

Safety data sheet Safety data sheet

acc. to Safe Work Australia - Code of Practice



ROTI®Histofix ECO Plus SOLVAGREEN® formalin-free ready-to-use

article number: **8907**

Version: **GHS 4.2 en**

Replaces version of: 2024-10-10

Version: (GHS 4)

date of compilation: 2017-02-22

Revision: 2024-10-14

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

1.1 Product identifier

Identification of the substance

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

Relevant identified uses:

Laboratory and analytical use
Laboratory chemical

Uses advised against:

Do not use for private purposes (household).
Food, drink and animal feedingstuffs.

1.3 Details of the supplier of the safety data sheet

Carl Roth GmbH + Co. KG
Schoemperlenstr. 3-5
D-76185 Karlsruhe
Germany

Telephone:+49 (0) 721 - 56 06 0

Telefax: +49 (0) 721 - 56 06 149

e-mail: sicherheit@carlroth.de

Website: www.carlroth.de

Competent person responsible for the safety data sheet: Department Health, Safety and Environment

1.4 Emergency telephone number

Name	Street	Postal code/city	Telephone	Website
NSW Poisons Information Centre Childrens Hospital	Hawkesbury Road	2145 Westmead, NSW	131126	

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification acc. to GHS

Section	Hazard class	Cat-egory	Hazard class and category	Hazard statement
3.4S	Skin sensitisation	1	Skin Sens. 1	H317

For full text of abbreviations: see SECTION 16

2.2 Label elements

Labelling

Signal word

Warning

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Pictograms

GHS07



Hazard statements

H317 May cause an allergic skin reaction

Precautionary statements

Precautionary statements - prevention

P261 Avoid breathing dust/fume/gas/mist/vapours/spray
P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

Precautionary statements - response

P302+P352 IF ON SKIN: Wash with plenty of soap and water
P321 Specific treatment (see on this label)
P333+P313 If skin irritation or rash occurs: Get medical advice/attention

Precautionary statements - disposal

P501 Dispose of contents/container to industrial combustion plant

2.3 Other hazards

Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance at a concentration of $\geq 0,1\%$.

Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.



SECTION 3: Composition/information on ingredients

3.1 Substances

not relevant (mixture)

3.2 Mixtures

Description of the mixture

Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
Water	CAS No 7732-18-5 EC No 231-791-2	87.31			
Hexamethylene tetramine	CAS No 100-97-0 EC No 202-905-8	< 2.5	Flam. Sol. 2 / H228 Skin Sens. 1 / H317	 	
Glycerine	CAS No 56-81-5 EC No	< 2			

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Name of substance	Identifier	Wt%	Classification acc. to GHS	Pictograms	Notes
	200-289-5				
Citric acid	CAS No 77-92-9 EC No 201-069-1	< 2	Eye Irrit. 2 / H319 STOT SE 3 / H335		
Ethanol	CAS No 64-17-5 EC No 200-578-6	< 1.5	Flam. Liq. 2 / H225 Eye Irrit. 2A / H319		
2-Propanol	CAS No 67-63-0 EC No 200-661-7	< 1.5	Flam. Liq. 2 / H225 Eye Irrit. 2 / H319 STOT SE 3 / H336		
Ethylene glycol	CAS No 107-21-1 EC No 203-473-3	< 1	Acute Tox. 4 / H302 STOT RE 2 / H373		
Ammonium chloride	CAS No 12125-02-9 EC No 235-186-4	< 1	Acute Tox. 4 / H302 Eye Irrit. 2 / H319		
DL-Lactic acid	CAS No 598-82-3 EC No 209-954-4	< 1	Skin Irrit. 2 / H315 Eye Dam. 1 / H318		
Methanol	CAS No 67-56-1 EC No 200-659-6	< 1	Flam. Liq. 2 / H225 Acute Tox. 3 / H301 Acute Tox. 3 / H311 Acute Tox. 3 / H331 STOT SE 1 / H370	 	
Sodium azide	CAS No 26628-22-8 EC No 247-852-1	< 0.1	Acute Tox. 2 / H300 Acute Tox. 1 / H310 Acute Tox. 2 / H330 STOT RE 2 / H373		

Remarks

For full text of abbreviations: see SECTION 16

SECTION 4: First aid measures

4.1 Description of first aid measures



General notes

Take off contaminated clothing.

