

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Article
Product name : Silver Manganese Paper (INP)
Product code : CM29742

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

Relevant identified uses

Main use category : Professional use
Use of the substance/mixture : Laboratory chemical
Function or use category : Laboratory chemicals

1.3. Details of the supplier of the safety data sheet

Spectracer UK Ltd.

20 Seymour Mews,
London,
W1H 6BQ,
United Kingdom.

Tel: +44 (0) 207 193 9114

Fax: +44 (0) 203 432 4686

Email: contact@spectracer.com

Web: www.spectracer.com

1.4. Emergency telephone number

Country/Area	Organisation/Company	Address	Emergency number	Comment
Ireland	National Poisons Information Centre Beaumont Hospital	Beaumont Hospital Beaumont Road 9 Dublin	: +353 1 8379964	
Malta	Medicines & Poisons Info Office	Mater Dei Hospital Msida MSD 2090 Msida	112 +356 2545 6508	
United Kingdom	National Poisons Information Service (NHS Direct)	http://www.npis.org	111 (England & Wales only) or 112 (EU) or 08454 24 24 24 (Scotland)	

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Hazardous to the aquatic environment – Acute Hazard Not
classified

Hazardous to the aquatic environment – Chronic Hazard, H412
Category 3

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Harmful to aquatic life with long lasting effects.

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2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Signal word (CLP)	: -
Hazard statements (CLP)	: H412 - Harmful to aquatic life with long lasting effects.
Precautionary statements (CLP)	: P273 - Avoid release to the environment.

2.3. Other hazards

Contains no PBT and/or vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII

Component	
Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	silver nitrate (7761-88-8), manganese (II)sulphate, monohydrate (10034-96-5)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	silver nitrate (7761-88-8), manganese (II)sulphate, monohydrate (10034-96-5)

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
silver nitrate substance with national workplace exposure limit(s) (AT, BE, BG, CY, CZ, DE, DK, ES, FI, FR, GB, GI, GR, HR, HU, IE, IT, LU, LV, MT, NL, PL, RO, SE, SI, SK, AL, IS, NO, MK, RS, CH, TR); substance with a Community workplace exposure limit	CAS-No.: 7761-88-8 EC-No.: 231-853-9 EC Index-No.: 047-001-00-2 REACH-no: 01-2119513705-43-XXXX	0.25 – 0.5	Ox. Sol. 2, H272 Met. Corr. 1, H290 Skin Corr. 1B, H314 Aquatic Acute 1, H400 (M=1000) Aquatic Chronic 1, H410 (M=100)
manganese (II)sulphate, monohydrate substance with national workplace exposure limit(s) (BE, FI, GB)	CAS-No.: 10034-96-5 EC-No.: 232-089-9 EC Index-No.: 025-003-00-4	0.25 – 0.5	STOT RE 2, H373 Aquatic Chronic 2, H411

Full text of H- and EUH-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general	: If you feel unwell, seek medical advice.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.
First-aid measures after ingestion	: Call a poison center or a doctor if you feel unwell.
First-aid measures for first aider	: First aid workers will be equipped with suitable personal protective equipment.

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

Symptoms/effects after inhalation	: None under normal conditions. Dust of the product, if present, may cause respiratory irritation after excessive inhalation exposure.
Symptoms/effects after skin contact	: None under normal conditions. Dust may cause irritation in skin folds or by contact in combination with tight clothing.
Symptoms/effects after eye contact	: None under normal conditions. Dust from this product may cause eye irritation.
Symptoms/effects after ingestion	: None under normal conditions.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : No fire hazard.
Explosion hazard : No direct explosion hazard.
Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Firefighting instructions : Fight fire from safe distance and protected location. Do not enter fire area without proper protective equipment, including respiratory protection.
Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Notify authorities if product enters sewers or public waters. Absorb spillage to prevent material damage.

For non-emergency personnel

Protective equipment : Wear recommended personal protective equipment.
Emergency procedures : Ventilate spillage area.

