

**Safety data sheet**  
**According to Regulation n. 1907/2006 and Regulation 878/2020**  
**SILVER NITRATE 63,5% STICK FORM**



Revision n. XII – 19.09.2024  
 Replaces revision XI – 12.05.2023

**1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

**1.1 Product identifier**

Chemical name	SILVER NITRATE (AgNO <sub>3</sub> )
Product code	05 08
CAS	7761-88-8
EC	231-853-9
INDEX number	047-001-00-2
Molecular weight	169,87
Raw formula	AgNO <sub>3</sub>

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

Recommended uses	Industrial use. Use in the pharmaceutical industry
Uses advised against	See section 15

**1.3 Details of the supplier of the safety data sheet**

Name	FAGGI ENRICO S.P.A.
Address	Via Majorana, 101/103 50019 Sesto Fiorentino FI
Telephone number	055311861
Fax number	055311791
Competent person responsible for the safety data sheet	lorenzo.magaldi@faggi.it

**1.4 Emergency telephone number** 111 - Medical helpline operating in England, in Scotland (NHS 24) and in Wales (NHS Direct Wales)

**1.5 Registration number** 01-2119513705-43—XXXX

**2. HAZARDS IDENTIFICATION**

**2.1 Classification of the mixture according to Regulation (EC) n. 1272/2008**

Hazard class	Category codes	Hazards indications
Ox. Sol.	1	H271
Met. Corr.	1	H290
Skin corr.	1A	H314
Eye Dam.	1	H318
Repr.	1B	H360D
Aquatic acute	1	H400
Aquatic chronic	1	H410

**2.2 Label elements**

**Pictograms**



**Signal word**

**DANGER**

**Hazard statements**

H271	May cause fire or explosion; strong oxidizer
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H360D	May damage the unborn child

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<b>Precautionary advice</b>	H400 H410	Very toxic to aquatic life Very toxic to aquatic life with long lasting effects
	P234	Keep only in original container/packaging
	P260	Do not breathe dust/fume/gas/mist/vapours/spray.
	P303+P361+P353	IF ON SKIN: Take off immediately all contaminated clothing, rinse skin /take a shower
	P305+P351+P338	IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.
	P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

**2.3 Other hazards**  
 In combination with ammonia, silver nitrate can form unstable compounds such as silver fulminate.  
 It does NOT contain PBT / vPvB substances according to Regulation (EC) 1907/2006, annex XIII  
 It does NOT contain substances that interfere with the endocrine system in accordance with Regulation (EC) 1907/2006 art.59 paragraph 1 and in accordance with the criteria established in Regulation (EU) 2017/2100 and Regulation (EU) 2018/605.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

**3.1 Substance: SILVER NITRATE**

CAS: 7761-88-8  
 CE: 231-853-9  
 INDEX: 047-001-00-2  
 ATE: Not applicable  
 M factor (acute): 1000  
 M factor (chronic): 100

**4. FIRST AID MEASURES**

**4.1 Description of first aid measures**

Inhalation	Immediately move the injured person to fresh air. Artificial respiration may be required. Refer to medical attention.
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Ingestion	Do not induce vomiting. Have a glass of water drink. Contact a doctor immediately. Do not give anything if the person is not conscious.
Contact with skin	Immediately rinse with water for at least 15 minutes and wash with soap. Remove contaminated clothing.
Contact with eyes	In case of contact with eyes, wash them immediately with water for at least 15 minutes and contact a doctor

Recommendations:

- Need to see a doctor immediately YES
- Possibility of delayed effects following exposure YES
- Move the exposed individual from the place of exposure to the open air YES
- Remove the clothing and shoes of the exposed individual YES
- How to handle contaminated clothing With gloves
- For first aiders, wear PPE YES

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

In case of inhalation or ingestion: sore throat, cough, burning sensation. Shortness of breath, difficulty breathing. Blue lips and nails and skin. Dizziness, headache, nausea. Confusional state, convulsions, unconsciousness. Symptoms may be delayed. Abdominal pain, burning sensation. Shock or collapse.

In case of skin contact: pain, redness, burns, blisters.