Following inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

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Following skin contact

After contact with skin, wash immediately with plenty of water. In case of skin reactions, consult a physician.

Following eye contact

Rinse cautiously with water for several minutes. In all cases of doubt, or when symptoms persist, seek medical advice.

Following ingestion

Rinse mouth. Call a doctor if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Vomiting, Allergic reactions

4.3 Indication of any immediate medical attention and special treatment needed

none

SECTION 5: Firefighting measures

5.1 Extinguishing media



Suitable extinguishing media

co-ordinate firefighting measures to the fire surroundings!
water spray, alcohol resistant foam, dry extinguishing powder, BC-powder, carbon dioxide (CO₂)

Unsuitable extinguishing media

water jet

5.2 Special hazards arising from the substance or mixture

Ingredients of the mixture combustible. The product itself does not burn.

Hazardous combustion products

In case of fire may be liberated: Nitrogen oxides (NO_x), Carbon monoxide (CO), Carbon dioxide (CO₂)

5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Fight fire with normal precautions from a reasonable distance. Wear self-contained breathing apparatus.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures



For non-emergency personnel

Avoid contact with skin, eyes and clothes. Do not breathe vapour/spray.

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains.

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Advice on how to clean up a spill

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

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

No special measures are necessary.

Advice on general occupational hygiene

Wash hands before breaks and after work. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Keep container tightly closed.

Incompatible substances or mixtures

Observe hints for combined storage. Incompatible materials: see section 10.

Protect against external exposure, such as

UV-radiation/sunlight

Consideration of other advice:

Specific designs for storage rooms or vessels

Recommended storage temperature: 15 – 25 °C

7.3 Specific end use(s)

No information available.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational exposure limit values (Workplace Exposure Limits)

Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m ³]	STEL [ppm]	STEL [mg/m ³]	Ceiling-C [ppm]	Ceiling-C [mg/m ³]	Notation	Source
AU	ethylene glycol (ethanediol)	107-21-1	WES		10					H	WES
AU	ethylene glycol (ethanediol)	107-21-1	WES	20	52	40	104			H, vap	WES
AU	ammonium chloride	12125-02-9	WES		10		20			fume	WES
AU	sodium azide	26628-22-8	WES					0.11	0.3		WES
AU	glycerine	56-81-5	WES		10					i, noAsb_less1 Sil, mist	WES
AU	ethyl alcohol (ethan-	64-17-5	WES	1,00	1,880						WES

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Country	Name of agent	CAS No	Identifier	TWA [ppm]	TWA [mg/m³]	STEL [ppm]	STEL [mg/m³]	Ceiling-C [ppm]	Ceiling-C [mg/m³]	Notation	Source
	ol)			0							
AU	methyl alcohol (methanol)	67-56-1	WES	200	262	250	328			H	WES
AU	isopropyl alcohol (propan-2-ol)	67-63-0	WES	400	983	500	1,230				WES

Notation

Ceiling-C	Ceiling value is a limit value above which exposure should not occur
fume	As fume
H	Absorbed through the skin
i	Inhalable fraction
mist	As mists
noAsb_less1	Contains no asbestos and less than 1% free crystalline silica
Sil	
STEL	Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)
TWA	Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)
vap	As vapours

Relevant DNELs of components

Name of substance	CAS No	Endpoint	Threshold level	Protection goal, route of exposure	Used in	Exposure time
Hexamethylene tetramine	100-97-0	DNEL	5.6 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Hexamethylene tetramine	100-97-0	DNEL	6.4 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Glycerine	56-81-5	DNEL	220 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
2-Propanol	67-63-0	DNEL	500 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
2-Propanol	67-63-0	DNEL	1,000 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
2-Propanol	67-63-0	DNEL	888 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Methanol	67-56-1	DNEL	130 mg/m³	human, inhalatory	worker (industry)	chronic - systemic effects
Methanol	67-56-1	DNEL	130 mg/m³	human, inhalatory	worker (industry)	acute - systemic effects
Methanol	67-56-1	DNEL	130 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
Methanol	67-56-1	DNEL	130 mg/m³	human, inhalatory	worker (industry)	acute - local effects
Methanol	67-56-1	DNEL	20 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
Methanol	67-56-1	DNEL	20 mg/kg bw/day	human, dermal	worker (industry)	acute - systemic effects
Ethylene glycol	107-21-1	DNEL	35 mg/m³	human, inhalatory	worker (industry)	chronic - local effects
Ethylene glycol	107-21-1	DNEL	106 mg/kg bw/day	human, dermal	worker (industry)	chronic - systemic effects
DL-Lactic acid	598-82-3	DNEL	592 mg/m³	human, inhalat-	worker (industry)	chronic - local ef-