For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
Emergency procedures : Evacuate unnecessary personnel.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Using a clean shovel, put the material in a dry container and cover without compressing it.
Methods for cleaning up : Mechanically recover the product.
Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Not expected to present a significant hazard under anticipated conditions of normal use.
Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment.
Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

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7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Keep in a cool, well-ventilated place away from heat.
Storage conditions : Keep cool. Protect from sunlight.
Packaging materials : Store always product in container of same material as original container.

Germany

Storage class (LGK, TRGS 510) : LGK 13 - Non-combustible solids

Joint storage table :

LGK 1	LGK 2A	LGK 2B	LGK 3	LGK 4.1A
LGK 4.1B	LGK 4.2	LGK 4.3	LGK 5.1A	LGK 5.1B
LGK 5.1C	LGK 5.2	LGK 6.1A	LGK 6.1B	LGK 6.1C
LGK 6.1D	LGK 6.2	LGK 7	LGK 8A	LGK 8B
LGK 10	LGK 11	LGK 12	LGK 13	LGK 10-13

Joint storage not permitted for : LGK 1, LGK 6.2, LGK 7

Joint storage with restrictions permitted for : LGK 4.1A, LGK 5.1C

Joint storage permitted for : LGK 2A, LGK 2B, LGK 3, LGK 4.1B, LGK 4.2, LGK 4.3, LGK 5.1A, LGK 5.1B, LGK 5.2, LGK 6.1A, LGK 6.1B, LGK 6.1C, LGK 6.1D, LGK 8A, LGK 8B, LGK 10, LGK 11, LGK 12, LGK 13, LGK 10-13

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

National occupational exposure and biological limit values

silver nitrate (7761-88-8)	
EU - Indicative Occupational Exposure Limit (IOEL)	
Local name	Silver (soluble compounds as Ag)
IOEL TWA	0.01 mg/m ³
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC
Albania - Occupational Exposure Limits	
Local name	Argjend, metalik
OEL TWA	0.1 mg/m ³
Regulatory reference	VENDIM Nr. 522, datë 6.8.2014 PËR MIRATIMIN E RREGULLORES "PËR MBROJTJEN E SIGURISË DHE SHËNDETIT TË PUNËMARRËSVE NGA RISQET E LIDHURA ME AGJENTËT KIMIKË NË PUNË"
Austria - Occupational Exposure Limits	
Local name	Silber
MAK (OEL TWA)	0.1 mg/m ³
MAK (OEL STEL)	0.1 mg/m ³
Regulatory reference	BGBI. II Nr. 156/2021
Belgium - Occupational Exposure Limits	
Local name	Argent (composés solubles) (en Ag) # Zilver (oplosbare verbindingen, als Ag)
OEL TWA	0.01 mg/m ³ (Argent (composés solubles) (en Ag); Belgium; Time-weighted average exposure limit 8 h)
Regulatory reference	Koninklijk besluit/Arrêté royal 16/11/2023

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silver nitrate (7761-88-8)	
Bulgaria - Occupational Exposure Limits	
Local name	Сребро, метал•
OEL TWA	0.1 mg/m ³ 0.1 mg/m ³ метал 0.01 mg/m ³ разтворими съединения (като сребро)
Remark	• (Химични агенти, за които са определени гранични стойности във въздуха на работната среда за Европейската общност)
Regulatory reference	Наредба № 13 от 30.12.2003 г. за защита на работещите от рискове, свързани с експозиция на химични агенти при работа (изм. и доп. ДВ. бр. 28 от 2024 г., в сила от 05.04.2024 г.)
Croatia - Occupational Exposure Limits	
Local name	Srebro, metal
GVI (OEL TWA)	0.1 mg/m ³ 0.01 mg/m ³
Remark	EU* (naznaka da se radi o tvarima za koje su utvrđene indikativne granične vrijednosti izloženosti prema Direktivi 2000/39/ EC (prva lista))
Regulatory reference	Pravilnik o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 148/2023)
Cyprus - Occupational Exposure Limits	
Local name	Αργυρος (διαλυτές ενώσεις ως Ag)
OEL TWA	0.01 mg/m ³
Regulatory reference	Κανονισμοί του 2007 (Κ.Δ.Π. 295/2007)
Czech Republic - Occupational Exposure Limits	
Local name	St íbro
PEL (OEL TWA)	0.1 mg/m ³
NPK-P (OEL C)	0.3 mg/m ³
Remark	S - látka má senzibilizující účinek (s větou H317, H334), T - toxická pro reprodukci kategorie 1A a 1B (s větou H360 včetně příslušných kódů).
Regulatory reference	Nařízení vlády č. 361/2007 Sb. (Předpis 330/2023 Sb.)
Denmark - Occupational Exposure Limits	
Local name	Sølv, pulver, støv og opløselige forbindelser
OEL TWA	0.01 mg/m ³ beregnet som Ag
Remark	E (betyder, at stoffet har en EU-grænseværdi)
Regulatory reference	BEK nr 1619 af 19/12/2024
Estonia - Occupational Exposure Limits	
Local name	Hõbe, metall, vähelahustuvad ühendid
Regulatory reference	Vabariigi Valitsuse 20. märtsi 2001. a määruse nr 105 (RT I, 02.04.2024, 13)
Finland - Occupational Exposure Limits	
Local name	Hopea, metalli
HTP (OEL TWA)	0.1 mg/m ³ Ag
Regulatory reference	HTP-ARVOT 2020 (Sosiaali- ja terveystieteiden ministeriö)