In case of eye contact: redness, pain. Severe deep burns. Vision loss

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

Contact a doctor immediately. It is of the utmost importance to clean all contaminated areas of the body, including the scalp and nails.

**5. FIREFIGHTING MEASURES**

**5.1 Extinguishing media**

Suitable extinguishing media CO2 or powder or nebulised water extinguishers.

Unsuitable extinguishing media None

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

The substance decomposes on heating producing toxic fumes including nitrogen oxides. It is a strong oxidant and reacts violently with ammonia, combustible materials and reducing agents. Although the substance is not combustible, it can cause or favor the combustion of other materials.

**5.3 Advice for firefighters**

Normal fire fighting clothing, such as an open circuit compressed air breathing apparatus (EN137), flame retardant suit (EN469), flame retardant gloves (EN659) and firefighter boots (HOA29 or A30)

Protective measures to be taken:

- Remove the containers from the fire area, if this is possible without risk, or cool them, because if the substance is exposed to thermal radiation or if it is directly involved it can give rise to toxic fumes and an explosion.
- Damaged containers must only be handled by authorized expert personnel.
- Proceed to extinguish the fire at a safe distance from the containers using hoses or automatic fire extinguishing systems with nozzles positioned above the containers.

**6. ACCIDENTAL RELEASE MEASURES**

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

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**6.1.1. For non-emergency personnel**

Warn all persons: danger of intoxication - Evacuate the contaminated area - Alert internal emergency workers or the fire brigade

**6.1.2. For emergency responders**

Wear protective equipment:

- mask with ABEK P2 filters or breathing apparatus,
- gloves compliant with EN420 E374 standards
- flame retardant and acid resistant protective clothing compliant with UNI EN 13034:2006 type 6 UNI EN ISO 11612:2009 A1-B1-C1-E1
- eye protection devices compliant with Directive 89/686/EEC and standard EN166:2001.

Remove all sources of ignition if the operation is without risk.

Provide adequate ventilation of the premises.

If possible, operate upwind

Avoid coming into contact with the substance or handling the containers without adequate protection.

Isolate the area until the substance is completely dispersed.

**6.2 Environmental precautions**

Evacuate the dangerous area. Limit evaporation and reduce the affected area to a minimum by containing the leak. Do not allow the spill to reach sewers or natural watercourses and, if it has not been possible, notify the competent authorities immediately.

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

**6.3.1. Advice in order to contain a spill**

Close the manholes. Do not absorb with sawdust or other flammable materials. Collect spilled substance in sealable containers; if appropriate, pre-humidify them to avoid dust dispersion

**6.3.2. Advice in order to clean-up a spill**

Wash the contaminated area with water.

**6.3.3 Other information**

None

**6.4 Reference to other sections**

None

**7. HANDLING AND STORAGE**

**7.1. Precautions for safe handling**

**7.1.1. Recommendations in order to manipulate the substance or the mixture in a safe manner, such as containment measures and prevention of fire and aerosol and powders formation**

Use the product only under forced suction, keep separate from incompatible materials (ammonia, flammable and reducing agents). Keep separate from combustible material.

**7.1.2. General recommendation on work hygiene**

Do not eat, drink and smoke in work areas. Wash hands after use. Remove contaminated clothing and protective equipment before entering eating areas

**7.2. Conditions Safe storage, including any incompatibilities**

**7.2.1. Risk management associated with explosive atmospheres, corrosive conditions, flammability hazards, incompatible substances or mixtures, evaporative conditions, potential ignition sources**

Keep separate from acetylene, ammonia, antimony, halides and alkalis.

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**7.2.2 Containment of the effects of weather conditions, pressure, temperature, sunlight, humidity and vibrations**

Store in closed and labeled containers away from sunlight.

**7.2.3. Conditions for keeping substances / mixtures intact**

Close the containers immediately after use.

**7.2.4 Provisions relating to ventilation, specific design of storage rooms or containers, quantitative limits in storage conditions, compatibility of packaging**

Storage rooms must be ventilated and closed.

