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Revision date / version: 03.09.2021 / 0027  
Replacing version dated / version: 27.08.2021 / 0026  
Valid from: 03.09.2021  
PDF print date: 06.09.2021  
Radiator Cleaner

## Safety data sheet according to Regulation (EC) No 1907/2006, Annex II

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

#### 1.1 Product identifier

### Radiator Cleaner

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

##### Relevant identified uses of the substance or mixture:

See definition of the substance or mixture.

##### Uses advised against:

No information available at present.

#### 1.3 Details of the supplier of the safety data sheet

LIQUI MOLY GmbH  
Jerg-Wieland-Str. 4  
89081 Ulm-Lehr  
Tel.: (+49) 0731-1420-0  
Fax: (+49) 0731-1420-88

Qualified person's e-mail address: info@chemical-check.de, k.schnurbusch@chemical-check.de Please DO NOT use for requesting Safety Data Sheets.

#### 1.4 Emergency telephone number

##### Emergency information services / official advisory body:

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##### Telephone number of the company in case of emergencies:

+49 (0) 700 / 24 112 112 (LMR)

### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

##### Classification according to Regulation (EC) 1272/2008 (CLP)

Hazard class	Hazard category	Hazard statement
Eye Dam.	1	H318-Causes serious eye damage.

#### 2.2 Label elements

##### Labeling according to Regulation (EC) 1272/2008 (CLP)



Danger

H318-Causes serious eye damage.

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P101-If medical advice is needed, have product container or label at hand. P102-Keep out of reach of children.  
 P280-Wear eye protection / face protection.  
 P305+P351+P338-IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310-Immediately call a POISON CENTER / doctor.

EUH208-Contains Reaction mass of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1). May produce an allergic reaction.

Isotridecanol, ethoxylated  
 Sulfonic acids, C14-17-sec-alkane, sodium salts

### 2.3 Other hazards

The mixture does not contain any vPvB substance (vPvB = very persistent, very bioaccumulative) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).

The mixture does not contain any PBT substance (PBT = persistent, bioaccumulative, toxic) or is not included under XIII of the regulation (EC) 1907/2006 (< 0,1 %).

The mixture does not contain any substance with endocrine disrupting properties (< 0,1 %).

## SECTION 3: Composition/information on ingredients

### 3.1 Substances

n.a.

### 3.2 Mixtures

Isotridecanol, ethoxylated	
Registration number (REACH)	---
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	---
CAS	9043-30-5
content %	5-<10
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Acute Tox. 4, H302 Eye Dam. 1, H318

Sulfonic acids, C14-17-sec-alkane, sodium salts	
Registration number (REACH)	01-2119489924-20-XXXX
Index	---
EINECS, ELINCS, NLP, REACH-IT List-No.	307-055-2
CAS	97489-15-1
content %	1-<5
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Acute Tox. 4, H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 Aquatic Chronic 3, H412
Specific Concentration Limits and ATE	Skin Irrit. 2, H315: >=10,001 % Eye Dam. 1, H318: >=15,001 % Eye Irrit. 2, H319: >=10,001 %

Morpholine	
Registration number (REACH)	01-2119496057-30-XXXX
Index	613-028-00-9
EINECS, ELINCS, NLP, REACH-IT List-No.	203-815-1
CAS	110-91-8
content %	0,1-<0,25
Classification according to Regulation (EC) 1272/2008 (CLP), M-factors	Flam. Liq. 3, H226 Acute Tox. 3, H311 Acute Tox. 3, H331 Acute Tox. 4, H302 Skin Corr. 1A, H314 Eye Dam. 1, H318

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<b>Reaction mass of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1)</b>	
<b>Registration number (REACH)</b>	---
<b>Index</b>	613-167-00-5
<b>EINECS, ELINCS, NLP, REACH-IT List-No.</b>	---
<b>CAS</b>	55965-84-9
<b>content %</b>	0,001-<0,0015
<b>Classification according to Regulation (EC) 1272/2008 (CLP), M-factors</b>	Acute Tox. 2, H310 Acute Tox. 2, H330 Acute Tox. 3, H301 Skin Corr. 1C, H314 Eye Dam. 1, H318 Skin Sens. 1A, H317 Aquatic Acute 1, H400 (M=100) Aquatic Chronic 1, H410 (M=100)
<b>Specific Concentration Limits and ATE</b>	Skin Corr. 1C, H314: $\geq 0,6\%$ Skin Irrit. 2, H315: $\geq 0,06\%$ Eye Dam. 1, H318: $\geq 0,6\%$ Eye Irrit. 2, H319: $\geq 0,06\%$ Skin Sens. 1A, H317: $\geq 0,0015\%$

Impurities, test data and additional information may have been taken into account in classifying and labelling the product.  
 For the text of the H-phrases and classification codes (GHS/CLP), see Section 16.  
 The substances named in this section are given with their actual, appropriate classification!  
 For substances that are listed in appendix VI, table 3.1 of the regulation (EC) no. 1272/2008 (CLP regulation) this means that all notes that may be given here for the named classification have been taken into account.