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silver nitrate (7761-88-8)	
France - Occupational Exposure Limits	
Local name	Argent (métallique)
VME (OEL TWA)	0.1 mg/m ³
Remark	Valeurs règlementaires indicatives
Regulatory reference	Arrêté du 30 juin 2004 modifié (réf.: INRS ED 6443, 2022; Outil65; Arrêté du 26 octobre 2007)
Germany - Occupational Exposure Limits (TRGS 900)	
Local name	Silber
AGW (OEL TWA)	0.1 mg/m ³ E (mg/m ³)
Peak exposure limitation factor	8(II)
Remark	DFG,EU
Regulatory reference	TRGS900
Gibraltar - Occupational Exposure Limits	
Local name	Silver (soluble compounds as Ag)
OEL TWA	0.01 mg/m ³
Regulatory reference	Factories (Control of Chemical Agents at Work) Regulations 2003 (LN. 2018/181)
Greece - Occupational Exposure Limits	
Local name	Άργυρος μεταλλικός
OEL TWA	0.1 mg/m ³
Regulatory reference	Π.Δ. 339/2001 - Προστασία της υγείας των εργαζομένων που εκτίθενται σε ορισμένους χημικούς παράγοντες κατά τη διάρκεια της εργασίας τους
Hungary - Occupational Exposure Limits	
Local name	EZÜST, fém
AK (OEL TWA)	0.1 mg/m ³
CK (OEL STEL)	0.4 mg/m ³
Remark	EU1 (2000/39/EK irányelvben közölt érték); T (Azok az anyagok, amelyek egészségkárosító hatása TARTÓS expozíciót követően jelentkeznek)
Regulatory reference	5/2020. (II. 6.) ITM rendelet - A kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről
Ireland - Occupational Exposure Limits	
Local name	Silver (metallic)
OEL TWA	0.1 mg/m ³
Remark	IOELV (Indicative Occupational Exposure Limit Values)
Regulatory reference	Chemical Agents Code of Practice 2024
Italy - Occupational Exposure Limits	
Local name	Argento, metallico
OEL TWA	0.1 mg/m ³
Regulatory reference	Allegato XXXVIII del Decreto Legislativo 4 settembre 2024, n. 135
Latvia - Occupational Exposure Limits	
Local name	Sudrabs,metāliskais