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

Industrial use. Use in the pharmaceutical industry

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**8.1. Control parameters (related to metallic Silver species)**

ECLV TWA 0,01 mg/m<sup>3</sup>

OEL (IT) TWA 0,01 mg/m<sup>3</sup>

**DNEL**

**Workers**

Systemic effects for long-term exposure – inhalation: 0.96 mg/m<sup>3</sup>

Systemic effects for short-term exposure – inhalation: no hazard identified

Local effects for long-term exposure – inhalation: high hazard (no threshold derived)

Local effects for short-term exposure – inhalation: high hazard (no threshold derived)

Systemic effects for long-term exposure – dermal: 0.34 mg/kg body weight per day

Systemic effects for short-term exposure – dermal: no hazard identified

Local effects for long-term exposure – dermal: high hazard (no threshold derived)

Local effects for short-term exposure – dermal: high hazard (no threshold derived)

Eye hazards: medium hazard (no threshold derived)

**General population.**

Systemic effects for long-term exposure – inhalation: 0.24 mg/m<sup>3</sup>

Systemic effects for short-term exposure – inhalation: no hazard identified

Local effects for long-term exposure – inhalation: high hazard (no threshold derived)

Local effects for short-term exposure – inhalation: high hazard (no threshold derived)

Systemic effects for long-term exposure – dermal: 0.17 mg/kg body weight per day

Systemic effects for short-term exposure – dermal: no hazard identified

Local effects for long-term exposure – dermal: high hazard (no threshold derived)

Local effects for short-term exposure – dermal: high hazard (no threshold derived)

Systemic effects for long-term exposure – oral: 0.17 mg/kg body weight per day

Systemic effects for short-term exposure – oral: no hazard identified

Eye hazards: medium hazard (no threshold derived)

**PNEC**

Freshwater: 0.046 µg/L

Marine water: 0.86 µg/L

Sewer treatment plant: 0.025 µg/L

Sediment (freshwater): 438.13 mg/kg sediment dry weight

Sediment (marine water): 438.13 mg/kg sediment dry weight

Soil: 1.05 mg/kg soil dry weight

**8.2. Exposure controls**

Provide for appropriate air extraction / evacuation in the workplace and on the operating machine.

Provide for the installation of an emergency shower and an eye shower.

**8.2.1. Appropriate engineering controls**

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Periodically carry out personal environmental sampling and clinical examinations.

**8.2.2. Individual protection measures, such as personal protective equipment**

<b>Eye/face protection</b>	Eye protective equipment compliant with Directive 89/686/EEC and standard EN166:2001
<b>Skin protection (hands)</b>	Chemical gloves according to EN 420 EN 374 Glove material: Natural latex Material thickness: 0.5 mm Penetration time: ≥ 60 min DIN EN374 method
<b>Skin protection (body)</b>	Protective and anti-acid clothing compliant with UNI EN 13034:2006 type 6 standards
<b>Respiratory protection</b>	Mask with B,P2 or ABEK P3 filters or self-contained breathing apparatus
<b>Thermal hazards</b>	Protective clothing compliant with the UNI EN ISO 11612:2009 A1-B1-C1-E1 standard

**8.2.3. Environmental exposure controls**

Maintain suction in all environments using localized collection systems and ambient air exchange. Convey the aspirated volumes to an abatement system and then into the atmosphere. Do not use recirculating air suction systems. Avoid any spillage into the environment.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

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

Physical state	Solid			
Color	White			
Odor	Odorless			
Melting point / freezing point	212° C			
Boiling point or initial boiling point and boiling range	Not applicable			
Flammability	Not inflammable			
Lower and upper explosive limits	Not explosive			
Flash point	Not inflammable			
Self-ignition temperature	Not inflammable			
Decomposition temperature	250 - 440 °C			
pH	5,6 – 6,4 in soluzione acquosa 100 g/l a 20 °C			
Cinematic viscosity	Not applicable			
Solubility	2160 g/l in acqua a 20°			
Production coefficient n-octanol / water (logarithmic value)	Not applicable			
Vapor pressure	Not applicable			
Density and / or relative density	4.35 g/Cm <sup>3</sup>			
Relative vapor density	Not applicable			
Characteristics of the particles	Producer	D10 (µm)	D50 (µm)	D90 (µm)
	1	289- 329	459- 492	721- 727
	2	221	520	816
	3	174	329	571