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Relevant DNELs of components						
Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time
				ory		fects
DL-Lactic acid	598-82-3	DNEL	592 mg/m ³	human, inhalatory	worker (industry)	acute - local effects
Sodium azide	26628-22-8	DNEL	0.164 mg/m ³	human, inhalatory	worker (industry)	chronic - systemic effects
Sodium azide	26628-22-8	DNEL	46.7 µg/kg	human, dermal	worker (industry)	chronic - systemic effects

Relevant PNECs of components						
Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
Hexamethylene tetramine	100-97-0	PNEC	3 mg/l	aquatic organisms	freshwater	short-term (single instance)
Hexamethylene tetramine	100-97-0	PNEC	0.3 mg/l	aquatic organisms	marine water	short-term (single instance)
Hexamethylene tetramine	100-97-0	PNEC	100 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Hexamethylene tetramine	100-97-0	PNEC	10.2 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Hexamethylene tetramine	100-97-0	PNEC	1.02 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Hexamethylene tetramine	100-97-0	PNEC	0.28 mg/kg	terrestrial organisms	soil	short-term (single instance)
Citric acid	77-92-9	PNEC	0.44 mg/l	aquatic organisms	freshwater	short-term (single instance)
Citric acid	77-92-9	PNEC	0.044 mg/l	aquatic organisms	marine water	short-term (single instance)
Citric acid	77-92-9	PNEC	1,000 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Citric acid	77-92-9	PNEC	34.6 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Citric acid	77-92-9	PNEC	3.46 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Citric acid	77-92-9	PNEC	33.1 mg/kg	terrestrial organisms	soil	short-term (single instance)
Glycerine	56-81-5	PNEC	1,000 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
2-Propanol	67-63-0	PNEC	140.9 mg/l	aquatic organisms	freshwater	short-term (single instance)
2-Propanol	67-63-0	PNEC	140.9 mg/l	aquatic organisms	marine water	short-term (single instance)
2-Propanol	67-63-0	PNEC	2,251 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
2-Propanol	67-63-0	PNEC	552 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
2-Propanol	67-63-0	PNEC	552 mg/kg	aquatic organisms	marine sediment	short-term (single instance)

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Relevant PNECs of components						
Name of substance	CAS No	End-point	Threshold level	Organism	Environmental compartment	Exposure time
2-Propanol	67-63-0	PNEC	28 mg/kg	terrestrial organisms	soil	short-term (single instance)
Methanol	67-56-1	PNEC	20.8 mg/l	aquatic organisms	freshwater	short-term (single instance)
Methanol	67-56-1	PNEC	2.08 mg/l	aquatic organisms	marine water	short-term (single instance)
Methanol	67-56-1	PNEC	100 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Methanol	67-56-1	PNEC	77 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Methanol	67-56-1	PNEC	7.7 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Methanol	67-56-1	PNEC	100 mg/kg	terrestrial organisms	soil	short-term (single instance)
Ethylene glycol	107-21-1	PNEC	10 mg/l	aquatic organisms	freshwater	short-term (single instance)
Ethylene glycol	107-21-1	PNEC	1 mg/l	aquatic organisms	marine water	short-term (single instance)
Ethylene glycol	107-21-1	PNEC	199.5 mg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Ethylene glycol	107-21-1	PNEC	37 mg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Ethylene glycol	107-21-1	PNEC	3.7 mg/kg	aquatic organisms	marine sediment	short-term (single instance)
Ethylene glycol	107-21-1	PNEC	1.53 mg/kg	terrestrial organisms	soil	short-term (single instance)
Sodium azide	26628-22-8	PNEC	0.35 µg/l	aquatic organisms	freshwater	short-term (single instance)
Sodium azide	26628-22-8	PNEC	30 µg/l	aquatic organisms	sewage treatment plant (STP)	short-term (single instance)
Sodium azide	26628-22-8	PNEC	16.7 µg/kg	aquatic organisms	freshwater sediment	short-term (single instance)
Sodium azide	26628-22-8	PNEC	0.72 µg/kg	aquatic organisms	marine sediment	short-term (single instance)

8.2 Exposure controls

Individual protection measures (personal protective equipment)

Eye/face protection



Use safety goggle with side protection.