## SECTION 4: First aid measures

### 4.1 Description of first aid measures

First-aiders should ensure they are protected!  
 Never pour anything into the mouth of an unconscious person!

#### Inhalation

Supply person with fresh air and consult doctor according to symptoms.

#### Skin contact

Remove polluted, soaked clothing immediately, wash thoroughly with plenty of water and soap, in case of irritation of the skin (flare), consult a doctor.

#### Eye contact

Remove contact lenses.  
 Wash thoroughly for several minutes using copious water - call doctor immediately, have Data Sheet available.  
 Protect uninjured eye.  
 Follow-up examination by an ophthalmologist.

#### Ingestion

Rinse the mouth thoroughly with water.  
 Do not induce vomiting - give copious water to drink. Consult doctor immediately.

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

If applicable delayed symptoms and effects can be found in section 11 and the absorption route in section 4.1.  
 In certain cases, the symptoms of poisoning may only appear after an extended period / after several hours.

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

Symptomatic treatment.

## SECTION 5: Firefighting measures

### 5.1 Extinguishing media

#### Suitable extinguishing media

Adapt to the nature and extent of fire.

#### Unsuitable extinguishing media

High volume water jet

### 5.2 Special hazards arising from the substance or mixture

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In case of fire the following can develop:

Oxides of carbon  
Oxides of nitrogen  
Oxides of sulphur  
Toxic gases

### 5.3 Advice for firefighters

For personal protective equipment see Section 8.  
In case of fire and/or explosion do not breathe fumes.  
Protective respirator with independent air supply.  
According to size of fire  
Full protection, if necessary.  
Dispose of contaminated extinction water according to official regulations.

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

#### 6.1.1 For non-emergency personnel

In case of spillage or accidental release, wear personal protective equipment as specified in section 8 to prevent contamination.  
Ensure sufficient ventilation, remove sources of ignition.  
Avoid dust formation with solid or powder products.  
Leave the danger zone if possible, use existing emergency plans if necessary.  
Avoid contact with eyes or skin.  
If applicable, caution - risk of slipping.

#### 6.1.2 For emergency responders

See section 8 for suitable protective equipment and material specifications.

### 6.2 Environmental precautions

If leakage occurs, dam up.  
Resolve leaks if this possible without risk.  
Prevent from entering drainage system.  
Prevent surface and ground-water infiltration, as well as ground penetration.  
If accidental entry into drainage system occurs, inform responsible authorities.

### 6.3 Methods and material for containment and cleaning up

Soak up with absorbent material (e.g. universal binding agent, sand, diatomaceous earth) and dispose of according to Section 13.

### 6.4 Reference to other sections

For personal protective equipment see Section 8 and for disposal instructions see Section 13.

## SECTION 7: Handling and storage

In addition to information given in this section, relevant information can also be found in section 8 and 6.1.

### 7.1 Precautions for safe handling

#### 7.1.1 General recommendations

Ensure good ventilation.  
Avoid contact with eyes or skin.  
Eating, drinking, smoking, as well as food-storage, is prohibited in work-room.  
Observe directions on label and instructions for use.  
Use working methods according to operating instructions.

#### 7.1.2 Notes on general hygiene measures at the workplace

General hygiene measures for the handling of chemicals are applicable.  
Wash hands before breaks and at end of work.  
Keep away from food, drink and animal feedingstuffs.  
Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

### 7.2 Conditions for safe storage, including any incompatibilities

Keep out of access to unauthorised individuals.  
Store product closed and only in original packing.  
Not to be stored in gangways or stair wells.  
Store in a well ventilated place.

### 7.3 Specific end use(s)

No information available at present.

