

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006, as amended by Commission Regulation (EU) 2020/878

Version 8.3  
Revision Date 23.12.2025  
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GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

### 1.1 Product identifiers

Product name	: Silver nitrate
Product Number	: 204390
Brand	: Aldrich
Index-No.	: 047-001-00-2
REACH No.	: 01-2119513705-43-XXXX
CAS-No.	: 7761-88-8

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

Identified uses	: Laboratory chemicals, Manufacture of substances
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### 1.3 Details of the supplier of the safety data sheet

Company	: Sigma-Aldrich Chemie GmbH Eschenstrasse 5 D-82024 TAUFKIRCHEN
Telephone	: +49 (0)89 6513-1130
Fax	: +49 (0)89 6513-1161
E-mail address	: technischerservice@merckgroup.com

### 1.4 Emergency telephone number

Emergency Phone #	: 0800 181 7059 (CHEMTREC Deutschland) +49 (0)696 43508409 (CHEMTREC weltweit)
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## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification (REGULATION (EC) No 1272/2008)

Oxidizing solids, Category 2 H272: May intensify fire; oxidizer.

Corrosive to metals, Category 1 H290: May be corrosive to metals.

Skin corrosion, Sub-category 1A H314: Causes severe skin burns and eye damage.



Serious eye damage, Category 1	H318: Causes serious eye damage.
Reproductive toxicity, Category 1B	H360D: May damage the unborn child.
Short-term (acute) aquatic hazard, Category 1	H400: Very toxic to aquatic life.
Long-term (chronic) aquatic hazard, Category 1	H410: Very toxic to aquatic life with long lasting effects.

## 2.2 Label elements

### Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms :



Signal word : Danger

Hazard statements : H272 May intensify fire; oxidizer.  
 H290 May be corrosive to metals.  
 H314 Causes severe skin burns and eye damage.  
 H360D May damage the unborn child.  
 H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements : **Prevention:**  
 P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
 P260 Do not breathe dust.  
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

### Response:

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.  
 P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.  
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

### Reduced Labelling (<= 125 ml)



Hazard pictograms



Signal word

Danger

Hazard Statements

H314

H360D

Causes severe skin burns and eye damage.  
May damage the unborn child.

Precautionary Statements

P260

P280

Do not breathe dust.

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

P303 + P361 + P353

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.

P304 + P340 + P310

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.

P305 + P351 + P338

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

Supplemental Hazard Statements

none

## 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Ecological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Toxicological information: The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

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## SECTION 3: Composition/information on ingredients

### 3.1 Substances

Index-No. : 047-001-00-2

EC-No. : 231-853-9

### Components

Chemical name	CAS-No. EC-No.	Concentration (% w/w)	M-Factor, SCL, ATE
Silver nitrate	7761-88-8	>= 90 - <= 100	M-Factor (Acute)



	231-853-9	aquatic toxicity): 1.000 M-Factor (Chronic aquatic toxicity): 100
		specific concentration limit Met. Corr. 1; H290 >= 1 %
		Ox. Sol. 2; H272 68 %

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## SECTION 4: First aid measures

### 4.1 Description of first aid measures

- General advice : First aiders need to protect themselves.  
Show this safety data sheet to the doctor in attendance.
- If inhaled : After inhalation: fresh air. Call in physician.
- In case of skin contact : In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.
- In case of eye contact : After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.
- If swallowed : After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

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## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

- Suitable extinguishing : Use extinguishing measures that are appropriate to



media local circumstances and the surrounding environment.

Unsuitable extinguishing media : For this substance/mixture no limitations of extinguishing agents are given.

## 5.2 Special hazards arising from the substance or mixture

Specific hazards during fire fighting : Container explosion may occur under fire conditions.

Not combustible.

Has a fire-promoting effect due to release of oxygen.

Ambient fire may liberate hazardous vapours.

Hazardous combustion products : Nitrogen oxides (NOx)

Silver/silver oxides

## 5.3 Advice for firefighters

Special protective equipment for fire-fighters : Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information : Suppress (knock down) gases/vapours/mists with a water spray jet.  
Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

Personal precautions : Advice for non-emergency personnel:  
Avoid inhalation of dusts.  
Avoid substance contact.  
Ensure adequate ventilation.  
Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

### 6.2 Environmental precautions

Environmental precautions : Do not let product enter drains.

### 6.3 Methods and material for containment and cleaning up

Methods for cleaning up : Cover drains. Collect, bind, and pump off spills.  
Observe possible material restrictions (see sections 7 and 10).  
Take up carefully. Dispose of properly. Clean up affected area.  
Avoid generation of dusts.

### 6.4 Reference to other sections

For disposal considerations see section 13.