Skin protection



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• hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. 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. The times are approximate values from measurements at 22 °C and permanent contact. Increased temperatures due to heated substances, body heat etc. and a reduction of the effective layer thickness by stretching can lead to a considerable reduction of the breakthrough time. If in doubt, contact manufacturer. At an approx. 1.5 times larger / smaller layer thickness, the respective breakthrough time is doubled / halved. The data apply only to the pure substance. When transferred to substance mixtures, they may only be considered as a guide.

• type of material

NBR (Nitrile rubber)

• material thickness

>0,11 mm

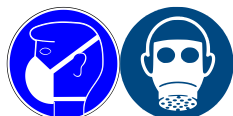
• breakthrough times of the glove material

>480 minutes (permeation: level 6)

• other protection measures

Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended.

Respiratory protection



Respiratory protection necessary at: Aerosol or mist formation. Type: A (against organic gases and vapours with a boiling point of > 65 °C, colour code: Brown). Usually no personal respiratory protection necessary.

Environmental exposure controls

Keep away from drains, surface and ground water.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	liquid
Colour	colourless
Odour	fruity - floral odor
Melting point/freezing point	~0 °C
Boiling point or initial boiling point and boiling range	~100 °C
Flammability	non-combustible
Lower and upper explosion limit	not determined
Flash point	not determined
Auto-ignition temperature	not determined
Decomposition temperature	not relevant
pH (value)	5 – 5.2 (20 °C)
Kinematic viscosity	3.448 mm ² /s at 20 °C
Dynamic viscosity	3.5 mPa s at 20 °C

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Solubility(ies)

Water solubility miscible in any proportion

Partition coefficient

Partition coefficient n-octanol/water (log value): this information is not available

Vapour pressure 23 hPa at 20 °C

Density and/or relative density

Density 1.015 g/cm³ at 20 °C

Relative vapour density Information on this property is not available.

Particle characteristics not relevant (liquid)

Other safety parameters

Oxidising properties none

9.2 Other information

Information with regard to physical hazard classes: hazard classes acc. to GHS (physical hazards): not relevant

Other safety characteristics:

Miscibility completely miscible with water

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

UV-radiation/sunlight.

10.5 Incompatible materials

There is no additional information.

10.6 Hazardous decomposition products

Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

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Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Classification acc. to GHS

Acute toxicity

Shall not be classified as acutely toxic.

Acute toxicity estimate (ATE) of components			
Name of substance	CAS No	Exposure route	ATE
Ammonium chloride	12125-02-9	oral	1,410 mg/kg
Sodium azide	26628-22-8	oral	27 mg/kg
Sodium azide	26628-22-8	dermal	20 mg/kg
Sodium azide	26628-22-8	inhalation: dust/mist	>0.054 mg/l/4h

Acute toxicity of components					
Name of substance	CAS No	Exposure route	Endpoint	Value	Species
Hexamethylene tetramine	100-97-0	oral	LD50	>20,000 mg/kg	rat
Hexamethylene tetramine	100-97-0	dermal	LD50	>2,000 mg/kg	rat
Citric acid	77-92-9	oral	LD50	5,400 mg/kg	mouse
Citric acid	77-92-9	dermal	LD50	>2,000 mg/kg	rat
Glycerine	56-81-5	dermal	LD50	>10,000 mg/kg	rabbit
Glycerine	56-81-5	oral	LD50	27,200 mg/kg	rat
Glycerine	56-81-5	inhalation: dust/mist	LC50	>5,850 mg/m ³ /4h	rat
Ethanol	64-17-5	oral	LD50	10,470 mg/kg	rat
Ethanol	64-17-5	inhalation: vapour	LC50	124.7 mg/l/4h	rat
2-Propanol	67-63-0	inhalation: vapour	LC50	37.5 mg/l/4h	rat
2-Propanol	67-63-0	oral	LD50	5,045 mg/kg	rat
2-Propanol	67-63-0	dermal	LD50	12,800 mg/kg	rabbit
Ammonium chloride	12125-02-9	oral	LD50	1,410 mg/kg	rat
Ammonium chloride	12125-02-9	dermal	LD50	>2,000 mg/kg	rat
Methanol	67-56-1	inhalation: vapour	LC50	131 mg/l/4h	rat
Methanol	67-56-1	oral	LD50	5,628 mg/kg	rat
Methanol	67-56-1	oral	LDLo	143 mg/kg	human
Methanol	67-56-1	dermal	LD50	15,800 mg/kg	rabbit
Ethylene glycol	107-21-1	dermal	LD50	>3,500 mg/kg	mouse
Ethylene glycol	107-21-1	oral	LD50	4,700 mg/kg	rat
DL-Lactic acid	598-82-3	oral	LD50	3,543 mg/kg	rat
DL-Lactic acid	598-82-3	inhalation: dust/mist	LC50	>7.94 mg/l/4h	rat
DL-Lactic acid	598-82-3	dermal	LD50	>2,000 mg/kg	rabbit