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## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

(GB)	<b>Chemical Name</b>	Morpholine	Content %:0,1- <0,25
WEL-TWA: 10 ppm (36 mg/m <sup>3</sup> ) (WEL, EU)		WEL-STEL: 20 ppm (72 mg/m <sup>3</sup> ) (WEL, EU)	---
Monitoring procedures: ---			
BMGV: ---		Other information: Sk	

Sulfonic acids, C14-17-sec-alkane, sodium salts						
Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	0,04	mg/l	
	Environment - marine		PNEC	0,004	mg/l	
	Environment - water, sporadic (intermittent) release		PNEC	0,06	mg/l	
	Environment - sediment, freshwater		PNEC	9,4	mg/kg dw	
	Environment - sediment, marine		PNEC	0,94	mg/kg dw	
	Environment - soil		PNEC	9,4	mg/kg dw	
	Environment - sewage treatment plant		PNEC	600	mg/l	
	Environment - oral (animal feed)		PNEC	53,3	mg/kg feed	
	Environment - periodic release		DNEL	0	mg/kg	
Consumer	Human - dermal	Long term, systemic effects	DNEL	3,57	mg/kg bw/d	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	12,4	mg/m <sup>3</sup>	
Consumer	Human - oral	Long term, systemic effects	DNEL	7,1	mg/kg bw/d	
Consumer	Human - dermal	Short term, local effects	DNEL	2,8	mg/cm <sup>2</sup>	
Consumer	Human - dermal	Long term, local effects	DNEL	2,8	mg/cm <sup>2</sup>	
Workers / employees	Human - dermal	Short term, local effects	DNEL	2,8	mg/cm <sup>2</sup>	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	5	mg/kg bw/d	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	35	mg/m <sup>3</sup>	
Workers / employees	Human - dermal	Long term, local effects	DNEL	2,8	mg/cm <sup>2</sup>	

Morpholine						
Area of application	Exposure route / Environmental compartment	Effect on health	Descriptor	Value	Unit	Note
	Environment - freshwater		PNEC	0,163	mg/l	
	Environment - marine		PNEC	0,0163	mg/l	
	Environment - sediment, freshwater		PNEC	1,83	mg/kg	
	Environment - sediment, marine		PNEC	0,183	mg/kg	
	Environment - sporadic (intermittent) release		PNEC	0,09	mg/l	

	Environment - sewage treatment plant		PNEC	10	mg/l	
	Environment - soil		PNEC	0,269	mg/kg	
Consumer	Human - oral	Short term, systemic effects	DNEL	38	mg/kg bw/d	
Consumer	Human - inhalation	Short term, local effects	DNEL	18	mg/m3	
Consumer	Human - dermal	Long term, systemic effects	DNEL	0,52	mg/kg bw/day	
Consumer	Human - inhalation	Long term, systemic effects	DNEL	45	mg/m3	
Consumer	Human - oral	Long term, systemic effects	DNEL	6,3	mg/kg bw/day	
Consumer	Human - inhalation	Long term, local effects	DNEL	35,8	mg/m3	
Workers / employees	Human - inhalation	Short term, local effects	DNEL	72	mg/m3	
Workers / employees	Human - dermal	Long term, systemic effects	DNEL	1,04	mg/kg bw/d	
Workers / employees	Human - inhalation	Long term, systemic effects	DNEL	91	mg/m3	
Workers / employees	Human - inhalation	Long term, local effects	DNEL	36	mg/m3	

WEL-TWA = Workplace Exposure Limit - Long-term exposure limit (8-hour TWA (= time weighted average) reference period) EH40. AGW = "Arbeitsplatzgrenzwert" (workplace limit value, Germany).  
 (8) = Inhalable fraction (Directive 2017/164/EU, Directive 2004/37/CE). (9) = Respirable fraction (Directive 2017/164/EU, Directive 2004/37/CE). (11) = Inhalable fraction (Directive 2004/37/CE). (12) = Inhalable fraction. Respirable fraction in those Member States that implement, on the date of the entry into force of this Directive, a biomonitoring system with a biological limit value not exceeding 0,002 mg Cd/g creatinine in urine (Directive 2004/37/CE). | WEL-STEL = Workplace Exposure Limit - Short-term exposure limit (15-minute reference period).  
 (8) = Inhalable fraction (2017/164/EU, 2017/2398/EU). (9) = Respirable fraction (2017/164/EU, 2017/2398/EU). (10) = Short-term exposure limit value in relation to a reference period of 1 minute (2017/164/EU). | BMGV = Biological monitoring guidance value EH40. BGW = "Biologischer Grenzwert" (biological limit value, Germany) | Other information: Sen = Capable of causing occupational asthma. Sk = Can be absorbed through skin. Carc = Capable of causing cancer and/or heritable genetic damage.  
 \*\* = The exposure limit for this substance is repealed through the TRGS 900 (Germany) of January 2006 with the goal of revision.  
 (13) = The substance can cause sensitisation of the skin and of the respiratory tract (Directive 2004/37/CE), (14) = The substance can cause sensitisation of the skin (Directive 2004/37/CE).

