

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 03/26/2020

Version 1.5

## SECTION 1. Identification

### Product identifier

Product number	SX0205
Product name	Silver Nitrate Crystals GR ACS
CAS-No.	7761-88-8

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

Identified uses	Reagent for analysis
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### Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation   400 Summit Drive   Burlington   Massachusetts 01803   United States of America   General Inquiries: +1 800-645-5476   Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5) MilliporeSigma is a business of Merck KGaA, Darmstadt, Germany.
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<b>Emergency telephone</b>	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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## SECTION 2. Hazards identification

### GHS Classification

Oxidizing solid, Category 2, H272  
Corrosive to Metals, Category 1, H290  
Skin corrosion, Category 1B, H314  
Serious eye damage, Category 1, H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

SX0205

Version 1.5

Product name

Silver Nitrate Crystals GR ACS

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## 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.

## Precautionary Statements

P210 Keep away from heat.

P220 Keep/Store away from clothing/ combustible materials.

P221 Take any precaution to avoid mixing with combustibles.

P234 Keep only in original container.

P260 Do not breathe dusts or mists.

P264 Wash skin thoroughly after handling.

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

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

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

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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

P310 Immediately call a POISON CENTER/doctor.

P321 Specific treatment (see supplemental first aid instructions on this label).

P363 Wash contaminated clothing before reuse.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

P390 Absorb spillage to prevent material damage.

P405 Store locked up.

P406 Store in corrosive resistant stainless steel container with a resistant inner liner.

P501 Dispose of contents/ container to an approved waste disposal plant.

## Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

Page 2 of 14

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number SX0205  
Product name Silver Nitrate Crystals GR ACS

Version 1.5

Formula  $\text{AgNO}_3$   $\text{AgNO}_3$  (Hill)  
Molar mass 169.87 g/mol

## Hazardous ingredients

*Chemical name (Concentration)*

CAS-No.

*Silver nitrate (>= 90 % - <= 100 % )*

7761-88-8

Exact percentages are being withheld as a trade secret.

## SECTION 4. First aid measures

### Description of first-aid measures

*General advice*

First aider needs to protect himself.

*Inhalation*

After inhalation: fresh air. Call in physician.

*Skin contact*

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

*Eye contact*

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

*Ingestion*

After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation!). Call a physician immediately. Do not attempt to neutralize.

Never give anything by mouth to an unconscious person.

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

Irritation and corrosion, Cough, Dizziness, Vomiting, Diarrhea, gastric spasms, Shortness of breath, Unconsciousness, death  
Risk of permanent damage due to staining of the cornea.  
Risk of blindness!

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

No information available.

## SECTION 5. Fire-fighting measures

### Extinguishing media

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number SX0205  
Product name Silver Nitrate Crystals GR ACS

---

Version 1.5

### *Suitable extinguishing media*

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

### *Unsuitable extinguishing media*

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

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

Not combustible.

Ambient fire may liberate hazardous vapors.

Fire may cause evolution of:

nitrogen oxides

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

### **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/vapors/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**

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

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.

Advice for emergency responders:

Protective equipment see section 8.

### **Environmental precautions**

Do not let product enter drains.

### **Methods and materials for containment and cleaning up**

Conduct recycling.

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

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## **SECTION 7. Handling and storage**

### **Precautions for safe handling**

Observe label precautions.

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# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

SX0205

Version 1.5

Product name

Silver Nitrate Crystals GR ACS

## Conditions for safe storage, including any incompatibilities

*Requirements for storage areas and containers*

No metal containers.

Protected from light.

Tightly closed. Do not store near combustible materials.

Store at room temperature.

## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

*Components*

Basis	Value	Threshold limits	Remarks
<i>Silver nitrate 7761-88-8</i>			
ACGIH	Time Weighted Average (TWA):	0.01 mg/m <sup>3</sup>	Expressed as: as Ag
NIOSH/GUIDE	Recommended exposure limit (REL):	0.01 mg/m <sup>3</sup>	Form of exposure: Dust. Expressed as: as Ag
OSHA_TRANS	PEL:	0.01 mg/m <sup>3</sup>	Expressed as: as Ag
Z1A	Time Weighted Average (TWA):	0.01 mg/m <sup>3</sup>	Expressed as: as Ag

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

### Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream.