**9.2. Other information**

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<b>10.</b>	None
	<b>STABILITY AND REACTIVITY</b>
<b>10.1</b>	<b>Reactivity</b> The product has strongly oxidizing properties.
<b>10.2</b>	<b>Chemical stability</b> The product is delivered in stable condition.
<b>10.3</b>	<b>Possibility of hazardous reactions</b> Wood and other organic materials impregnated with silver nitrate can spontaneously ignite when dry. Contact with ammonia can produce explosive compounds.
<b>10.4</b>	<b>Conditions to avoid</b> Keep away from sunlight.
<b>10.5</b>	<b>Incompatible materials</b> Violent reactions have been noted between silver nitrate and the following substances: acetic aldehyde, phosphorus, ammonia and ethanol, acetylene and derivatives, acrylonitrile, ammonia and sodium carbonate, ammonia and sodium hydroxide, arsenic, 1,3-butadiene, butene -3ino, chlorosulfonic acid, ethanol, phosphine.
<b>10.6</b>	<b>Hazardous decomposition products</b> The substance decomposes producing toxic fumes including nitrogen oxides (NOx). The substance is a strong oxidant and reacts violently with combustible and reducing materials causing fire and explosion.
<b>11.</b>	<b>TOXICOLOGICAL INFORMATION</b>
<b>11.1</b>	<b>Information on hazard classes as defined in Regulation (EC) No 1272/2008</b>
<b>Acute toxicity</b>	The acute oral, dermal and inhalation toxicity studies have been waived in accordance with the column 2 of the Annex VII of REACH Regulation: the study does not need to be conducted as the substance is classified as corrosive to the skin (Category 1A).
<b>Skin corrosion / irritation</b>	Corrosive on the skin according to the criteria of Reg, (EC) 1272/08
<b>Serious eye damage/irritation</b>	Causes serious eye damage according to the criteria of Reg, (EC) 1272/08
<b>Respiratory or skin sensitization</b>	Skin sensitization study has been waived in accordance with the column 2 of Annex VII of REACH Regulation. The studies ( <i>in-vivo</i> and <i>in-vitro</i> ) do not need to be conducted if the substance is classified as skin corrosive (Cat. 1A)
<b>Germ cell mutagenicity</b>	Data not available
<b>Carcinogenicity</b>	Data not available.
<b>Reproductive toxicity</b>	May affect fertility. NOAEL (fertility): 120 mg/kg bw/day (rat, oral) NOAEL (developmental toxicity) : 40 mg/kg bw/day (rat, oral)
<b>STOT – single exposure</b>	No known effects

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	<b>STOT – repeated exposure</b>	NOAEL oral rat: 120 mg/kg bw/day Effects: argyria
<b>11.2</b>	<b>Information on other hazards</b>	
	None	
<b>12.</b>	<b>ECOLOGICAL INFORMATION</b>	
<b>12.1</b>	<b>Toxicity</b>	PNEC: check section 8.1 The most sensitive data reported is a 96 hour LC50 of 1.2 µg Ag/L for Pimephales promelas (Bielmeyer et al. 2007). The lowest reported 48 hour EC50 is 0.22 µg Ag/L for Daphnia magna based on measured dissolved silver (Bianchini et al. 2002). This value is also selected as the acute ERV for classification purposes.
<b>12.2</b>	<b>Persistence and degradability</b>	Not degradable
<b>12.3</b>	<b>Bioaccumulative potential</b>	Not bioaccumulative
<b>12.4</b>	<b>Mobility in soil</b>	Log Kd 3.60 soil Log Kd 5.28 suspended matter Log Kd 4.05 sediment
<b>12.5</b>	<b>Results of PBT and vPvB assessment</b>	Not applicable
<b>12.6</b>	<b>Endocrine disrupting properties</b>	No known effects
<b>12.7</b>	<b>Other adverse effects</b>	No known effects
<b>13.</b>	<b>DISPOSAL CONSIDERATIONS</b>	
<b>13.1.</b>	<b>Waste treatment methods</b>	
	The solutions intended for disposal can be neutralized with lime or sodium carbonate. Do not discharge into sewers or into the environment and dispose of at authorized facilities. Packaging must not be reused and must be disposed of at authorized facilities.	
<b>14.</b>	<b>TRANSPORT INFORMATION</b>	
<b>14.1</b>	<b>UN number or ID number</b>	1493
<b>14.2</b>	<b>Official UN shipping name</b>	Silver nitrate
<b>14.3</b>	<b>Transport hazard class(es)</b>	
	ADR/RID/IMDG/ICAO-IATA	5.1
	ADR/RID/IMDG/ICAO-IATA	5.1 + dangerous for the environment
	ADR Tunnel restriction code	E
	IMDG – EmS	F-A S-Q
<b>14.4</b>	<b>Packing group</b>	II
<b>14.5</b>	<b>Dangers for the environment</b>	YES
<b>14.6</b>	<b>Special precautions for user</b>	Transport must be carried out by vehicles authorized for the transport of dangerous goods according to the provisions of the current edition of the A.D.R. Agreement. and the applicable national provisions. Transport must be carried out in the original packaging and, in any case, in packaging which is made of materials which cannot be