## 8.2 Exposure controls

### 8.2.1 Appropriate engineering controls

Ensure good ventilation. This can be achieved by local suction or general air extraction.

If this is insufficient to maintain the concentration under the WEL or AGW values, suitable breathing protection should be worn.

Applies only if maximum permissible exposure values are listed here.

Suitable assessment methods for reviewing the effectiveness of protection measures adopted include metrological and non-metrological investigative techniques.

These are specified by e.g. EN 14042.

EN 14042 "Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents".

### 8.2.2 Individual protection measures, such as personal protective equipment

General hygiene measures for the handling of chemicals are applicable.

Wash hands before breaks and at end of work.

Keep away from food, drink and animal feedingstuffs.

Remove contaminated clothing and protective equipment before entering areas in which food is consumed.

Eye/face protection:

Tight fitting protective goggles with side protection (EN 166).

Skin protection - Hand protection:

Rubber gloves (EN ISO 374).

Protective nitrile gloves (EN ISO 374).

Minimum layer thickness in mm:

0,4

Permeation time (penetration time) in minutes:

> 480

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The breakthrough times determined in accordance with EN 16523-1 were not obtained under practical conditions.  
 The recommended maximum wearing time is 50% of breakthrough time.  
 Protective hand cream recommended.

Skin protection - Other:  
 Protective working garments (e.g. safety shoes EN ISO 20345, long-sleeved protective working garments).

Respiratory protection:  
 Normally not necessary.

Thermal hazards:  
 Not applicable

Additional information on hand protection - No tests have been performed.  
 In the case of mixtures, the selection has been made according to the knowledge available and the information about the contents.  
 Selection of materials derived from glove manufacturer's indications.  
 Final selection of glove material must be made taking the breakthrough times, permeation rates and degradation into account.  
 Selection of a suitable glove depends not only on the material but also on other quality characteristics and varies from manufacturer to manufacturer.  
 In the case of mixtures, the resistance of glove materials cannot be predicted and must therefore be tested before use.  
 The exact breakthrough time of the glove material can be requested from the protective glove manufacturer and must be observed.

### 8.2.3 Environmental exposure controls

No information available at present.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Physical state:	Liquid
Colour:	White, Turbid
Odour:	Characteristic
Odour threshold:	Not determined
pH-value:	n.a.
Melting point/freezing point:	Not determined
Initial boiling point and boiling range:	Not determined
Flash point:	>100 °C
Evaporation rate:	Not determined
Flammability (solid, gas):	Not determined
Lower explosive limit:	Not determined
Upper explosive limit:	Not determined
Vapour pressure:	Not determined
Vapour density (air = 1):	Not determined
Density:	1,015 g/cm <sup>3</sup> (20°C)
Bulk density:	Not determined
Solubility(ies):	Not determined
Water solubility:	Soluble
Partition coefficient (n-octanol/water):	Not determined
Auto-ignition temperature:	Not determined
Decomposition temperature:	Not determined
Viscosity:	>7 mm <sup>2</sup> /s (40°C)
Explosive properties:	Not determined
Oxidising properties:	Not determined

### 9.2 Other information

Miscibility:	Not determined
Fat solubility / solvent:	Not determined
Conductivity:	Not determined
Surface tension:	Not determined
Solvents content:	Not determined

## SECTION 10: Stability and reactivity

### 10.1 Reactivity

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The product has not been tested.

### 10.2 Chemical stability

Stable with proper storage and handling.

### 10.3 Possibility of hazardous reactions

No dangerous reactions are known.

### 10.4 Conditions to avoid

See also section 7.

None known

### 10.5 Incompatible materials

See also section 7.

Avoid contact with strong oxidizing agents.

### 10.6 Hazardous decomposition products

See also section 5.2

No decomposition when used as directed.

## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

Possibly more information on health effects, see Section 2.1 (classification).