Wash hands and face after working with substance.

### Eye/face protection

Tightly fitting safety goggles

### Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	480 min

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number SX0205  
Product name Silver Nitrate Crystals GR ACS

Version 1.5

## splash contact:

Glove material: Nitrile rubber  
Glove thickness: 0.11 mm  
Break through time: 480 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

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 and supplied by us as well as to the purpose specified by us. 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](http://www.kcl.de)).

*Other protective equipment:*  
protective clothing

### *Respiratory protection*

required when dusts are generated.

Recommended Filter type: Filter P 2 (acc. to DIN 3181) for solid and liquid particles of harmful substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are performed according to the instructions of the producer.

These measures have to be properly documented.

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## SECTION 9. Physical and chemical properties

Physical state	crystals
Color	colorless
Odor	odorless
Odor Threshold	Not applicable
pH	5.4 - 6.4 at 100 g/l 68 °F (20 °C)
Melting point	414 °F (212 °C)

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number	SX0205	Version 1.5
Product name	Silver Nitrate Crystals GR ACS	

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Boiling point/boiling range	831 °F (444 °C) at 1,013 hPa (decomposition)
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor pressure	Not applicable
Relative vapor density	No information available.
Density	4.35 g/cm <sup>3</sup> at 68 °F (20 °C)
Relative density	No information available.
Water solubility	2,160 g/l at 68 °F (20 °C)
Partition coefficient: n- octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	> 831 °F (> 444 °C)
Viscosity, dynamic	Not applicable
Explosive properties	Not classified as explosive.
Oxidizing properties	The substance or mixture is classified as oxidizing with the category 2.
Ignition temperature	Not applicable
Bulk density	ca.2,350 kg/m <sup>3</sup>

## SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

SX0205

Version 1.5

Product name

Silver Nitrate Crystals GR ACS

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### SECTION 10. Stability and reactivity

#### Reactivity

has a corrosive effect

#### Chemical stability

Sensitivity to light

#### Possibility of hazardous reactions

Risk of explosion with:

Acetaldehyde, Acetylene, Nitriles, Ammonia, ammonium hydroxide, azides, combustible substances, carbides, ethanol, Fluoroacetylene, Hydrazine hydrate, acetylidene, Sodium hydroxide, Nitromethane, Organic Substances, phosphorus, phosphorus hydrogen, sulfur, Titanium, Zinc, charcoal, Activated charcoal

Ammonia, with, ethanol

Ammonia, with, Sodium hydroxide solution

powdered magnesium, with, Water

Risk of ignition or formation of inflammable gases or vapors with:

arsenic, oxidizable substances

Exothermic reaction with:

nonmetals, oxidizable substances, iodides, strong reducing agents, halogen-halogen compounds

#### Conditions to avoid

Strong heating (decomposition).

Exposure to light.

#### Incompatible materials

Aluminum, Mild steel

Metals

#### Hazardous decomposition products

in the event of fire: See section 5.

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### SECTION 11. Toxicological information

#### Information on toxicological effects

*Likely route of exposure*

Eye contact, Skin contact, Ingestion

*Target Organs*

Kidney

Lungs

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Page 8 of 14

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

SX0205

Version 1.5

Product name

Silver Nitrate Crystals GR ACS

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Mucous membranes

Skin

Eyes

Cornea

Nose

Digestive organs

Gastro-intestinal system

head

Respiratory organs

*Acute oral toxicity*

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

*Acute inhalation toxicity*

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Corrosive to respiratory system.

*Skin irritation*

In vitro study

Result: Corrosive

OECD Test Guideline 431

Causes burns.

*Eye irritation*

Rabbit

Result: Causes burns.

(External MSDS)

Causes serious eye damage. Risk of permanent damage due to staining of the cornea.

Risk of blindness!

*Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

(External MSDS)

*Specific target organ systemic toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

*Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

## SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number SX0205  
Product name Silver Nitrate Crystals GR ACS

Version 1.5

### *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

### **Carcinogenicity**

IARC	No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
OSHA	No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

### **Further information**

After uptake:

Vomiting, gastric spasms, Diarrhea, Dizziness, Unconsciousness, death

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## **SECTION 12. Ecological information**

### **Ecotoxicity**

#### *Toxicity to fish*

semi-static test LC50 Pimephales promelas (fathead minnow): 0.0012 mg/l; 96 h

Analytical monitoring: yes(ECHA)

#### *Toxicity to daphnia and other aquatic invertebrates*

semi-static test LC50 Daphnia magna (Water flea): 0.00022 mg/l; 48 h

Analytical monitoring: yes(ECHA)

#### *Toxicity to bacteria*

EC10 Pseudomonas putida: 0.006 mg/l; 16 h (External MSDS)

#### *Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)*

semi-static test NOEC Daphnia magna (Water flea): 0.00032 mg/l; 21 d

Analytical monitoring: yes

US-EPA

### **Persistence and degradability**

#### *Biodegradability*

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

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number SX0205  
Product name Silver Nitrate Crystals GR ACS

Version 1.5

## Bioaccumulative potential

No information available.

## Mobility in soil

No information available.

### *Additional ecological information*

Biological effects:

Forms corrosive mixtures with water even if diluted.

Discharge into the environment must be avoided.

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## SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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## SECTION 14. Transport information

### Land transport (DOT)

<b>UN number</b>	UN 1493
<b>Proper shipping name</b>	SILVER NITRATE
<b>Class</b>	5.1
<b>Packing group</b>	II
<b>Environmentally hazardous</b>	--

### Air transport (IATA)

<b>UN number</b>	UN 1493
<b>Proper shipping name</b>	SILVER NITRATE
<b>Class</b>	5.1
<b>Packing group</b>	II
<b>Environmentally hazardous</b>	--
<b>Special precautions for user</b>	no

### Sea transport (IMDG)

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number SX0205 Version 1.5  
Product name Silver Nitrate Crystals GR ACS

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**UN number** UN 1493  
**Proper shipping name** SILVER NITRATE  
**Class** 5.1  
**Packing group** II  
**Environmentally hazardous** --  
**Special precautions for user** yes  
EmS F-A S-Q

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## SECTION 15. Regulatory information

### United States of America

#### SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

*Components*

Silver nitrate	7761-88-8	100 %
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#### SARA 302

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

#### Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

*Components*

Silver nitrate

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

*Components*

Silver nitrate

This product contains the following toxic pollutants listed under the U.S. Clean Water Act Section 307

*Components*

Silver nitrate

#### DEA List I

Not listed

#### DEA List II

Not listed

### US State Regulations

#### Massachusetts Right To Know

*Components*

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

SX0205

Version 1.5

Product name

Silver Nitrate Crystals GR ACS

Silver nitrate

## **Pennsylvania Right To Know**

*Components*

Silver nitrate

## **New Jersey Right To Know**

*Components*

Silver nitrate

## **California Prop 65 Components**

This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

## **Notification status**

TSCA:

All components of the product are listed in the TSCA-inventory.

DSL:

All components of this product are on the Canadian DSL

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## **SECTION 16. Other information**

### **Training advice**

Provide adequate information, instruction and training for operators.

### **Labeling**

*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.

H410 Very toxic to aquatic life with long lasting effects.

*Precautionary Statements*

Prevention

P221 Take any precaution to avoid mixing with combustibles, heavy-metal compounds, acids and alkalis.

P273 Avoid release to the environment.

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

# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Product number

SX0205

Version 1.5

Product name

Silver Nitrate Crystals GR ACS

---

## Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

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

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/physician.

## Full text of H-Statements referred to under sections 2 and 3.

H272

May intensify fire; oxidizer.

H290

May be corrosive to metals.

H314

Causes severe skin burns and eye damage.

H318

Causes serious eye damage.

## Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

Revision Date 03/26/2020

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