

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Creation Date 26-Jun-2009

Revision Date 20-Oct-2023

Revision Number 8

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description:	Silver nitrate
Cat No. :	S/1280/53, S/1280/68, S/1280/50, S/1280/48, S/1280, S/1280/46
Synonyms	Nitric acid, silver salt.
CAS No	7761-88-8
EC No	231-853-9
Molecular Formula	Ag N O3
REACH registration number	01-2119513705-43

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

Sector of use SU3 - Industrial uses: Uses of substances as such or in preparations at industrial	
Product category PC21 - Laboratory chemicals	
Process categories PROC15 - Use as a laboratory reagent	
Environmental release category Uses advised against ERC6a - Industrial use resulting in manufacture of another substance (use of inter No Information available	rmediates)

1.3. Details of the supplier of the safety data sheet

Company

UK entity/business name Fisher Scientific UK Bishop Meadow Road, Loughborough, Leicestershire LE11 5RG, United Kingdom

EU entity/business name

Thermo Fisher Scientific Janssen Pharmaceuticalaan 3a 2440 Geel, Belgium

E-mail address

begel.sdsdesk@thermofisher.com

1.4. Emergency telephone number

Tel: 01509 231166 Chemtrec US: (800) 424-9300 Chemtrec EU: 001-703-527-3887

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Silver nitrate

Oxidizing solids	Category 2 (H272)
Substances/mixtures corrosive to metal	Category 1 (H290)
Health hazards	
Skin Corrosion/Irritation	Category 1 B (H314)
Serious Eye Damage/Eye Irritation	Category 1 (H318)
Environmental hazards	
Acute aquatic toxicity	Category 1 (H400)
Chronic aquatic toxicity	Category 1 (H410)

Full text of Hazard Statements: see section 16



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

P220 - Keep away from clothing and other combustible materials

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

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

P310 - Immediately call a POISON CENTER or doctor/physician

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

2.3. Other hazards

In accordance with Annex XIII of the REACH Regulation, inorganic substances do not require assessment

Toxicity to Soil Dwelling Organisms Toxic to terrestrial vertebrates This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

FSUS1280

Silver nitrate

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Silver nitrate	7761-88-8	EEC No. 231-853-9	<=100	Ox. Sol. 2 (H272) Met. Corr. 1 (H290) Skin Corr. 1B (H314) Eye Dam. 1 (H318) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)

Component	Specific concentration limits (SCL's)	M-Factor	Component notes
Silver nitrate	-	Acute = 1000 Chronic = 100	-

REACH registration number	01-2119513705-43

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice	Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.				
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.				
Skin Contact	Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Immediate medical attention is required.				
Ingestion	Do NOT induce vomiting. Call a physician or poison control center immediately.				
Inhalation	Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician or poison control center immediately.				
Self-Protection of the First Aider	Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.				
4.2. Most important symptoms and	effects, both acute and delayed				
	Causes burns by all exposure routes Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation				
4.3. Indication of any immediate me	4.3. Indication of any immediate medical attention and special treatment needed				
Notes to Physician	Treat symptomatically.				
SECTION 5: FIREFIGHTING MEASURES					

5.1. Extinguishing media

Silver nitrate

Suitable Extinguishing Media

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

Corrosive material. Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.). Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Nitrogen oxides (NOx).

5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid dust formation. Do not get in eyes, on skin, or on clothing.

6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

6.3. Methods and material for containment and cleaning up

Keep combustibles (wood, paper, oil, etc) away from spilled material. Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal. Avoid dust formation.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Do not breathe (dust, vapor, mist, gas). Do not breathe dust. Keep away from clothing and other combustible materials.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials.

Technical Rules for Hazardous Substances (TRGS) 510Class 5.1BStorage Class (LGK) (Germany)Class 5.1B

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s): **EU** - Commission Directive (EU) 2019/1831 of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020.

Component	The United Kingdom	European Union	Ireland
Silver nitrate	TWA: 0.01 mg/m ³	TWA: 0.01 mg/m ³ (8hr)	
	STEL: 0.03 mg/m ³		

Biological limit values

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Silver nitrate 7761-88-8(<=100)				DNEL = 0.016mg/m ³

Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water	Fresh water	Water Intermittent	Microorganisms in	Soil (Agriculture)
		sediment		sewage treatment	
Silver nitrate	PNEC = 0.04µg/L	PNEC =		PNEC = 0.025mg/L	PNEC = 1.41mg/kg
7761-88-8(<=100)	-	438.13mg/kg			soil dw
		sediment dw			

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Silver nitrate	PNEC = 0.86µg/L	PNEC =			
7761-88-8 (<=100)	-	438.13mg/kg			
		sediment dw			