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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

- Advice on safe handling : Work under hood. Do not inhale substance/mixture.
- Advice on protection against fire and explosion : Keep away from open flames, hot surfaces and sources of ignition.
- Hygiene measures : Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

### **7.2 Conditions for safe storage, including any incompatibilities**

- Requirements for storage areas and containers : No metal containers.
- Further information on storage conditions : Tightly closed. Keep locked up or in an area accessible only to qualified or authorised persons. Do not store near combustible materials.
- Storage class (TRGS 510) : 5.1B, Oxidizing hazardous materials
- Further information on storage stability : Light sensitive.
- Packaging material : Suitable material: Amber Glass Bottle/Jar, LDPE Bottle/Jar

### **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## **SECTION 8: Exposure controls/personal protection**

### **8.1 Control parameters**

#### **Occupational Exposure Limits**

### **8.2 Exposure controls**

#### **Personal protective equipment**

- Eye/face protection : Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).  
Tightly fitting safety goggles

#### Hand protection

- Material : Nitrile rubber
- Break through time : 480 min
- Glove thickness : 0,11 mm
- Protective index : Full contact
- Manufacturer : KCL 741 Dermatril® L



Material	:	Nitrile rubber
Break through time	:	480 min
Glove thickness	:	0,11 mm
Protective index	:	Splash contact
Manufacturer	:	KCL 741 Dermatril® L
Remarks	:	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 EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: <a href="http://www.kcl.de">www.kcl.de</a> ).

Skin and body protection : protective clothing

Respiratory protection : required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type:  
: Filter type P3

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.

### **Environmental exposure controls**

Advice : Do not let product enter drains.

## **SECTION 9: Physical and chemical properties**

### **9.1 Information on basic physical and chemical properties**

Physical state : solid

Color : colourless

Odor : odourless

Odor Threshold : Not applicable

Melting point/ range : 212 °C  
Method: dec.

Boiling point/boiling range : 440 °C



	Decomposes on heating.
Flammability	: No data available
Upper explosion limit / Upper flammability limit	: No data available
Lower explosion limit / Lower flammability limit	: No data available
Flash point	: Not applicable
Autoignition temperature	: Not applicable
Decomposition temperature	: No data available
pH	: No data available
Viscosity, dynamic	: No data available
Viscosity, kinematic	: No data available
Flow time	: No data available
Solubility(ies)	
Water solubility	: 2.150 g/l (20 °C)
Partition coefficient: n- octanol/water	: Not applicable for inorganic substances
Vapor pressure	: No data available
Relative density	: No data available
Density	: 4,350 g/cm <sup>3</sup>
Relative vapour density	: No data available

## 9.2 Other information

Explosives	: Not classified as explosive.
Oxidizing properties	: The substance or mixture is classified as oxidizing with the category 2.



Burning rate	: No data available
Metal corrosion rate	: May be corrosive to metals.
Evaporation rate	: No data available
Molecular weight	: 169,87 g/mol

## **SECTION 10: Stability and reactivity**

### **10.1 Reactivity**

No data available

### **10.2 Chemical stability**

The product is chemically stable under standard ambient conditions (room temperature) .

### **10.3 Possibility of hazardous reactions**

Hazardous reactions : Decomposes on exposure to light.

### **10.4 Conditions to avoid**

Conditions to avoid : Light.  
no information available

### **10.5 Incompatible materials**

No data available

### **10.6 Hazardous decomposition products**

In the event of fire: see section 5

## **SECTION 11: Toxicological information**

### **11.1 Information on toxicological effects**

#### **Acute toxicity**

Oral: No data available  
Inhalation: No data available  
Dermal: No data available

#### **Skin corrosion/irritation**

Skin - reconstructed human epidermis (RhE)  
Result: Causes severe burns. - 3 - 60 min  
(OECD Test Guideline 431)

#### **Serious eye damage/eye irritation**

Eyes - Rabbit  
Result: Causes serious eye damage.  
Remarks: (ECHA)  
Remarks: Risk of permanent damage due to staining of the cornea.



## **Respiratory or skin sensitization**

No data available

## **Germ cell mutagenicity**

Test Type: Micronucleus test

Test system: Human lymphocytes

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 487

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: mouse lymphoma cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: Positive results were obtained in some in vitro tests.

Test Type: Micronucleus test

Species: Rat

Application Route: Gavage

Method: OECD Test Guideline 474

Result: Positive results were obtained in some in vivo tests.

## **Carcinogenicity**

No data available

## **Reproductive toxicity**

May damage the unborn child.

## **Specific target organ toxicity - single exposure**

No data available

## **Specific target organ toxicity - repeated exposure**

No data available

## **Aspiration hazard**

No data available

## **11.2 Additional Information**

### **Endocrine disrupting properties**

#### **Product:**

Assessment

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Repeated dose toxicity - Rat - male and female - Oral - 52 Days - No observed adverse effect level - >= 250 mg/kg

RTECS: VW4725000

May cause argyria (a slate-gray or bluish discoloration of the skin and deep tissues due to the deposit of insoluble albuminate of silver)., Absorption into the body leads to the formation of methemoglobin which in sufficient concentration causes cyanosis. Onset may be delayed 2 to 4 hours or longer.