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Acute toxicity of components					
Name of substance	CAS No	Exposure route	Endpoint	Value	Species
Sodium azide	26628-22-8	inhalation: dust/mist	LC50	>0.054 - <0.52 mg/l/4h	rat
Sodium azide	26628-22-8	oral	LD50	27 mg/kg	rat
Sodium azide	26628-22-8	dermal	LD50	20 mg/kg	rat

Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

Respiratory or skin sensitisation

May cause an allergic skin reaction.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

Shall not be classified as a specific target organ toxicant (repeated exposure).

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

Symptoms related to the physical, chemical and toxicological characteristics

• If swallowed

Data are not available.

• If in eyes

Data are not available.

• If inhaled

Data are not available.

• If on skin

May produce an allergic reaction, pruritis, localised redness

• Other information

none

11.2 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute) of components					
Name of sub-stance	CAS No	Endpoint	Value	Species	Exposure time
Hexamethylene tetra- mine	100-97-0	EC50	36 mg/l	daphnia magna	48 h
Hexamethylene tetra- mine	100-97-0	LC50	41 g/l	fish	96 h
Citric acid	77-92-9	LC50	440 mg/l	fish	48 h
Glycerine	56-81-5	LC50	54,000 mg/l	fish	96 h
Ethanol	64-17-5	LC50	15,400 mg/l	fish	96 h
Ethanol	64-17-5	EC50	>10,000 mg/l	aquatic invertebrates	48 h
Ethanol	64-17-5	ErC50	22,000 mg/l	algae	96 h
2-Propanol	67-63-0	LC50	10,000 mg/l	fish	96 h
Ammonium chloride	12125-02-9	LC50	42.91 mg/l	fish	96 h
Ammonium chloride	12125-02-9	EC50	101 mg/l	aquatic invertebrates	48 h
Methanol	67-56-1	LC50	15,400 mg/l	fish	96 h
Methanol	67-56-1	ErC50	22,000 mg/l	algae	96 h
Ethylene glycol	107-21-1	LC50	>72,860 mg/l	fish	96 h
Ethylene glycol	107-21-1	EC50	>100 mg/l	daphnia magna	48 h
Ethylene glycol	107-21-1	ErC50	<13,000 mg/l	algae	96 h
DL-Lactic acid	598-82-3	EC50	250 mg/l	aquatic invertebrates	48 h
DL-Lactic acid	598-82-3	ErC50	3.5 g/l	algae	72 h
Sodium azide	26628-22-8	LC50	2.75 mg/l	fish	96 h
Sodium azide	26628-22-8	EC50	0.35 mg/l	algae	96 h

Aquatic toxicity (chronic) of components					
Name of sub-stance	CAS No	Endpoint	Value	Species	Exposure time
Hexamethylene tetra- mine	100-97-0	ErC50	3 g/l	algae	14 d
Hexamethylene tetra- mine	100-97-0	EC50	>5,000 mg/l	microorganisms	30 min
Hexamethylene tetra- mine	100-97-0	NOEC	1.5 g/l	algae	14 d
Ethanol	64-17-5	LC50	1,806 mg/l	aquatic invertebrates	10 d
Ethanol	64-17-5	ErC50	675 mg/l	algae	4 d
Ethanol	64-17-5	NOEC	250 mg/l	fish	120 h
2-Propanol	67-63-0	NOELR	>1,000 mg/l	fish	28 d
Ammonium chloride	12125-02-9	ErC50	1,300 mg/l	algae	5 d
Ammonium chloride	12125-02-9	EC50	2,700 mg/l	algae	18 d
Ammonium chloride	12125-02-9	NOEC	11.8 mg/l	fish	28 d
Ethylene glycol	107-21-1	LC50	>1,500 mg/l	fish	28 d
Ethylene glycol	107-21-1	EC50	>15,000 mg/l	aquatic invertebrates	21 d
Ethylene glycol	107-21-1	NOEC	≥1,000	aquatic invertebrates	23 d