Radiator Cleaner						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	ATE	>2000	mg/kg			calculated value
Acute toxicity, by dermal route:	ATE	>2000	mg/kg			calculated value
Acute toxicity, by inhalation:	ATE	>20	mg/l/4h			Vapours, calculated value
Acute toxicity, by inhalation:	ATE	>5	mg/l/4h			Aerosol, calculated value
Skin corrosion/irritation:						n.d.a.
Serious eye damage/irritation:						n.d.a.
Respiratory or skin sensitisation:						n.d.a.
Germ cell mutagenicity:						n.d.a.
Carcinogenicity:						n.d.a.
Reproductive toxicity:						n.d.a.
Specific target organ toxicity - single exposure (STOT-SE):						n.d.a.
Specific target organ toxicity - repeated exposure (STOT-RE):						n.d.a.
Aspiration hazard:						n.d.a.
Symptoms:						n.d.a.

Isotridecanol, ethoxylated						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	500	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	>2000	mg/kg	Rat	OECD 402 (Acute Dermal Toxicity)	
Skin corrosion/irritation:				Rabbit		Not irritant
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Intensively irritant
Respiratory or skin sensitisation:				Guinea pig		No (skin contact), References
Germ cell mutagenicity:					(Ames-Test)	Negative, References

Sulfonic acids, C14-17-sec-alkane, sodium salts						
Toxicity / effect	Endpoint	Value	Unit	Organism	Test method	Notes
Acute toxicity, by oral route:	LD50	>500-2000	mg/kg	Rat	OECD 401 (Acute Oral Toxicity)	
Acute toxicity, by dermal route:	LD50	>2000	mg/kg	Mouse		Analogous conclusion



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Skin corrosion/irritation:				Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Skin Irrit. 2
Serious eye damage/irritation:		>15	%	Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Eye Dam. 1
Serious eye damage/irritation:		>10	%			Eye Irrit. 2
Respiratory or skin sensitisation:				Guinea pig	OECD 406 (Skin Sensitisation)	No (skin contact)
Germ cell mutagenicity:				Salmonella typhimurium	OECD 471 (Bacterial Reverse Mutation Test)	Negative
Carcinogenicity:				Rat		Negative 2 years
Reproductive toxicity:		200	mg/kg	Rat		No indications of such an effect.

<b>Morpholine</b>						
<b>Toxicity / effect</b>	<b>Endpoint</b>	<b>Value</b>	<b>Unit</b>	<b>Organism</b>	<b>Test method</b>	<b>Notes</b>
Acute toxicity, by oral route:	LD50	1910	mg/kg	Rat		
Acute toxicity, by dermal route:	LD50	500	mg/kg		OECD 402 (Acute Dermal Toxicity)	
Acute toxicity, by inhalation:	LC50	8	mg/l/4h	Rat		Vapours, Does not conform with EU classification.
Skin corrosion/irritation:				Rabbit	OECD 404 (Acute Dermal Irritation/Corrosion)	Corrosive
Serious eye damage/irritation:				Rabbit	OECD 405 (Acute Eye Irritation/Corrosion)	Corrosive
Respiratory or skin sensitisation:				Guinea pig	IUCLID Chem. Data Sheet (ESIS)	Not sensitising
Germ cell mutagenicity:					OECD 471 (Bacterial Reverse Mutation Test)	Negative
Germ cell mutagenicity:					OECD 479 (Genetic Toxicology - In Vitro Sister Chromatid Exchange assay in Mammalian Cells)	Negative
Germ cell mutagenicity:					OECD 482 (Gen. Tox. - DNA Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells In Vitro)	Negative
Carcinogenicity:				Rat	OECD 453 (Combined Chronic Toxicity/Carcinogenicity Studies)	Negative
Specific target organ toxicity - repeated exposure (STOT-RE):	NOEC	36			OECD 452 (Chronic Toxicity Studies)	Vapours
Symptoms:						respiratory distress, burning of the membranes of the nose and throat, heart/circulatory disorders, cornea opacity, coughing, mucous membrane irritation, pain in chest, nausea and vomiting.



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Other information:							DOC-elimination degree (complexing organic substance) $\geq$ 80%/28d: No
Other information:	AOX			%			According to the recipe, contains no AOX.

