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

Revision n. X – 10.11.2022
Replaces revision IX – 25.10.2021

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

1.1 Product identifier

Chemical name	SILVER NITRATE ($AgNO_3$)
Product code	05
	08
CAS	7761-88-8
EC	231-853-9
INDEX number	047-001-00-2
Molecular weight	169,87
Raw formula	$AgNO_3$

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

Recommended uses	Industrial use
Uses adviced against	See section 15

1.3 Details of the supplier of the safety data sheet

Name	FAGGI ENRICO S.P.A.
Adress	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.	1B	H314
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.
H410	Very toxic to aquatic life with long lasting effects

Precautionary advice

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.
P310	Immediately call a POISON CENTER or doctor/physician.
P405	Store locked up

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.
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	CO_2 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 - generally by releasing oxygen - 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

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. Raccomentations in order to manipulate the substance or the mixture in a safe manner, such as containement measures and prevention of fire and aereosol 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.

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

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters (related to metallic Silver species)

ECTLV TWA 0,01 mg/m^3
OEL (IT) TWA 0,01 mg/m^3
DNEL e PNEC : N.D.

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

Periodically carry out personal environmental sampling and clinical examinations.

8.2.2. Individual protection measures, such as personal protective equipment

Eye/face protection	Eye protective equipment compliant with Directive 89/686/EEC and standard EN166:2001
Skin protection (hands)	gloves compliant with EN420 E374 standards
Skin protection (body)	Protective and anti-acid clothing compliant with UNI EN 13034:2006 type 6 standards
Respiratory protection	Mask with B,P2 or ABEK P3 filters or self-contained breathing apparatus
Thermal hazards	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^3
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

None

10. STABILITY AND REACTIVITY

10.1 Reactivity

The product has strongly oxidizing properties.

10.2 Chemical stability

The product is delivered in stable condition.

10.3 Possibility of hazardous reactions

Wood and other organic materials impregnated with silver nitrate can spontaneously ignite when dry. Contact with ammonia can produce explosive compounds.

10.4 Conditions to avoid

Keep away from sunlight.

10.5 Incompatible materials

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.

10.6 Hazardous decomposition products

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.

11. TOXICOLOGICAL INFORMATION

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

Acute toxicity	LD50 rat > 2000 mg/kg bw
Skin corrosion / irritation	Corrosive on the skin according to the criteria of Reg, (EC) 1272/08
Serious eye damage/irritation	Causes serious eye damage according to the criteria of Reg, (EC) 1272/08

Respiratory or skin sensitization	Based on available data, the classification criteria are not met
Germ cell mutagenicity	Based on available data, the classification criteria are not met
Carcinogenicity	Data not available. Carcinogenic effects are not considered probable.
Reproductive toxicity	Based on available data, the classification criteria are not met
STOT – single exposure	No known effects
STOT – repeated exposure	NOAEL oral rat: 150 mg/kg bw/day Effects in man: argyria

11.2 Information on other hazards

None

12. ECOLOGICAL INFORMATION

12.1	**Toxicity**	LC50 < 0,1 mg/l (48h) (daphnie) LC50 < 1,0 mg/l (48h) (fish)
12.2	**Persistence and degradability**	Not degradable
12.3	**Bioaccumulative potential**	BCF 70 (Cyprinus carpio)
12.4	**Mobility in soil**	Log Kd 3.60
12.5	**Results of PBT and vPvB assessment**	No applicable
12.6	**Endocrine disrupting properties**	No known effects
12.7	**Other adverse effects**	No known effects

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

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.

14. TRANSPORT INFORMATION

14.1	**UN number or ID number**	1493
14.2	**UN proper shipping name**	Silver nitrate
14.3	**Transport hazard class(es)**	5.1
14.4	**Packing group**	II
14.5	**Environmental hazards**	YES
14.6	**Special precautions for user**	Use approved packaging
14.7	**Maritime transport in bulk according to IMO instruments**	n.a

15. REGULATORY INFORMATION

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

	Applicability
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"	NO
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	Limited use Item 3 - 75 (check link)
https://echa.europa.eu/it/substances-restricted-under-reach	

15.2 **Chemical safety assessment**

A chemical safety assessment was not carried out

16. OTHER INFORMATION

16.1 **Changes compared to the previous edition**

Regulatory update

16.2 **Acronim and abbreviation legend**

ADR : Agreement concerning the International Carriage of Dangerous Goods by Road
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstract Service

16.3 **Main references and data sources**

ECHA's data bank on registered substances and soon to be registered substances:
http://echa.europa.eu/web/guest/information-on-chemicals/registered-substances

16.5 **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