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silver nitrate (7761-88-8)	
OEL TWA	0.1 mg/m ³
Regulatory reference	Ministru kabineta 2007. gada 15. maija noteikumiem Nr. 325 (Grozījumi Ministru kabineta 2024. gada 26. martā noteikumiem Nr. 191).
Luxembourg - Occupational Exposure Limits	
Local name	Argent métallique
OEL TWA	0.1 mg/m ³
Regulatory reference	Mémorial A N° 226 de 2021 concernant la protection de la sécurité et de la santé des salariés contre les risques liés à des agents chimiques sur le lieu de travail
Malta - Occupational Exposure Limits	
Local name	Silver, metallic
OEL TWA	0.1 mg/m ³
Regulatory reference	S.L. 424.24 - Chemical Agents at Work Regulations (L.N. 356 of 2021) # L.S. 424.24 - Regolamenti dwar Aġenti Kimiċi fuq il-Post tax-Xogħol (A.L. 356 tal-2021)
Netherlands - Occupational Exposure Limits	
Local name	Zilver, metallisch
TGG-8u (OEL TWA)	0.1 mg/m ³
Regulatory reference	Arbeidsomstandighedenregeling 2024
Poland - Occupational Exposure Limits	
Local name	Srebro dymy i pyły
NDS (OEL TWA)	0.05 mg/m ³
Remark	Frakcja wdychalna – frakcja aerozolu wnikająca przez nos i usta, która stwarza zagrożenie dla zdrowia po zdeponowaniu w drogach oddechowych.
Regulatory reference	Dz. U. 2024 poz. 1017 wraz z późn. zm.
Romania - Occupational Exposure Limits	
Local name	Argint
OEL TWA	0.1 mg/m ³ (Metalic)
Regulatory reference	Hotărârea Guvernului nr. 1.218/2006 (Hotărârea nr. 179/2024)
Serbia - Occupational Exposure Limits	
Local name	сребро, метал
OEL TWA	0 mg/m ³
Remark	EУ* – напомена да се ради о хемијским материјама за које су утврђене индикативне граничне вредности изложености према Директиви 2000/39/ЕЗ (прва листа)
Regulatory reference	ПРАВИЛНИК о превентивним мерама за безбедан и здрав рад при излагању хемијским материјама („Службени гласник РС”, бр. 106/09, 117/17 и 107/21)
Slovakia - Occupational Exposure Limits	
Local name	Striebro (ako Ag)
NPHV (OEL TWA)	0.1 mg/m ³ kovové 0.01 mg/m ³ rozpustné zlúčeniny
Regulatory reference	Nariadenie vlády č. 355/2006 Z. z. (122/2024 Z. z.)
Slovenia - Occupational Exposure Limits	
Local name	srebro [7440-22-4] (topne spojine, računano kot Ag)

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silver nitrate (7761-88-8)	
OEL TWA	0.01 mg/m ³
OEL STEL	0.02 mg/m ³
Remark	EU
Regulatory reference	Uradni list RS, št. 29/2024 z dne 4. 4. 2024 - Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu
Spain - Occupational Exposure Limits	
Local name	Plata
VLA-ED (OEL TWA)	0.1 mg/m ³ metal 0.01 mg/m ³ Compuestos solubles de plata, como Ag
Remark	VLI (Agente químico para el que la U.E. estableció en su día un valor límite indicativo. Todos estos agentes químicos figuran al menos en una de las directivas de valores límite indicativos publicadas hasta ahora (ver Anexo C. Bibliografía). Los estados miembros disponen de un tiempo fijado en dichas directivas para su transposición a los valores límites de cada país miembro. Una vez adoptados, estos valores tienen la misma validez que el resto de los valores adoptados por el país).
Regulatory reference	Límites de Exposición Profesional para Agentes Químicos en España 2024. INSHT
Sweden - Occupational Exposure Limits	
Local name	Silver, metall och svårösliga föreningar (som Ag)
NGV (OEL TWA)	0.1 mg/m ³ totaldamm
Remark	3 (Med totaldamm menas de partiklar (aerosoler) som fastnar på ett filter i den provtagare som beskrivs i Metodserien, Provtagning av totaldamm och respirabelt damm, Metod nr 1010, Arbetskyddsstyrelsen, numera Arbetsmiljöverket. Filterdiametern är normalt 37 mm, men kan även vara 25 mm. Trots sitt namn provtas inte den totala mängden luftburna partiklar med denna metod)
Regulatory reference	Hygieniska gränsvärden (AFS 2018:1)
Sweden - Biological limit values	
Local name	Kvicksilver
BLV	50 nmol/l Kvicksilverhalten i blod
Regulatory reference	Medicinska kontroller i arbetslivet (AFS 2019:3)
United Kingdom - Occupational Exposure Limits	
Local name	Silver
WEL TWA (OEL TWA)	0.01 mg/m ³ soluble compounds as Ag 0.1 mg/m ³ metallic
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE
Iceland - Occupational Exposure Limits	
Local name	Silfur, duft, ryk og leysanleg sambönd, sem Ag
OEL TWA	0.01 mg/m ³
Regulatory reference	Reglugerð um mengunarmörk og aðgerðir til að draga úr mengun á vinnustöðum (Nr. 390/2009)
Norway - Occupational Exposure Limits	
Local name	Sølv, metallstøv og røyk
Grenseverdi (OEL TWA)	0.1 mg/m ³
Remark	E: EU har en veiledende grenseverdi og/eller anmerkning for stoffet.