Isotridecanol, ethoxylated							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to algae:	EC50	72h	$\geq$ 10	mg/l	Scenedesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	
Toxicity to bacteria:	EC50	17h	>1000	mg/l	Pseudomonas putida	DIN 38412 T.8	
12.1. Toxicity to fish:	LC50	96h	1-10	mg/l	Brachydanio rerio	OECD 203 (Fish, Acute Toxicity Test)	
12.1. Toxicity to fish:	LC50	96h	1 -10	mg/l	Cyprinus caprio	OECD 203 (Fish, Acute Toxicity Test)	References
12.1. Toxicity to daphnia:	EC50	48h	4,7	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to daphnia:	NOEC/NOEL	21d	2,48-3,76	mg/l	Daphnia magna		
12.2. Persistence and degradability:		28d	67	%		OECD 301 B (Ready Biodegradability - Co2 Evolution Test)	
12.2. Persistence and degradability:		28d	>60	%		OECD 301 E (Ready Biodegradability - Modified OECD Screening Test)	
12.2. Persistence and degradability:		28d	>70	%		OECD 301 A (Ready Biodegradability - DOC Die-Away Test)	
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Other information:	DOC		600	mg/g			
Other information:	COD		1980	mg/g		DIN 38409-H41	
Water solubility:							Soluble

Sulfonic acids, C14-17-sec-alkane, sodium salts							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	NOEC/NOEL	28d	0,85	mg/l	Oncorhynchus mykiss	OECD 204 (Fish, Prolonged Toxicity Test - 14-Day Study)	
12.1. Toxicity to fish:	LC50	96h	8,4	mg/l	Leuciscus idus	84/449/EEC C.1	
12.1. Toxicity to daphnia:	NOEC/NOEL	22d	0,36	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	

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12.1. Toxicity to daphnia:	EC50	48h	9,81	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	EC50	72h	>61	mg/l	Scenedesmus subspicatus	OECD 201 (Alga, Growth Inhibition Test)	
12.2. Persistence and degradability:		34d	96,2	%	activated sludge	OECD 304 A (Inherent Biodegradability in Soil)	Readily biodegradable
12.2. Persistence and degradability:		28d	78	%	activated sludge	OECD 301 B (Ready Biodegradability - Co2 Evolution Test)	Readily biodegradable
12.2. Persistence and degradability:		28d	89	%	activated sludge	OECD 301 E (Ready Biodegradability - Modified OECD Screening Test)	Readily biodegradable
12.3. Bioaccumulative potential:	Log Pow		0,2			Regulation (EC) 440/2008 A.8 (PARTITION COEFFICIENT)	Bioaccumulation is unlikely (LogPow < 1). 20 °C
pH 7-8,5							
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria:	NOEC/NOEL	16h	600	mg/l	Pseudomonas putida	DIN 38412 T.8	
Other organisms:	NOEC/NOEL	56d	470	mg/kg	Eisenia foetida	OECD 222 (Earthworm Reproduction Test (Eisenia fetida/Eisenia andrei))	

**Morpholine**

Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to fish:	LC50	96h	179	mg/l			
12.1. Toxicity to daphnia:	NOEC/NOEL	21d	5	mg/l	Daphnia magna	OECD 211 (Daphnia magna Reproduction Test)	
12.1. Toxicity to daphnia:	EC50	48h	45	mg/l	Daphnia magna	OECD 202 (Daphnia sp. Acute Immobilisation Test)	
12.1. Toxicity to algae:	NOEC/NOEL	72h	31	mg/l	Pseudokirchneriella subcapitata	OECD 201 (Alga, Growth Inhibition Test)	
12.1. Toxicity to algae:	EC50	72h	58	mg/l			
12.2. Persistence and degradability:		28d	92	%		OECD 301 B (Ready Biodegradability - Co2 Evolution Test)	
12.2. Persistence and degradability:		26d	93	%		OECD 301 E (Ready Biodegradability - Modified OECD Screening Test)	

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12.3. Bioaccumulative potential:	BCF		<2,8			OECD 305 (Bioconcentration - Flow-Through Fish Test)	
12.3. Bioaccumulative potential:	Log Pow		-2,55				

Reaction mass of 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1)							
Toxicity / effect	Endpoint	Time	Value	Unit	Organism	Test method	Notes
12.1. Toxicity to algae:	NOEC/NOEL	72h	0,0012	mg/l	Pseudokirchneriella subcapitata	OECD 201 (Alga, Growth Inhibition Test)	
12.1. Toxicity to algae:	NOEC/NOEL	48h	0,00064	mg/l	Skeletonema costatum	ISO 10253	
12.2. Persistence and degradability:			>60	%	activated sludge	OECD 301 D (Ready Biodegradability - Closed Bottle Test)	Does not conform with EU classification.
12.1. Toxicity to algae:	EC50	48h	0,0052	mg/l	Skeletonema costatum	ISO 10253	
12.5. Results of PBT and vPvB assessment							No PBT substance, No vPvB substance
Toxicity to bacteria:	EC50	3h	7,92	mg/l	activated sludge	OECD 209 (Activated Sludge, Respiration Inhibition Test (Carbon and Ammonium Oxidation))	

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### For the substance / mixture / residual amounts

EC disposal code no.:

The waste codes are recommendations based on the scheduled use of this product.

