

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

Creation Date 29-Jun-2009

1.1. Product identifier

Revision Date 08-Jul-2024

Revision Number 12

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

Product Description: Cat No. :	Silver nitrate 0.1M solution (1M Concentrate) J/7330C/05; J/7330C/90
Unique Formula Identifier (UFI)	CU9A-U2JN-9X01-WWHG
1.2. Relevant identified uses of the s	substance or mixture and uses advised against
Recommended Use Uses advised against	Laboratory chemicals. No Information available
1.3. Details of the supplier of the saf	ety 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	Chemtrec US: (800) 424-9300 Chemtrec EU: 001-703-527-3887 Tel: 01509 231166
Poison Centre - Emergency information services	Ireland : National Poisons Information Centre (NPIC) - 01 809 2166 (8am-10pm, 7 days a week) Malta : +356 2395 2000 Cyprus : +357 2240 5611

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

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

Physical hazards

Silver nitrate 0.1M solution (1M Concentrate)

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Substances/mixtures corrosive to metal	Category 1 (H290)
Health hazards	
Skin Corrosion/Irritation Serious Eye Damage/Eye Irritation Reproductive Toxicity	Category 1 (H314) B Category 1 (H318) Category 1B (H360D)
Environmental hazards	
Acute aquatic toxicity Chronic aquatic toxicity	Category 1 (H400) Category 1 (H410)

Full text of Hazard Statements: see section 16



Signal Word

Danger

Hazard Statements

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

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 or shower
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
P273 - Avoid release to the environment

Additional EU labelling

Restricted to professional users

2.3. Other hazards

This product does not contain any known or suspected endocrine disruptors Toxic to terrestrial vertebrates

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Component	CAS No	EC No	Weight %	GHS Classification - According to GB-CLP Regulations UK SI 2019/720 and
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Silver nitrate 0.1M solution (1M Concentrate)

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				UK SI 2020/1567
Water	7732-18-5	231-791-2	83	-
Silver nitrate	7761-88-8	EEC No. 231-853-9	17	Ox. Sol. 2 (H272) Met. Corr. 1 (H290) Skin Corr. 1B (H314) Eye Dam. 1 (H318) Repr. 1B (H360D) Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)

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

Components	Reach Registration Number	
Silver Nitrate	01-2119513705-43	

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

Notes to Physician	Treat symptomatically.
4.3. Indication of any immediate m	edical attention and special treatment needed
	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
4.2. Most important symptoms and	l effects, both acute and delayed
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.
Inhalation	If not breathing, give artificial respiration. Remove from exposure, lie down. 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 immediately.
Ingestion	Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
General Advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

CO₂, dry chemical, dry sand, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons No information available.

no information available.

5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Do not allow run-off from fire-fighting to enter drains or water courses.

Hazardous Combustion Products

Nitrogen oxides (NOx), Silver oxides.

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

Ensure adequate ventilation. Use personal protective equipment as required. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

6.2. Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. Should not be released into the environment.

6.3. Methods and material for containment and cleaning up

Soak up with inert absorbent material. Keep in suitable, closed containers for disposal.

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

Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance.

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. Corrosives area.

Technical Rules for Hazardous Substances (TRGS) 510Class 6.1DStorage Class (LGK) (Germany)

FSUJ7330C

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 (17)				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	$PNEC = 0.04 \mu g/L$	PNEC =		PNEC = 0.025mg/L	PNEC = 1.41mg/kg
7761-88-8 (17)		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 (17)		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. 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

Personal protective equ Eye Protection		(European standard	I - EN 166)		
Hand Protection	Protectiv	e gloves			
Glove material Natural rubber Nitrile rubber Neoprene PVC	Breakthrough time See manufacturers recommendations	Glove thickness -	EU standard EN 374	Glove comments (minimum requirement)	
Skin and body prote	ection Long sle	eved clothing.			

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Respiratory Protection	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly
Large scale/emergency use	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced Recommended Filter type: Particulates filter conforming to EN 143 or Inorganic gases and vapours filter Type B Grey conforming to EN14387
Small scale/Laboratory use	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended half mask:- Particle filtering: EN149:2001 When RPE is used a face piece Fit Test should be conducted
Environmental exposure controls	Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State	Liquid	
Appearance Odor Odor Threshold Melting Point/Range Softening Point Boiling Point/Range Flammability (liquid) Flammability (solid,gas) Explosion Limits	Colorless No information available No data available No data available No data available No information available No data available Not applicable No data available	Liquid
Flash Point Autoignition Temperature Decomposition Temperature pH Viscosity Water Solubility	No information available No data available No data available 5.4-6.4 No data available Miscible	Method - No information available (100 g/l, 20 °C)

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Solubility in other solvents	No information available
Partition Coefficient (n-octanol/wate	er)
Component	log Pow
Silver nitrate	0.19
Vapor Pressure	No data available
Density / Specific Gravity	1.13
Bulk Density	Not applicable
Vapor Density	No data available
Particle characteristics	Not applicable (liquid)

Liquid (Air = 1.0)

9.2. Other information

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity	None known, based on information available
10.2. Chemical stability	Light sensitive.
10.3. Possibility of hazardous reacti	ons
Hazardous Polymerization Hazardous Reactions	Hazardous polymerization does not occur. None under normal processing.
10.4. Conditions to avoid	Incompatible products. Excess heat. Exposure to light.
10.5. Incompatible materials	Alcohols.