8.2. Exposure controls

Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Demonstration					
Personal protective ec Eye Protection		(European standard	d - EN 166)		
-					
Hand Protection	Protectiv	/e gloves			
Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments	
Natural rubber	See manufacturers	-	EN 374	(minimum requirement)	
Nitrile rubber	recommendations				
Neoprene					
PVC Skin and body pro	tection Long sle	eved clothing.			
	g o.c	erea ereag.			
nspect gloves before us					
		eability and breakthro	ough time which are pro	ovided by the supplier of the gloves.	
	supplier for information)				
				ditions, User susceptibility, e.g.	
	so take into consideration	n the specific local co	nditions under which the	ne product is used, such as the dange	
of cuts, abrasion.					
cemove gloves with car	re avoiding skin contami	nation.			
Respiratory Protect	ction When w	orkers are facing con	centrations above the	exposure limit they must use	
		ate certified respirato			
	To prote	ct the wearer, respire	atory protective equipm	ent must be the correct fit and be use	
	and mai	ntained properly			
Large scale/emergenc	vuse Use a N	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits			
			other symptoms are e		
			Particulates filter confe		
Small scale/Laborator	vuse Use a N	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure			
			tion or other symptoms		
			Particle filtering: EN14		
			ce Fit Test should be o		
		Pre			
Environmental exposu	ure controls Prevent	product from entering	o drains. Do not allow r	naterial to contaminate ground water	
				icant spillages cannot be contained.	
	SECTION 9: PH	HYSICAL AND	CHEMICAL PRO	PERTIES	
1 Information on ba	sic physical and chem	ical properties			
. I. Information on Da	isic priysical and chem	ical properties			

Physical State	Solid	
Appearance Odor Odor Threshold Melting Point/Range Softening Point Boiling Point/Range Flammability (liquid) Flammability (solid,gas) Explosion Limits	White Odorless No data available 212 °C / 413.6 °F No data available 444 °C / 831.2 °F Not applicable No information available No data available	@ 760 mmHg Solid
Flash Point Autoignition Temperature Decomposition Temperature pH Viscosity Water Solubility Solubility in other solvents Partition Coefficient (n-octanol/wa	No information available No data available > 444°C 5.4-6.4 Not applicable 219 g/100ml (20°C) No information available ter)	Method - No information available 10% aq solution Solid

Component	log Pow		
Silver nitrate	0.19		
Vapor Pressure	No data available		
Density / Specific Gravity	No data available		
Bulk Density	No data available		
Vapor Density	Not applicable	Solid	
Particle characteristics	No data available		
9.2. Other information			
Molecular Formula	Ag N O3		
Molecular Weight	169.87		
Oxidizing Properties	Oxidizer		
Evaporation Rate	Not applicable - Solid		

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity	Yes
10.2. Chemical stability	Oxidizer: Contact with combustible/organic material may cause fire. Light sensitive.
10.3. Possibility of hazardous react	tions_
Hazardous Polymerization Hazardous Reactions	Hazardous polymerization does not occur. None under normal processing.
10.4. Conditions to avoid	Avoid dust formation. Incompatible products. Excess heat. Combustible material. Exposure to light.
10.5. Incompatible materials	Strong oxidizing agents. Strong reducing agents. Combustible material. Metals. Amines.

10.6. Hazardous decomposition products

Nitrogen oxides (NOx).

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product Information

(a) acute toxicity; Oral Dermal

Inhalation

Silver nitrate

Based on available data, the classification criteria are not met No data available No data available

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Silver nitrate	> 2000 mg/kg (Rat)	LD50 > 2000 mg/kg (Rat)	LC50 > 750 µg/m³(Rat)4 h

(b) skin corrosion/irritation; Category 1 B

Silver nitrate

(c) serious eye damage/irritation;	Category 1
(d) respiratory or skin sensitization; Respiratory Skin	Based on available data, the classification criteria are not met Based on available data, the classification criteria are not met
(e) germ cell mutagenicity;	Based on available data, the classification criteria are not met
(f) carcinogenicity;	Based on available data, the classification criteria are not met
	There are no known carcinogenic chemicals in this product
(g) reproductive toxicity;	Based on available data, the classification criteria are not met
(h) STOT-single exposure;	Based on available data, the classification criteria are not met
(i) STOT-repeated exposure;	Based on available data, the classification criteria are not met
Target Organs	None known.
(j) aspiration hazard;	Not applicable Solid
Symptoms / effects,both acute and delayed	Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.
11.2. Information on other hazards	
Endocrine Disrupting Properties	Assess endocrine disrupting properties for human health. This product does not contain any

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity	
Ecotoxicity effects	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic
	environment.

known or suspected endocrine disruptors.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Silver nitrate	Leuciscus idus: LC50: 0.029	EC50: 0.0006 mg/L/48h	
	mg/L/96h		

Component	Microtox	M-Factor
Silver nitrate	Photobacterium phosphoreum: EC50: 0.038 mg/L/24h Photobacterium phosphoreum: EC50: 0.395 mg/l/15min Photobacterium phosphoreum: EC50: 0.44 mg/L/30 min as Ag++ Photobacterium phosphoreum: EC50: 0.86 mg/L/15 min as Ag++	Acute = 1000 Chronic = 100