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silver nitrate (7761-88-8)	
Regulatory reference	FOR-2024-04-05-581
North Macedonia - Occupational Exposure Limits	
Local name	Сребро (растворливи соединенија, сметано како Ag)
OEL TWA	0.01 mg/m ³
Remark	(EU) European Union – гранична вредност, определена на ниво на Европската унија
Regulatory reference	Правилник за минималните барања за безбедност и здравје при работа на вработени од ризици поврзани со изложување на хемиски супстанции („Службен весник на Република Македонија“ бр.46/10)
Switzerland - Occupational Exposure Limits	
Local name	Silber
MAK (OEL TWA)	0.1 mg/m ³ 0.01 mg/m ³
KZGW (OEL STEL)	0.8 mg/m ³ 0.02 mg/m ³
Remark	e(mg/m ³) - Haut ^{KT} HU - NIOSH, OSHA
Regulatory reference	www.suva.ch, 01.01.2025
USA - ACGIH - Occupational Exposure Limits	
Local name	Silver
ACGIH® TLV® TWA	0.01 mg/m ³ (Silver Soluble compounds, as Ag; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
Remark (ACGIH)	TLV® Basis: Argyria
Regulatory reference	ACGIH 2024
manganese (II)sulphate, monohydrate (10034-96-5)	
Belgium - Occupational Exposure Limits	
OEL TWA	0.2 mg/m ³ (Manganèse et ses composés (en Mn); Belgium; Time-weighted average exposure limit 8 h)
Finland - Occupational Exposure Limits	
Local name	Mangaani-(II)-sulfaatti, monohydraatti
HTP (OEL TWA)	0.2 mg/m ³ Mn, hengittävä pöly 0.02 mg/m ³ Mn, alveolijae
Regulatory reference	HTP-ARVOT 2025 (Sosiaali- ja terveysministeriö)
United Kingdom - Occupational Exposure Limits	
WEL TWA (OEL TWA)	0.5 mg/m ³ Manganese inorganic compounds (as Mn); United Kingdom; Time-weighted average exposure limit 8 h; Workplace exposure limit (EH40/2005)
USA - ACGIH - Occupational Exposure Limits	
ACGIH® TLV® TWA	0.1 mg/m ³ (Manganese, inorganic compounds, as Mn; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value; Inhalable fraction)

8.2. Exposure controls

Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

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Personal protection equipment

Personal protective equipment:

Avoid all unnecessary exposure. Personal protective equipment should be chosen according to the CEN standards and in discussion with the supplier of the protective equipment.

Personal protective equipment symbol(s):



Eye and face protection

Eye protection:

Safety glasses

Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Protective gloves

Respiratory protection

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Colour	: Not available
Odour	: Not available
Odour threshold	: Not available
Melting point	: Not available
Freezing point	: Not applicable
Boiling point	: Not available
Flammability	: Non flammable.
Lower explosion limit	: Not applicable
Upper explosion limit	: Not applicable
Flash point	: Not applicable
Auto-ignition temperature	: Not applicable
Decomposition temperature	: Not available
pH	: Not available
pH solution	: Not available
Viscosity, kinematic	: Not applicable
Solubility	: immiscible and insoluble.
Partition coefficient n-octanol/water (Log Kow)	: Not available
Vapour pressure	: Not available
Vapour pressure at 50°C	: Not available
Density	: Not available
Relative density	: Not available
Relative vapour density at 20°C	: Not applicable
Particle size	: Not available

