (SP) | 274 |
| Excepted quantities (EQ) | E1 |

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Limited quantities (LQ)	5 L
Transport category (TC)	3
Tunnel restriction code (TRC)	E
Hazard identification No	80
Emergency Action Code	2X
International Maritime Dangerous Goods Code (IMDG)	
UN number	1760
Proper shipping name	CORROSIVE LIQUID, N.O.S.
Class	8
Marine pollutant	YES (hazardous to the aquatic environment)
Packing group	III
Danger label(s)	8, fish and tree
Special provisions (SP)	223, 274
Excepted quantities (EQ)	E1
Limited quantities (LQ)	5 L
EmS	F-A, S-B
Stowage category	A
International Civil Aviation Organization (ICAO-IATA/DGR)	
UN number	1760
Proper shipping name	Corrosive liquid, n.o.s.
Class	8
Environmental hazards	YES (hazardous to the aquatic environment)
Packing group	III
Danger label(s)	8
Special provisions (SP)	A3
Excepted quantities (EQ)	E1
Limited quantities (LQ)	1 L

SECTION 15: Regulatory information

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

Relevant provisions of the European Union (EU)

Deco-Paint Directive (2004/42/EC)

VOC content	0 %
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Directive on industrial emissions (VOCs, 2010/75/EU)

VOC content	0 %
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15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
10.5	Incompatible materials: Oxidisers	Incompatible materials: There is no additional information.	yes
13.1		Waste treatment-relevant information: Recycling/reclamation of other inorganic materials.	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord européen relatif au transport international des marchandises dangereuses par route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
Aquatic Acute	Hazardous to the aquatic environment - acute hazard
Aquatic Chronic	Hazardous to the aquatic environment - chronic hazard
BCF	Bioconcentration factor
BOD	Biochemical Oxygen Demand
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
COD	Chemical oxygen demand
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)

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Abbr.	Descriptions of used abbreviations
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
log KOW	n-Octanol/water
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
Met. Corr.	Substance or mixture corrosive to metals
NLP	No-Longer Polymer
Ox. Sol.	Oxidising solid
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures. Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU.

Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties: The classification is based on tested mixture.

Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in chapter 2 and 3)

Code	Text
H272	May intensify fire; oxidiser.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

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Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.