Doroictopoo	Soluble in water Persistence is unlikely ba	cod on information available	
Persistence Degradability	Soluble in water, Persistence is unlikely, based on information available. Not relevant for inorganic substances.		
Degradation in sewage	Contains substances known to be hazardous to the environment or not degradable in waste		
treatment plant	water treatment plants.		
12.3. Bioaccumulative potential	Bioaccumulation is unlikely		
Component	log Pow	Bioconcentration factor (BCF)	
Silver nitrate	0.19	No data available	
12.5. Results of PBT and vPvB assessment	environment due to its water solubility. High In accordance with Annex XIII of the REACI require assessment.		
		H Regulation, inorganic substances do not	
properties Endocrine Disruptor Information	This product does not contain any known or	suspected endocrine disruptors	
12.7. Other adverse effects Persistent Organic Pollutant Ozone Depletion Potential	This product does not contain any known or This product does not contain any known or		

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Silver nitrate

Waste from Residues/Unused Products	Should not be released into the environment. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.
Contaminated Packaging	Dispose of this container to hazardous or special waste collection point.
European Waste Catalogue (EWC)	According to the European Waste Catalog, Waste Codes are not product specific, but application specific.
Other Information	Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Do not let this chemical enter the environment.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

<u>14.1. UN number</u>	UN1493
14.2. UN proper shipping name	Silver nitrate
14.3. Transport hazard class(es)	5.1
14.4. Packing group	II

ADR

Silver r	nitrate
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<u>14.1. UN number</u> 14.2. UN proper shipping name 14.3. Transport hazard class(es) 14.4. Packing group	UN1493 Silver nitrate 5.1 II
IATA	
<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> 14.3. Transport hazard class(es) 14.4. Packing group	UN1493 Silver nitrate 5.1 II
14.5. Environmental hazards	Dangerous for the environment Product is a marine pollutant according to the criteria set by IMDG/IMO
14.6. Special precautions for user	No special precautions required.
14.7. Maritime transport in bulk according to IMO instruments	Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Silver nitrate	7761-88-8	231-853-9	-	-	X	X	KE-31281	X	Х
O 1	040 N	TOOA	TOOAL			NEOL			DIAAA

Component	CAS NO	ISCA	notification - Active-Inactive	DSL	NDSL	AICS	NZIOC	PICCS	
Silver nitrate	7761-88-8	Х	ACTIVE	Х	-	Х	Х	Х	1

Legend: X - Listed '-' - Not Listed KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization		REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Silver nitrate	7761-88-8	-	Use restricted. See item 75. (see link for restriction details)	-

REACH links

https://echa.europa.eu/substances-restricted-under-reach

Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) -	Seveso III Directive (2012/18/EC) -
_		Qualifying Quantities for Major Accident	Qualifying Quantities for Safety Report
		Notification	Requirements

Revision Date 20-Oct-2023

Sil	ver nitrate	7761-88-8	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

Silver nitrate

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)? Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

Take note of Directive 2000/39/EC establishing a first list of indicative occupational exposure limit values

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification See table for values

Component	Germany - Water Classification (AwSV)	Germany - TA-Luft Class
Silver nitrate	WGK3	

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

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

- H400 Very toxic to aquatic life
- H410 Very toxic to aquatic life with long lasting effects

Legend

EC50 - Effective Concentration 50%

CAS - Chemical Abstracts Service	TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances PICCS - Philippines Inventory of Chemicals and Chemical Substances IECSC - Chinese Inventory of Existing Chemical Substances KECL - Korean Existing and Evaluated Chemical Substances	
WEL - Workplace Exposure Limit ACGIH - American Conference of Governmental Industrial Hygienists DNEL - Derived No Effect Level RPE - Respiratory Protective Equipment	TWA - Time Weighted Average IARC - International Agency for Research on Cancer Predicted No Effect Concentration (PNEC) LD50 - Lethal Dose 50%

LC50 - Lethal Concentration 50%

Revision Date 20-Oct-2023

NOEC - No Observed Effect Concentration POW - Partition coefficient Octanol:Water PBT - Persistent, Bioaccumulative, Toxic vPvB - very Persistent, very Bioaccumulative ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road Transport Association IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code Ships OECD - Organisation for Economic Co-operation and Development ATE - Acute Toxicity Estimate BCF - Bioconcentration factor VOC - (Volatile Organic Compound) Key literature references and sources for data https://echa.europa.eu/information-on-chemicals Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS **Training Advice** Chemical incident response training.

Creation Date	26-Jun-2009
Revision Date	20-Oct-2023
Revision Summary	Not applicable.

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

Disclaimer

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet

FSUS1280

ICAO/IATA - International Civil Aviation Organization/International Air MARPOL - International Convention for the Prevention of Pollution from

Silver nitrate