

Safety Data Sheet

according to UK REACH Regulation

Fixatives for Silver Nitrate Impregnation

Revision date: 24.01.2024

Product code: 14508.xxxxx

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

1.1. Product identifier

Fixatives for Silver Nitrate Impregnation

UFI: 4R68-73NM-6GEY-QX12

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

Use of the substance/mixture

Use as laboratory reagent. The product is intended for research, analysis and scientific education.

Uses advised against

Any non-intended use.

1.3. Details of the supplier of the safety data sheet

Company name: MORPHISTO GmbH
Street: Schumannstr. 142/144
Place: D-63069 Offenbach
Telephone: +49 (0) 69 / 400 3019-60 Telefax: +49 (0) 69 / 400 3019-64
E-mail: info@morphisto.de
Contact person: Morphisto GmbH
E-mail: gefahrstoffmanagement@morphisto.de
Internet: http://www.morphisto.de

1.4. Emergency telephone number:

Poison Information Center Mainz, Germany, Tel: +49(0)6131/19240

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GB CLP Regulation

Eye Irrit. 2; H319

Full text of hazard statements: see SECTION 16.

2.2. Label elements

GB CLP Regulation

Signal word: Warning

Pictograms:



Hazard statements

H319 Causes serious eye irritation.

Precautionary statements

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

P337+P313 If eye irritation persists: Get medical advice/attention.

Labelling of packages where the contents do not exceed 125 ml

Signal word: Warning

Pictograms:



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2.3. Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulating and toxic (PBT) or very persistent and very bioaccumulating (vPvB) at levels of 0.1% or higher. Ecological information: The substance/mixture does not contain any components that are considered to be hazardous according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605 in amounts of 0.1 % or more have endocrine disrupting properties. Toxicological information: The substance/mixture does not contain any components that are to be classified according to REACH Article 57(f) or Commission Delegated Regulation (EU) 2017/2100 or Commission Delegated Regulation (EU) 2018/605 in quantities of 0.1 % or more have endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (GB CLP Regulation)			
12125-02-9	ammonium chloride			1 - < 5 %
	235-186-4	017-014-00-8	01-2119487950-27	
	Acute Tox. 4, Eye Irrit. 2; H302 H319			
16731-55-8	dipotassium disulfite			1 - < 5 %
	240-795-3		01-2119537422-45	
	Eye Dam. 1, STOT SE 3; H318 H335 EUH031			

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

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
12125-02-9	235-186-4	ammonium chloride	1 - < 5 %
		dermal: LD50 = >2000 mg/kg; oral: LD50 = 1440 mg/kg	
16731-55-8	240-795-3	dipotassium disulfite	1 - < 5 %
		inhalation: LC50 = >5,5 mg/l (dusts or mists); dermal: LD50 = >2000 mg/kg; oral: LD50 = >2000 mg/kg	

Further Information

This product contains no substances of very high concern (SVHC) (>0,1%) which are included in the Candidate List according to Article 59 of REACH.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

After inhalation

Provide fresh air. In case of respiratory tract irritation, consult a physician.

After contact with skin

Take off contaminated clothing and wash it before reuse. Wash with plenty of water. In case of skin irritation, seek medical treatment.

After contact with eyes

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately. In case of troubles or persistent symptoms, consult an ophthalmologist.

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After ingestion

Observe risk of aspiration if vomiting occurs. Rinse mouth thoroughly with water. Let water be drunk in little sips (dilution effect). In all cases of doubt, or when symptoms persist, seek medical advice.

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

No information available.

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**

Co-ordinate fire-fighting measures to the fire surroundings. The product itself does not burn.

5.2. Special hazards arising from the substance or mixture

Non-flammable. In case of fire may be liberated: Carbon monoxide Carbon dioxide (CO₂). Nitrogen oxides (NO_x). Sulfur oxides.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

Additional information

Use water spray jet to protect personnel and to cool endangered containers. Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures**6.1. Personal precautions, protective equipment and emergency procedures****General advice**

Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment. Wear personal protection equipment. (See section 8.)

For non-emergency personnel

Consult an expert.

For emergency responders

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Discharge into the environment must be avoided.

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

Cover drains.

For cleaning up

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal. Clear contaminated areas thoroughly.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage**7.1. Precautions for safe handling****Advice on safe handling**

Wear suitable protective clothing. (See section 8.)

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Advice on protection against fire and explosion

No special fire protection measures are necessary.

Advice on general occupational hygiene

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat, drink, smoke, sniff. Always close containers tightly after the removal of product.

Further information on handling

Conditions to avoid: Generation/formation of aerosols

7.2. Conditions for safe storage, including any incompatibilities
Requirements for storage rooms and vessels

Keep container tightly closed. Keep container tightly closed and in a well-ventilated place. Recommended storage temperature: 15-25 °C

Hints on joint storage

Do not store together with: Explosive substances. Oxidizing substances. Infectious substances. Radioactive materials.