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attacked by the contents, and which are not likely to generate dangerous reactions. Those responsible for loading and unloading dangerous goods must have received appropriate training on the risks presented by the preparation and on any procedures to be adopted in the event of emergency situations.

**14.7** Maritime transport in bulk according to IMO instruments Bulk transport is not foreseen

**15.** **REGULATORY INFORMATION**

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

	<b>Applicability</b>
Reg. (EC) 1907/2006 / EC Reach	YES
Reg. (EC) 1272/2008 CLP and subsequent changes and additions	YES
Reg. (CE) 2037/2000 "Substances that deplete the ozone layer"	NO
Reg. (EC) 850/2004 "Persistent organic pollutants"	NO
Reg. (EC) 689/2008 "export and import of dangerous chemicals"	NO
Substance listed in Annex I of Dir. 2012/18 / EU so-called Seveso	YES
Legislative Decree 81/2008 Consolidated Law on health and safety at work	YES
Directive 2014/103 / EU "Adr"	YES
Reg. (CE) 1907/2006/CE Reach art. 59 – Candidate List of Substances of Very High Concern (SVHC)	NO
Reg. (CE) 1907/2006/CE Reach - Annex XIV – Authorisation List	NO
Reg. (CE) 1907/2006/CE Reach - Annex XVII – Restriction List <a href="https://echa.europa.eu/it/substances-restricted-under-reach">https://echa.europa.eu/it/substances-restricted-under-reach</a>	Limited use Item 30 - 75 (check link)

**15.2** Chemical safety assessment  
 A chemical safety assessment was not carried out

**16.** **OTHER INFORMATION**

**Changes compared to the previous edition**

Substance classification update

**Acronim and abbreviation legend**

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

GHS: Globally Harmonized System of Classification and Labeling of Substances

EINECS: European Inventory of Chemical Substances

CAS: Chemical Abstract Service

STA: Acute Toxicity Estimate

PBT: Persistent, Bioaccumulative and Toxic.

vPvB: (very persistent and very bioaccumulative). Very persistent and very bioaccumulative

LD: lethal dose

PNEC: predicted no effect concentration

DNEL: derived no effect level

TLV (ceiling value): threshold limit value

STEL: short-term exposure limit

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EU-OEL: European occupational exposure limit

TWA: time-weighted average

EC: effective concentration

NOAEL: no observed adverse effect level

LC: lethal concentration

NOEC: no observed effect concentration

LOEC: lowest observed effect concentration

Bw: body weight

ERV: Ecotoxicological Reference Value

Koc: organic carbon-water partition coefficient

**Main references and data sources**

ECHA's data bank on registered substances and soon to be registered substances:

<https://chem.echa.europa.eu/>

**Adequate training for workers in order to ensure the protection of human health and the environment**

- Chemical Risk Training pursuant to Legislative Decree 81/08 Title IX dangerous substances
- PPE training