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Aquatic toxicity (chronic) of components					
Name of substance	CAS No	Endpoint	Value	Species	Exposure time
			mg/l		
DL-Lactic acid	598-82-3	EC50	>88.2 mg/l	microorganisms	3 h
DL-Lactic acid	598-82-3	NOEC	≥88.2 mg/l	microorganisms	3 h
Sodium azide	26628-22-8	EC50	79.3 mg/l	microorganisms	3 h
Sodium azide	26628-22-8	NOEC	0.244 mg/l	microorganisms	3 h

12.2 Persistence and degradability

Biodegradation

The relevant substances of the mixture are readily biodegradable.

Degradability of components						
Name of substance	CAS No	Process	Degradation rate	Time	Method	Source
Hexamethylene tetramine	100-97-0	biotic/abiotic	45 %	28 d	MITI-Test	
Hexamethylene tetramine	100-97-0	oxygen depletion	35 %	28 d		ECHA
Hexamethylene tetramine	100-97-0	DOC removal	39 %	28 d		ECHA
Citric acid	77-92-9	biotic/abiotic	98 %	2 d		
Glycerine	56-81-5	biotic/abiotic	63 %	14 d		
Ethanol	64-17-5	biotic/abiotic	94 %	d		
Ethanol	64-17-5	oxygen depletion	69 %	5 d		ECHA
Ethanol	64-17-5	oxygen depletion	84 %	10 d		ECHA
Ethanol	64-17-5	oxygen depletion	97 %	20 d		ECHA
2-Propanol	67-63-0	biotic/abiotic	95 %	21 d	modifizierter OECD Screening Test	
2-Propanol	67-63-0	oxygen depletion	53 %	5 d		ECHA
Methanol	67-56-1	biotic/abiotic	99 %	30 d		
Methanol	67-56-1	oxygen depletion	69 %	5 d		ECHA
Ethylene glycol	107-21-1	biotic/abiotic	83 – 96 %	14 d		
Ethylene glycol	107-21-1	DOC removal	90 – 100 %	10 d		ECHA

12.3 Bioaccumulative potential

Data are not available.

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Bioaccumulative potential of components				
Name of substance	CAS No	BCF	Log KOW	BOD5/COD
Hexamethylene tetramine	100-97-0		-2.18 (20 °C)	
Citric acid	77-92-9		-1.64	
Glycerine	56-81-5		-1.75 (pH value: 7.4, 25 °C)	
Ethanol	64-17-5		-0.31	0.6211
2-Propanol	67-63-0		0.05	
Ammonium chloride	12125-02-9		-4.37	
Methanol	67-56-1		-0.77	
Ethylene glycol	107-21-1		-1.36	
DL-Lactic acid	598-82-3		-0.54 (25 °C)	

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Does not contain a PBT-/vPvB-substance at a concentration of $\geq 0,1\%$.

12.6 Endocrine disrupting properties

Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.

12.7 Other adverse effects

Data are not available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods



This material and its container must be disposed of as hazardous waste. Dispose of contents/container in accordance with local/regional/national/international regulations.

Sewage disposal-relevant information

Do not empty into drains.

Waste treatment of containers/packagings

Handle contaminated packages in the same way as the substance itself. Completely emptied packages can be recycled.

13.3 Remarks

Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Please consider the relevant national or regional provisions. Non-contaminated packages may be recycled.

SECTION 14: Transport information

14.1 UN number	not subject to transport regulations
14.2 UN proper shipping name	not assigned
14.3 Transport hazard class(es)	not assigned
14.4 Packing group	not assigned
14.5 Environmental hazards	non-environmentally hazardous acc. to the dan-

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gerous goods regulations

14.6 Special precautions for user

There is no additional information.