10.6. Hazardous decomposition products

Nitrogen oxides (NOx). Silver oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

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

Product Information

(a) acute toxicity;

OralBased on available data, the classification criteria are not metDermalBased on available data, the classification criteria are not metInhalationBased on available data, the classification criteria are not met

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Water	-	-	-
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

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(c) serious eye damage/irritation;	Category 1
(d) respiratory or skin sensitization; Respiratory Skin	No data available No data available
(e) germ cell mutagenicity;	No data available
(f) carcinogenicity;	No data available
	There are no known carcinogenic chemicals in this product
(g) reproductive toxicity;	Category 1B
(h) STOT-single exposure;	No data available
(i) STOT-repeated exposure;	No data available
Target Organs	None known.
(j) aspiration hazard;	No data available
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 known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity
Ecotoxicity effects

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

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	Acute = 1000 Chronic = 100
	mg/L/30 min as Ag++ Photobacterium phosphoreum: EC50: 0.86 mg/L/15 min as Ag++	

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12.2. Persistence and degradability	Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary		
Persistence	based on information available, May persist. Not relevant for inorganic substances.		
Degradability			
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	May have some potential to bioaccumulate		
Component	log Pow	Bioconcentration factor (BCF)	
Silver nitrate	0.19	No data available	
	environment due to its water solubility. Highly r	modile in soils	
	No data available for assessment.		
<u>12.5. Results of PBT and vPvB</u> assessment <u>12.6. Endocrine disrupting</u> properties Endocrine Disruptor Information	No data available for assessment. This product does not contain any known or su	spected endocrine disruptors	

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

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

Silver nitrate 0.1M solution (1M Concentrate)

ADR

<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> Technical Shipping Name <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u>	UN3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. Silver nitrate solution 8 II
IATA	
<u>14.1. UN number</u> <u>14.2. UN proper shipping name</u> Technical Shipping Name <u>14.3. Transport hazard class(es)</u> <u>14.4. Packing group</u>	UN3264 CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S. Silver nitrate solution 8 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
Water	7732-18-5	231-791-2	-	-	Х	Х	KE-35400	Х	-
Silver nitrate	7761-88-8	231-853-9	-	-	Х	Х	KE-31281	Х	Х

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Water	7732-18-5	Х	ACTIVE	Х	-	Х	Х	Х
Silver nitrate	7761-88-8	Х	ACTIVE	Х	-	Х	Х	Х

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	0	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Water	7732-18-5	-	-	-
Silver nitrate	7761-88-8	-	Use restricted. See entry 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) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Water	7732-18-5	Not applicable	Not applicable
Silver 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

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

Take note of Directive 94/33/EC on the protection of young people at work

Take note of Dir 92/85/EC on the protection of pregnant and breastfeeding women at work

National Regulations

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

WGK Classification

Water endangering class = 3 (self classification)

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

15.2. Chemical safety assessment

Chemical Safety Assessment/Reports (CSA/CSR) are not required for mixtures

SECTION 16: OTHER INFORMATION

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

H290 - May be corrosive to metals

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

H360D - May damage the unborn child

H400 - Very toxic to aquatic life

H410 - Very toxic to aquatic life with long lasting effects

H272 - May intensify fire; oxidizer

Legend

CAS - Chemical Abstracts Service

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical

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Substances/EU List of Notified Chemica	al Substances	DSL/NDSL - Canadian Domestic Substances List/Non-Domestic		
		Substances List		
PICCS - Philippines Inventory of Chemicals and Chemical Substances		ENCS - Japanese Existing and New Chemical Substances		
IECSC - Chinese Inventory of Existing (AICS - Australian Inventory of Chemical Substances		
KECL - Korean Existing and Evaluated	Chemical Substances	NZIOC - New Zealand Inventory of Chemicals		
WEL - Workplace Exposure Limit		TWA - Time Weighted Average		
ACGIH - American Conference of Gove	rnmental Industrial Hygienists	IARC - International Agency for Research on Cancer		
DNEL - Derived No Effect Level	20	Predicted No Effect Concentration (PNEC)		
RPE - Respiratory Protective Equipmen	t	LD50 - Lethal Dose 50%		
LC50 - Lethal Concentration 50%		EC50 - Effective Concentration 50%		
NOEC - No Observed Effect Concentration	tion	POW - Partition coefficient Octanol:Water		
PBT - Persistent, Bioaccumulative, Tox	ic	vPvB - very Persistent, very Bioaccumulative		
ADR - European Agreement Concerning	g the International Carriage of	ICAO/IATA - International Civil Aviation Organization/International Air		
Dangerous Goods by Road		Transport Association		
IMO/IMDG - International Maritime Organization/International Maritime		MARPOL - International Convention for the Prevention of Pollution from		
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 sou				
https://echa.europa.eu/information-				
Suppliers safety data sheet, Chema	advisor - LOLI, Merck index,	RTECS		
Classification and procedure use	ed to derive the classification	on for mixtures according to Regulation (EC) 1272/2008 [CLP]:		
Physical hazards	On basis of test data			
Health Hazards	Calculation method			
Environmental hazards	Calculation method			
	Calculation method			
Training Advisor				

Training Advice

Chemical incident response training.

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Creation Date	29-Jun-2009
Revision Date	08-Jul-2024
Revision Summary	SDS sections updated, 2, 3, 11.

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