9.2. Other information

No additional information available

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SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

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

Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

silver nitrate (7761-88-8)

LD50 oral rat	> 2000 mg/kg
LD50 dermal rat	> 2000 mg/kg

manganese (II)sulphate, monohydrate (10034-96-5)

LC50 Inhalation - Rat	> 4.45 mg/L air
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Skin corrosion/irritation : Not classified

manganese (II)sulphate, monohydrate (10034-96-5)

pH	3 – 3.5 (5 %)
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Serious eye damage/irritation : Not classified

manganese (II)sulphate, monohydrate (10034-96-5)

pH	3 – 3.5 (5 %)
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Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified
STOT-single exposure : Not classified
STOT-repeated exposure : Not classified

silver nitrate (7761-88-8)

LOAEL (oral, rat, 90 days)	125 mg/kg bodyweight
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manganese (II)sulphate, monohydrate (10034-96-5)

STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
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Aspiration hazard : Not classified

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Viscosity, kinematic	Not applicable
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11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Harmful to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short-term (acute) : Not classified.
Hazardous to the aquatic environment, long-term (chronic) : Harmful to aquatic life with long lasting effects.

silver nitrate (7761-88-8)

LC50 - Fish [1]	1.5 µg/l (Silver (Ag)) Pimephales promelas (Fathead minnow)
EC50 - Crustacea [1]	0.22 µg/l Silver (Ag) Daphnia magna (Water flea)

manganese (II)sulphate, monohydrate (10034-96-5)

EC50 72h - Algae [1]	61 mg/l Desmodesmus subspicatus
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12.2. Persistence and degradability

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Persistence and degradability	Rapidly degradable
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silver nitrate (7761-88-8)

Persistence and degradability	Rapidly degradable
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manganese (II)sulphate, monohydrate (10034-96-5)

Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

12.3. Bioaccumulative potential

silver nitrate (7761-88-8)

BCF - Fish [1]	11 – 19
Partition coefficient n-octanol/water (Log Pow)	0.19 (estimated value)

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

Component

Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII	silver nitrate (7761-88-8), manganese (II)sulphate, monohydrate (10034-96-5)
Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII	silver nitrate (7761-88-8), manganese (II)sulphate, monohydrate (10034-96-5)

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12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Sewage disposal recommendations	: Disposal must be done according to official regulations.
Product/Packaging disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations. Disposal must be done according to official regulations.
Additional information	: Do not re-use empty containers.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number or ID number				
Not dangerous goods in terms of transport regulations				
14.2. UN proper shipping name				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.3. Transport hazard class(es)				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.4. Packing group				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
14.5. Environmental hazards				
Not regulated	Not regulated	Not regulated	Not regulated	Not regulated
No supplementary information available				

14.6. Special precautions for user

Overland transport

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

Inland waterway transport

Not regulated

Rail transport

Not regulated

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

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SECTION 15: Regulatory information

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

EU-Regulations

REACH Annex XIV (Authorisation List)

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Contains no substance(s) listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

POP Regulation (Persistent Organic Pollutants)

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

Ozone Regulation (2024/590)

Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 2024/590 on substances that deplete the ozone layer)

Council Regulation (EC) for the control of dual-use items

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

Explosives Precursors Regulation (EU 2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (EC 273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

National regulations

Germany

Employment restrictions : Observe restrictions according Act on the Protection of Working Mothers (MuSchG).
Observe restrictions according Act on the Protection of Young People in Employment (JArbSchG).
Water hazard class (WGK) : WGK 3, Highly hazardous to water (Classification according to AwSV, Annex 1).
Major Accidents Ordinance (12. BImSchV) : Is not subject to the Major Accidents Ordinance (12. BImSchV)

Netherlands

ABM category : B(1) - highly toxic for aquatic organisms
SZW-lijst van kankerverwekkende stoffen : manganese (II)sulphate, monohydrate is listed
SZW-lijst van mutagene stoffen : manganese (II)sulphate, monohydrate is listed
SZW-lijst van reprotoxische stoffen – Borstvoeding : None of the components are listed
SZW-lijst van reprotoxische stoffen –
Vruchtbaarheid : None of the components are listed
SZW-lijst van reprotoxische stoffen – Ontwikkeling : None of the components are listed