Further information on storage conditions

Keep/Store only in original container. Protect against: frost. heat. Cold. Humidity

7.3. Specific end use(s)

Use as laboratory reagent. The product is intended for research, analysis and scientific education.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
12125-02-9	Ammonium chloride, fume	-	10		TWA (8 h)	WEL
		-	20		STEL (15 min)	WEL

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
16731-55-8	dipotassium disulfite			
Worker DNEL, long-term		inhalation	systemic	263 mg/m ³
Consumer DNEL, long-term		inhalation	systemic	78 mg/m ³
Consumer DNEL, long-term		oral	systemic	10 mg/kg bw/day

PNEC values

CAS No	Substance	Value
16731-55-8	dipotassium disulfite	
Freshwater		1,17 mg/l
Marine water		0,12 mg/l
Micro-organisms in sewage treatment plants (STP)		88,1 mg/l

Additional advice on limit values

Does not contain substances above concentration limits fixing an occupational exposure limit.

8.2. Exposure controls

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Appropriate engineering controls

refer to section 7. No further action is necessary.

Individual protection measures, such as personal protective equipment
Eye/face protection

Suitable eye protection: goggles. Tightly sealed safety glasses. EN 166

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Pull-over gloves of rubber. EN ISO 374

Suitable material:

 (penetration time (maximum wearing period): ≥ 8 h):

CR (polychloroprenes, Chloroprene rubber). (0,5 mm)

NBR (Nitrile rubber). (0,35 mm)

FKM (fluororubber). (0,4 mm)

PVC (Polyvinyl chloride). (0,5 mm)

Butyl rubber. (0,5 mm)

Before using check leak tightness / impermeability.

Skin protection

Use of protective clothing. Suitable protective clothing: Lab apron.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. With correct and proper use, and under normal conditions, breathing protection is not required.

Environmental exposure controls

Do not allow uncontrolled discharge of product into the environment.

SECTION 9: Physical and chemical properties
9.1. Information on basic physical and chemical properties

Physical state:	liquid	
Colour:	clear	
Odour:	characteristic	
Melting point/freezing point:		not determined
Boiling point or initial boiling point and boiling range:		100 °C
Flammability:		not determined
Lower explosion limits:		not determined
Upper explosion limits:		not determined
Flash point:		not determined
Auto-ignition temperature:		not determined
Decomposition temperature:		not determined
pH-Value (at 20 °C):		3,5-4,5
Viscosity / kinematic:		not determined
Water solubility: (at 20 °C)		completely miscible
Solubility in other solvents		not determined

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Partition coefficient n-octanol/water:	not determined
Vapour pressure: (at 20 °C)	23 hPa
Vapour pressure: (at 50 °C)	123 hPa
Density (at 20 °C):	1,1 g/cm ³
Relative vapour density:	not determined
Particle characteristics:	not applicable

9.2. Other information**Information with regard to physical hazard classes****Explosive properties**

The product is not: Explosive.

Sustaining combustion:

Not sustaining combustion

Oxidizing properties

The product is not: oxidising.

Other safety characteristics

Evaporation rate: not determined

SECTION 10: Stability and reactivity**10.1. Reactivity**

No information available.

10.2. Chemical stability

Stable under normal storage and handling conditions.

10.3. Possibility of hazardous reactions

Reacts with : Substances that form flammable gases when in contact with water.

10.4. Conditions to avoid

Keep away from heat. Protect against: frost.

10.5. Incompatible materials

Materials to avoid: Substances that form flammable gases when in contact with water.

10.6. Hazardous decomposition productsIn case of fire may be liberated: Carbon monoxide Carbon dioxide (CO₂). Nitrogen oxides (NO_x).**SECTION 11: Toxicological information****11.1. Information on hazard classes as defined in GB CLP Regulation****Acute toxicity**

Based on available data, the classification criteria are not met.

ATEmix calculated

ATE (oral) 60251 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

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CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
12125-02-9	ammonium chloride				
	oral	LD50 mg/kg 1440	Rat	ECHA	
	dermal	LD50 mg/kg >2000	Rat	ECHA	
16731-55-8	dipotassium disulfite				
	oral	LD50 mg/kg >2000	Rat	ECHA Dossier	
	dermal	LD50 mg/kg >2000	Rat	ECHA Dossier	
	inhalation (4 h) dust/mist	LC50 >5,5 mg/l	Rat	ECHA Dossier	

Irritation and corrosivity

Causes serious eye irritation.

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards
Endocrine disrupting properties

This product does not contain any substance that has endocrine disrupting properties in humans as no ingredient meets the criteria.

Other information

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

SECTION 12: Ecological information
12.1. Toxicity

Based on available data, the classification criteria are not met.

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CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
12125-02-9	ammonium chloride					
	Acute fish toxicity	LC50	209 mg/l	96 h	Cyprinus carpio	IUCLID
	Acute crustacea toxicity	EC50	101 mg/l	48 h	Daphnia magna	ECHA
	Crustacea toxicity	NOEC	14,6 mg/l	21 d	Daphnia magna	ECHA
	Acute bacteria toxicity	EC50	1310 mg/l ()	0,5 h	activated sludge	
16731-55-8	dipotassium disulfite					
	Acute fish toxicity	LC50	<464 mg/l	96 h	Danio rerio	ECHA Dossier
	Fish toxicity	NOEC	>= 316 mg/l	34 d	Danio rerio	ECHA Dossier
	Crustacea toxicity	NOEC	>10 mg/l	21 d	Daphnia magna	ECHA Dossier

12.2. Persistence and degradability

No information available.