Owing to the user's specific conditions for use and disposal, other waste codes may be allocated under certain circumstances. (2014/955/EU)

07 06 01 aqueous washing liquids and mother liquors

20 01 29 detergents containing hazardous substances

Recommendation:

Sewage disposal shall be discouraged.

Pay attention to local and national official regulations.

E.g. suitable incineration plant.

E.g. dispose at suitable refuse site.

#### For contaminated packing material

Pay attention to local and national official regulations.

Empty container completely.

Uncontaminated packaging can be recycled.

Dispose of packaging that cannot be cleaned in the same manner as the substance.

## SECTION 14: Transport information

### General statements

14.1. UN number: n.a.

#### Transport by road/by rail (ADR/RID)

14.2. UN proper shipping name:

14.3. Transport hazard class(es): n.a.

14.4. Packing group: n.a.

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Classification code: n.a.  
 LQ: n.a.  
 14.5. Environmental hazards: Not applicable  
 Tunnel restriction code:

### Transport by sea (IMDG-code)

14.2. UN proper shipping name:  
 14.3. Transport hazard class(es): n.a.  
 14.4. Packing group: n.a.  
 Marine Pollutant: n.a.  
 14.5. Environmental hazards: Not applicable

### Transport by air (IATA)

14.2. UN proper shipping name:  
 14.3. Transport hazard class(es): n.a.  
 14.4. Packing group: n.a.  
 14.5. Environmental hazards: Not applicable

### 14.6. Special precautions for user

Unless specified otherwise, general measures for safe transport must be followed.

### 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Non-dangerous material according to Transport Regulations.

## SECTION 15: Regulatory information

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

Observe restrictions:  
 Comply with national regulations/laws governing maternity protection (national implementation of the Directive 92/85/EEC)!  
 Comply with trade association/occupational health regulations.

Directive 2010/75/EU (VOC): 0,101 %

#### REGULATION (EC) No 648/2004

5 % or over but less than 15 %

non-ionic surfactants

less than 5 %

anionic surfactants

METHYLCHLOROISOTHIAZOLINONE/ METHYLISOTHIAZOLINONE

Treated goods as per Regulation (EU) No. 528/2012 must display specific information on the label.

Please note Article 58 paragraph (3) subparagraph 2 of Regulation (EU) No. 528/2012.

Approval of the biocidal active substance may mean that special conditions are required for marketing the treated goods.

These are indicated in the approval of the active substance.

### 15.2 Chemical safety assessment

A chemical safety assessment is not provided for mixtures.

## SECTION 16: Other information

Revised sections: 2, 10, 11, 14, 16

These details refer to the product as it is delivered.

Employee instruction/training in handling hazardous materials is required.

### Classification and processes used to derive the classification of the mixture in accordance with the ordinance (EG) 1272/2008 (CLP):

Classification in accordance with regulation (EC) No. 1272/2008 (CLP)	Evaluation method used
Eye Dam. 1, H318	Classification according to calculation procedure.

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The following phrases represent the posted Hazard Class and Risk Category Code (GHS/CLP) of the product and the constituents (specified in Section 2 and 3).

H330 Fatal if inhaled.  
 H310 Fatal in contact with skin.  
 H314 Causes severe skin burns and eye damage.  
 H226 Flammable liquid and vapour.  
 H317 May cause an allergic skin reaction.  
 H301 Toxic if swallowed.  
 H302 Harmful if swallowed.  
 H311 Toxic in contact with skin.  
 H315 Causes skin irritation.  
 H318 Causes serious eye damage.  
 H331 Toxic if inhaled.  
 H400 Very toxic to aquatic life.  
 H410 Very toxic to aquatic life with long lasting effects.  
 H412 Harmful to aquatic life with long lasting effects.