Denmark

Danish National Regulations : Pregnant/breastfeeding women working with the product must not be in direct contact with the product

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Poland

Polish National Regulations

- : Act of 25 February 2011 on chemical substances and their mixtures (J. o L. No. 63, item 322 as amended; consolidated text J. o L. 2019, item 1225).
- Act of 14 December 2012 on waste (J. o L. 2013, item 322 as amended; consolidated text J. o L. 2020, item 797).
- The announcement of Marshal of the Sejm of the Republic of Poland dated 19 October 2016 concerning the consolidated text announcement of the decree on the management of packaging and packaging waste (J. o L. 2016, item 1863 as amended).
- Decree of the Minister of Environment of 14 December 2014 on the catalogue of waste (J. o L. 2014, item 1923).
- Act of 19 August 2011 on the Carriage of Dangerous Goods (J. o L. 2011 No. 227, item 1367 as amended; consolidated text J. o L. 2020, item 154).
- Regulation of the Minister of Family, Labour and Social Policy of 12 June 2018 on the highest permissible concentration and intensity of noxious agents for health at work environment (J. o L. item 1286 as amended).
- The announcement of Minister of Health dated 9 September 2016 concerning the consolidated text announcement of the decree of the Minister of Health of 30 December 2004 on health and safety at work related to exposure to chemical agents at work (J. o L. of 16 September 2016, item 1488)
- Regulation of the Minister of Health of 2 February 2011 on tests and measurements of the noxious agents for health at work environment (J. o L. No. 33, item 166 as amended).
- Regulation of the Minister of Environment of 9 December 2003 on particularly hazardous substances to the environment (J. o L. No. 217, item 2141).
- ADR Agreement: Government Statement of 13 March 2023 on the entry into force of amendments to Annexes A and B to the Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), signed in Geneva on 30 September 1957 (J. o. L. 2023, item 891)

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Indication of changes

Section	Changed item	Comments
	ERG code (IATA)	Removed
	Special provisions (IATA)	Removed
	CAO max net quantity (IATA)	Removed
	CAO packing instructions (IATA)	Removed
	PCA max net quantity (IATA)	Removed
	PCA packing instructions (IATA)	Removed
	PCA limited quantity max net quantity (IATA)	Removed
	PCA Limited quantities (IATA)	Removed
	PCA Excepted quantities (IATA)	Removed
	Danger labels (IATA)	Removed
	Proper Shipping Name (IATA)	Removed
	Proper Shipping Name (IMDG)	Removed
	Danger labels (IMDG)	Removed
	EmS-No. (Spillage)	Removed
	EmS-No. (Fire)	Removed

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Indication of changes		
Section	Changed item	Comments
	Limited quantities (IMDG)	Removed
	Stowage and handling (IMDG)	Removed
	Stowage category (IMDG)	Removed
	Tank special provisions (IMDG)	Removed
	Tank instructions (IMDG)	Removed
	IBC special provisions (IMDG)	Removed
	IBC packing instructions (IMDG)	Removed
	Excepted quantities (IMDG)	Removed
	Special provisions (IMDG)	Removed
	UN-No. (RID)	Removed
	Number of blue cones/lights (ADN)	Removed
	Equipment required (ADN)	Removed
	Excepted quantities (ADN)	Removed
	Limited quantities (ADN)	Removed
	Danger labels (ADN)	Removed
	Classification code (ADN)	Removed
	Proper Shipping Name (RID)	Removed
	Hazard identification number (RID)	Removed
	Colis express (express parcels) (RID)	Removed
	Special provisions for carriage - Loading, unloading and handling (RID)	Removed
	Special provisions for carriage – Bulk (RID)	Removed
	Special provisions for carriage – Packages (RID)	Removed
	Transport category (RID)	Removed
	Tank codes for RID tanks (RID)	Removed
	Portable tank and bulk container special provisions (RID)	Removed
	Portable tank and bulk container instructions (RID)	Removed
	Mixed packing provisions (RID)	Removed
	Special packing provisions (RID)	Removed
	Packing instructions (RID)	Removed
	Excepted quantities (RID)	Removed
	Limited quantities (RID)	Removed
	Special provisions (RID)	Removed
	Packing group (RID)	Removed
	Classification code (RID)	Removed
	Special provisions for carriage - Loading, unloading and handling (ADR)	Removed