12.3. Bioaccumulative potential

The product has not been tested.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
12125-02-9	ammonium chloride	-4,37
16731-55-8	dipotassium disulfite	-4

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

No information available.

Further information

Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation. Consult the local waste disposal expert about waste disposal. The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process. Control report for waste code/ waste marking according to (EWC) European Waste Catalogue:

List of Wastes Code - residues/unused products

160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - used product

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160506 WASTES NOT OTHERWISE SPECIFIED IN THE LIST; gases in pressure containers and discarded chemicals; laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals; hazardous waste

List of Wastes Code - contaminated packaging

150110 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED; packaging (including separately collected municipal packaging waste); packaging containing residues of or contaminated by hazardous substances; hazardous waste

Contaminated packaging

Wash with plenty of water. Completely emptied packages can be recycled. Non-contaminated packages may be recycled.

SECTION 14: Transport information**Land transport (ADR/RID)**

14.1. UN number or ID number: No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name: No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.
14.4. Packing group: No dangerous good in sense of this transport regulation.

Inland waterways transport (ADN)

14.1. UN number or ID number: No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name: No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.
14.4. Packing group: No dangerous good in sense of this transport regulation.

Marine transport (IMDG)

14.1. UN number or ID number: No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name: No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.
14.4. Packing group: No dangerous good in sense of this transport regulation.

Other applicable information (marine transport)

Not restricted

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number: No dangerous good in sense of this transport regulation.
14.2. UN proper shipping name: No dangerous good in sense of this transport regulation.
14.3. Transport hazard class(es): No dangerous good in sense of this transport regulation.
14.4. Packing group: No dangerous good in sense of this transport regulation.

Other applicable information (air transport)

Not restricted

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

No information available.

14.7. Maritime transport in bulk according to IMO instruments

No information available.

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 65, Entry 75

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Information according to Directive
2012/18/EU (SEVESO III):

Not subject to 2012/18/EU (SEVESO III)

National regulatory information

Employment restrictions:

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

Water hazard class (D):

1 - slightly hazardous to water

15.2. Chemical safety assessment

For the following substances of this mixture a chemical safety assessment has been carried out:
dipotassium disulfite

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 1,2,3,4,5,6,7,8,9,11,12,13,14,15,16.

21.11.2013 Rev.1.0 Initial release

27.11.2019 Rev. 1.1.Change in the recipe.

Rev. 2,0; 24.01.2024; general adjustment(s)

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Abbreviations and acronyms

Acute Tox: Acute toxicity

Eye Dam: Eye damage

Eye Irrit: Eye irritation

STOT SE: Specific target organ toxicity - single exposure

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations

Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

OSHA: Occupational Safety and Health Administration

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent

NOAEL: No observed adverse effect level

LOAEL: Lowest observed adverse effect level

NOAEC: No observed adverse effect level

LOAEC: Lowest observed adverse effect concentration

DNEL: Derived No Effect Level

PNEC: predicted no effect concentration

TSCA: Toxic Substances Control Act

IARC: INTERNATIONAL AGENCY FOR RESEARCH ON CANCER

NTP: National Toxicology Program

SARA: Superfund Amendments and Reauthorization Act

GefStoffV: Gefahrstoffverordnung (Ordinance on Hazardous Substances, Germany)

PBT: Persistent bioaccumulative toxic

SVHC: substance of very high concern

CLP: Classification, labelling and Packaging

REACH: Registration, Evaluation and Authorization of Chemicals

GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals

UN: United Nations

CAS: Chemical Abstracts Service

DNEL: Derived No Effect Level

DMEL: Derived Minimal Effect Level

PNEC: Predicted No Effect Concentration

ATE: Acute toxicity estimate

LL50: Lethal loading, 50%

EL50: Effect loading, 50%

EC50: Effective Concentration 50%

ErC50: Effective Concentration 50%, growth rate

NOEC: No Observed Effect Concentration

BCF: Bio-concentration factor

PBT: persistent, bioaccumulative, toxic

vPvB: very persistent, very bioaccumulative

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Regulations concerning the international carriage of dangerous goods by rail

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways (Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)

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EmS: Emergency Schedules

MFAG: Medical First Aid Guide

MARPOL: International Convention for the Prevention of Marine Pollution from Ships

IBC: Intermediate Bulk Container

For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

EC/EEC: European Community/European Economic Community

EU: European Union

M-factor: Multiplying factor

IATA: International Air Transport Association

DGR: Dangerous Goods Regulations

ICAO: International Civil Aviation Organization

TI: Technical Instructions

For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety assessment, chapter R.20 (Table of terms and abbreviations).

Classification for mixtures and used evaluation method according to GB CLP Regulation

Classification	Classification procedure
Eye Irrit. 2; H319	Calculation method

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
EUH031	Contact with acids liberates toxic gas.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly responsible for adhering to existing laws and regulations. The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)