Eye Dam. — Serious eye damage  
 Acute Tox. — Acute toxicity - oral  
 Skin Irrit. — Skin irritation  
 Aquatic Chronic — Hazardous to the aquatic environment - chronic  
 Flam. Liq. — Flammable liquid  
 Acute Tox. — Acute toxicity - dermal  
 Acute Tox. — Acute toxicity - inhalation  
 Skin Corr. — Skin corrosion  
 Skin Sens. — Skin sensitization  
 Aquatic Acute — Hazardous to the aquatic environment - acute

### Any abbreviations and acronyms used in this document:

acc., acc. to according, according to  
 ADR Accord européen relatif au transport international des marchandises Dangereuses par Route (= European Agreement concerning the International Carriage of Dangerous Goods by Road)  
 AOX Adsorbable organic halogen compounds  
 approx. approximately  
 Art., Art. no. Article number  
 ASTM ASTM International (American Society for Testing and Materials)  
 ATE Acute Toxicity Estimate  
 BAM Bundesanstalt für Materialforschung und -prüfung (Federal Institute for Materials Research and Testing, Germany)  
 BAuA Bundesanstalt für Arbeitsschutz und Arbeitsmedizin (= Federal Institute for Occupational Health and Safety, Germany)  
 BCF Bioconcentration factor  
 BSEF The International Bromine Council  
 bw body weight  
 CAS Chemical Abstracts Service  
 CLP Classification, Labelling and Packaging (REGULATION (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures)  
 CMR carcinogenic, mutagenic, reproductive toxic  
 DMEL Derived Minimum Effect Level  
 DNEL Derived No Effect Level  
 DOC Dissolved organic carbon  
 dw dry weight  
 e.g. for example (abbreviation of Latin 'exempli gratia'), for instance  
 EbCx, EyCx, EbLx (x = 10, 50) Effect Concentration/Level of x % on reduction of the biomass (algae, plants)  
 EC European Community  
 ECHA European Chemicals Agency  
 ECx, ELx (x = 0, 3, 5, 10, 20, 50, 80, 100) Effect Concentration/Level for x % effect  
 EEC European Economic Community  
 EINECS European Inventory of Existing Commercial Chemical Substances  
 ELINCS European List of Notified Chemical Substances  
 EN European Norms  
 EPA United States Environmental Protection Agency (United States of America)  
 ErCx, EµCx, ErLx (x = 10, 50) Effect Concentration/Level of x % on inhibition of the growth rate (algae, plants)  
 etc. et cetera

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EU European Union  
EVAL Ethylene-vinyl alcohol copolymer  
Fax. Fax number  
gen. general  
GHS Globally Harmonized System of Classification and Labelling of Chemicals  
GWP Global warming potential  
Koc Adsorption coefficient of organic carbon in the soil  
Kow octanol-water partition coefficient  
IARC International Agency for Research on Cancer  
IATA International Air Transport Association  
IBC (Code) International Bulk Chemical (Code)  
IMDG-code International Maritime Code for Dangerous Goods  
incl. including, inclusive  
IUCLID International Uniform Chemical Information Database  
IUPAC International Union for Pure Applied Chemistry  
LC50 Lethal Concentration to 50 % of a test population  
LD50 Lethal Dose to 50% of a test population (Median Lethal Dose)  
Log Koc Logarithm of adsorption coefficient of organic carbon in the soil  
Log Kow, Log Pow Logarithm of octanol-water partition coefficient  
LQ Limited Quantities  
MARPOL International Convention for the Prevention of Marine Pollution from Ships  
n.a. not applicable  
n.av. not available  
n.c. not checked  
n.d.a. no data available  
NLP No-longer-Polymer  
NOEC, NOEL No Observed Effect Concentration/Level  
OECD Organisation for Economic Co-operation and Development  
org. organic  
PBT persistent, bioaccumulative and toxic  
PE Polyethylene  
PNEC Predicted No Effect Concentration  
ppm parts per million  
PVC Polyvinylchloride  
REACH Registration, Evaluation, Authorisation and Restriction of Chemicals (REGULATION (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals)  
REACH-IT List-No. 9xx-xxx-x No. is automatically assigned, e.g. to pre-registrations without a CAS No. or other numerical identifier. List Numbers do not have any legal significance, rather they are purely technical identifiers for processing a submission via REACH-IT.  
RID Règlement concernant le transport International ferroviaire de marchandises Dangereuses (= Regulation concerning the International Carriage of Dangerous Goods by Rail)  
SVHC Substances of Very High Concern  
Tel. Telephone  
TOC Total organic carbon  
UN RTDG United Nations Recommendations on the Transport of Dangerous Goods  
VOC Volatile organic compounds  
vPvB very persistent and very bioaccumulative  
wwt wet weight

The statements made here should describe the product with regard to the necessary safety precautions - they are not meant to guarantee definite characteristics - but they are based on our present up-to-date knowledge.  
No responsibility.

These statements were made by:

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