14.7 Transport in bulk according to IMO instruments

The cargo is not intended to be carried in bulk.

14.8 Information for each of the UN Model Regulations

Transport information National regulations Additional information (UN RTDG)

Not subject to transport regulations. UN RTDG

International Maritime Dangerous Goods Code (IMDG) - Additional information

Not subject to IMDG.

International Civil Aviation Organization (ICAO-IATA/DGR) - Additional information

Not subject to ICAO-IATA.

SECTION 15: Regulatory information

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

There is no additional information.

Other information

Directive 94/33/EC on the protection of young people at work. Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

National inventories

Country	Inventory	Status
AU	AIIC	not all ingredients are listed
CA	DSL	all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	not all ingredients are listed
JP	CSCL-ENCS	all ingredients are listed
JP	ISHA-ENCS	not all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	not all ingredients are listed
NZ	NZIoC	not all ingredients are listed
PH	PICCS	not all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	not all ingredients are listed
VN	NCI	all ingredients are listed

Legend

AIIC	Australian Inventory of Industrial Chemicals
CICR	Chemical Inventory and Control Regulation
CSCL-ENCS	List of Existing and New Chemical Substances (CSCL-ENCS)
DSL	Domestic Substances List (DSL)
ECSI	EC Substance Inventory (EINECS, ELINCS, NLP)
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
INSQ	National Inventory of Chemical Substances
ISHA-ENCS	Inventory of Existing and New Chemical Substances (ISHA-ENCS)

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Legend

KECI	Korea Existing Chemicals Inventory
NCI	National Chemical Inventory
NZIoC	New Zealand Inventory of Chemicals
PICCS	Philippine Inventory of Chemicals and Chemical Substances (PICCS)
REACH Reg.	REACH registered substances
TCSI	Taiwan Chemical Substance Inventory
TSCA	Toxic Substance Control Act

15.2 Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
2.2		Precautionary statements - prevention: change in the listing (table)	yes
2.3	Results of PBT and vPvB assessment: This mixture does not contain any substances that are assessed to be a PBT or a vPvB.	Results of PBT and vPvB assessment: Does not contain a PBT-/vPvB-substance at a concentration of $\geq 0,1\%$.	yes
2.3		Endocrine disrupting properties: Does not contain an endocrine disruptor (ED) at a concentration of $\geq 0,1\%$.	yes
15.1		National inventories: change in the listing (table)	yes

Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
Acute Tox.	Acute toxicity
ATE	Acute Toxicity Estimate
BCF	Bioconcentration factor
BOD	Biochemical Oxygen Demand
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
Ceiling-C	Ceiling value
COD	Chemical oxygen demand
DGR	Dangerous Goods Regulations (see IATA/DGR)
DNEL	Derived No-Effect Level
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
ED	Endocrine disruptor
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
ErC50	\equiv EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye

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Abbr.	Descriptions of used abbreviations
Flam. Liq.	Flammable liquid
Flam. Sol.	Flammable solid
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
log KOW	n-Octanol/water
NLP	No-Longer Polymer
NOEC	No Observed Effect Concentration
NOELR	No Observed Effect Loading Rate
PBT	Persistent, Bioaccumulative and Toxic
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
Skin Sens.	Skin sensitisation
STEL	Short-term exposure limit
STOT RE	Specific target organ toxicity - repeated exposure
STOT SE	Specific target organ toxicity - single exposure
TWA	Time-weighted average
UN RTDG	UN Recommendations on the Transport of Dangerous Good
vPvB	Very Persistent and very Bioaccumulative
WES	Safe Work Australia: Workplace exposure standards for airborne contaminants

Key literature references and sources for data

Safe Work Australia's Code of Practice for Labelling of Workplace Hazardous Chemicals (under WHS Regulations).

UN Recommendations on the Transport of Dangerous Good. International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties. The classification is based on tested mixture.

Health hazards. Environmental hazards. The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

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List of relevant phrases (code and full text as stated in section 2 and 3)

Code	Text
H225	Highly flammable liquid and vapour.
H228	Flammable solid.
H300	Fatal if swallowed.
H301	Toxic if swallowed.
H302	Harmful if swallowed.
H310	Fatal in contact with skin.
H311	Toxic in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H331	Toxic if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H370	Causes damage to organs.
H373	May cause damage to organs through prolonged or repeated exposure.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.