To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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## SECTION 12: Ecological information

### 12.1 Toxicity

#### Components:

#### **Silver nitrate:**

Toxicity to fish	: LC50 (Pimephales promelas (fathead minnow)): 0,0012 mg/l End point: mortality Exposure time: 96 h Test Type: semi-static test Analytical monitoring: yes Method: US-EPA
Toxicity to daphnia and other aquatic invertebrates	: EC50 (Daphnia magna (Water flea)): 0,00022 mg/l End point: mortality Exposure time: 48 h Test Type: semi-static test Analytical monitoring: yes Remarks: (ECHA)
Toxicity to algae/aquatic plants	: ErC50 (Raphidocelis subcapitata (freshwater green alga)): 0,00252 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes
	EC10 (Raphidocelis subcapitata (freshwater green alga)): 0,00046 mg/l Exposure time: 72 h Test Type: static test Analytical monitoring: yes Method: OECD Test Guideline 201 GLP: yes
M-Factor (Acute aquatic toxicity)	: 1.000
Toxicity to fish (Chronic toxicity)	: NOEC: 0,000351 mg/l Exposure time: 34 d Species: Pimephales promelas (fathead minnow) Test Type: flow-through test Analytical monitoring: yes GLP: yes Remarks: (ECHA)
Toxicity to daphnia and	: EC10: 0,0027 mg/l



other aquatic invertebrates (Chronic toxicity)

Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Test Type: semi-static test  
Analytical monitoring: yes  
Remarks: (ECHA)

M-Factor (Chronic aquatic : 100 toxicity)

## 12.2 Persistence and degradability

### Components:

#### **Silver nitrate:**

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

## 12.3 Bioaccumulative potential

### Components:

#### **Silver nitrate:**

Bioaccumulation : Species: Cyprinus carpio (Carp)  
Exposure time: 41 d  
Temperature: 20 °C  
Bioconcentration factor (BCF): 70

Partition coefficient: n-octanol/water : Remarks: Not applicable for inorganic substances

## 12.4 Mobility in soil

No data available

## 12.5 Results of PBT and vPvB assessment

### Product:

Assessment : This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## 12.6 Endocrine disrupting properties

### Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

No data available



## **12.7 Other adverse effects**

No data available

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## **SECTION 13: Disposal considerations**

### **13.1 Waste treatment methods**

**Product** : Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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## **SECTION 14: Transport information**

### **14.1 UN number or ID number**

**ADR** : UN 1493  
**IMDG** : UN 1493  
**IATA** : UN 1493

### **14.2 UN proper shipping name**

**ADR** : SILVER NITRATE  
**IMDG** : SILVER NITRATE  
**IATA** : Silver nitrate

### **14.3 Transport hazard class(es)**

	Class	Subsidiary risks
<b>ADR</b>	: 5.1	
<b>IMDG</b>	: 5.1	
<b>IATA</b>	: 5.1	

### **14.4 Packing group**

**ADR**  
Packing group : II  
Classification Code : O2  
Hazard Identification Number : 50  
Labels : 5.1  
Tunnel restriction code : (E)

**IMDG**  
Packing group : II  
Labels : 5.1  
EmS Code : F-A, S-Q

### **IATA (Cargo)**



Packing instruction (cargo : 562  
aircraft)  
Packing instruction (LQ) : Y544  
Packing group : II  
Labels : Division 5.1 - Oxidizing substances

**IATA\_P (Passenger)**

Packing instruction : 558  
(passenger aircraft)  
Packing instruction (LQ) : Y544  
Packing group : II  
Labels : Division 5.1 - Oxidizing substances

## 14.5 Environmental hazards

**ADR**

Environmentally hazardous : yes

**IMDG**

Marine pollutant : yes

## 14.6 Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

## 14.7 Maritime transport in bulk according to IMO instruments

Not applicable for product as supplied.

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## SECTION 15: Regulatory information

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

REACH - Restrictions on the manufacture, placing : Not applicable on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)

REACH - Candidate List of Substances of Very High Concern for Authorisation (Article 59). : Not applicable

Regulation (EU) No 2024/590 on substances that deplete the ozone layer : Not applicable

Regulation (EU) 2019/1021 on persistent organic pollutants (recast) : Not applicable

REACH - List of substances subject to authorisation (Annex XIV) : Not applicable

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards P8 OXIDIZING LIQUIDS AND SOLIDS



involving dangerous substances.

## E1 ENVIRONMENTAL HAZARDS

### 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

### SECTION 16: Other information

H272	: May intensify fire; oxidizer.
H290	: May be corrosive to metals.

#### Full text of other abbreviations

Met. Corr.	: Corrosive to metals
Ox. Sol.	: Oxidizing solids

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonised System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organisation; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardisation; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organisation for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

#### Further information



Other information

: The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.  
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