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Indication of changes		
Section	Changed item	Comments
	Special provisions for carriage - Bulk (ADR)	Removed
	Special provisions for carriage - Packages (ADR)	Removed
	Tank code (ADR)	Removed
	Portable tank and bulk container special provisions (ADR)	Removed
	Portable tank and bulk container instructions (ADR)	Removed
	Mixed packing provisions (ADR)	Removed
	Special packing provisions (ADR)	Removed
	Packing instructions (ADR)	Removed
	Vehicle for tank carriage	Removed
1.1	Name	Modified
2.1	Classification according to Regulation (EC) No. 1272/2008 [CLP]	Modified
2.1	Adverse physicochemical, human health and environmental effects	Modified
2.2	Signal word (CLP)	Removed
2.2	Hazard pictograms (CLP)	Removed
2.2	Precautionary statements (CLP)	Modified
2.2	Hazard statements (CLP)	Modified
5.3	EAC code	Removed
6.3	For containment	Modified
9	Solubility	Added
12.1	Ecology - general	Modified
14.1	UN-No. (IMDG)	Removed
14.1	UN-No. (IATA)	Removed
14.1	UN-No. (ADN)	Removed
14.1	UN-No. (ADR)	Removed
14.2	Proper Shipping Name (ADN)	Removed
14.2	Proper Shipping Name (ADR)	Removed
14.3	Danger labels (RID)	Removed
14.3	Danger labels (ADR)	Removed
14.3	Class (ADR)	Removed
14.4	Packing group (IATA)	Removed
14.4	Packing group (IMDG)	Removed
14.4	Packing group (ADN)	Removed
14.4	Packing group (ADR)	Removed
14.6	Additional requirements/Remarks (ADN)	Removed
14.6	Special packing provisions (IMDG)	Removed

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Indication of changes		
Section	Changed item	Comments
14.6	Packing instructions (IMDG)	Removed
14.6	Special provisions (ADN)	Removed
14.6	Transport category (ADR)	Removed
14.6	Special provisions (ADR)	Removed
14.6	Excepted quantities (ADR)	Removed
14.6	Limited quantities (ADR)	Removed
14.6	Tunnel restriction code (ADR)	Removed
14.6	Hazard identification number (Kemler No.)	Removed
14.6	Classification code (ADR)	Removed

Abbreviations and acronyms:	
ACGIH	American Conference of Government Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAS-No.	Chemical Abstract Service number
CLP	Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
CSA	Chemical safety assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC-No.	European Community number
EC50	Median effective concentration
ED	Endocrine disruptor
EN	European Standard
EWC	European waste catalogue
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
Log Kow	Partition coefficient n-octanol/water (Log Kow)
Log Pow	Partition coefficient n-octanol/water (Log Pow)
MAK	maximum workplace concentration

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Abbreviations and acronyms:	
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety Health Administration
PBT	Persistent Bioaccumulative Toxic
PNEC	Predicted No-Effect Concentration
PPE	Personal protection equipment
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
SDS	Safety Data Sheet
STP	Sewage treatment plant
TF	Technical function
ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TWA	Time Weighted Average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
UFI	Unique Formula Identifier

Full text of H- and EUH-statements:	
Aquatic Acute 1	Hazardous to the aquatic environment – Acute Hazard, Category 1
Aquatic Chronic 1	Hazardous to the aquatic environment – Chronic Hazard, Category 1
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
Met. Corr. 1	Corrosive to metals, Category 1
Ox. Sol. 2	Oxidising Solids, Category 2
Skin Corr. 1B	Skin corrosion/irritation, Category 1, Sub-Category 1B
STOT RE 2	Specific target organ toxicity – Repeated exposure, Category 2
H272	May intensify fire; oxidiser.
H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

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Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:

Aquatic Acute Not classified		Expert judgement
Aquatic Chronic 3	H412	Expert judgement

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.