

Safety Data Sheet according to Regulation (EC) No 1907/2006

Page 1 of 14

LOCTITE ABLESTIK QMI519 known as QMI 519 Stock (7239) 5cc EFD

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

1.1. Product identifier

LOCTITE ABLESTIK QMI519 known as QMI 519 Stock (7239) 5cc EFD

1.2. Relevant identified uses of the substance or mixture and uses advised against Intended use: Die attach adhesive

1.3. Details of the supplier of the safety data sheet Henkel AG & Co. KGaA

Henkelstr. 67 40589 Düsseldorf

Germany

Phone: +49 211 797 0 Fax-no.: +49 211 798 2009

ua-productsafety.de@henkel.com

1.4. Emergency telephone number

The Henkel information service also provides an around-the-clock telephone service on phone no.+49-(0)211-797-3350 for exceptional cases.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (CLP):

Skin irritation	Category 2
H315 Causes skin irritation.	
Serious eye irritation	Category 2
H319 Causes serious eye irritation.	
Acute hazards to the aquatic environment	Category 1
H400 Very toxic to aquatic life.	
Chronic hazards to the aquatic environment	Category 1
H410 Very toxic to aquatic life with long lasting effects.	

2.2. Label elements

Label elements (CLP):

Hazard pictogram:



Signal word:	Warning
Hazard statement:	H315 Causes skin irritation.H319 Causes serious eye irritation.H410 Very toxic to aquatic life with long lasting effects.
Supplemental information	Contains Epoxycyclohexylethyltrimethoxysilane; 2-Propenoic acid, 2-methyl, palladium (2+) salt. May produce an allergic reaction.
Precautionary statement: Prevention	P273 Avoid release to the environment.
Precautionary statement: Response	P302+P352 IF ON SKIN: Wash with plenty of soap and water. P337+P313 If eye irritation persists: Get medical advice/attention.

2.3. Other hazards

None if used properly. Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Hazardous components CAS-No.	EC Number REACH-Reg No.	content	Classification
Silver >= 99,9 % Ag in powder (>100nm<1mm) 7440-22-4	231-131-3 01-2119555669-21	50- 100 %	Aquatic Acute 1 H400 Aquatic Chronic 1
			H410 M factor (Acute Aquat Tox): 10 M factor (Chron Aquat Tox): 10
2-Propionic acid, methyl ester reaction products with hydrolized formic acid- polydicyclopentandiene reaction product		10- 20 %	Acute Tox. 4 H302 Eye Irrit. 2 H319 STOT SE 3
			H335 Skin Irrit. 2 H315 Acute Tox. 4 H312
Amines, C36-alkylenedi-, maleated		1-< 5 %	Acute Tox. 4 H332 Acute Tox. 4
682800-79-9			H302 Acute Tox. 4 H312 Skin Irrit. 2 H315
Dicyclopentenyloxyethyl Methacrylate. 68586-19-6	271-608-3	1-< 5 %	Skin Irrit. 2; Dermal H315 Eye Irrit. 2 H319 Acute Tox. 4; Inhalation H332 STOT SE 3; Inhalation H335 Aquatic Chronic 2
Epoxycyclohexylethyltrimethoxysilane 3388-04-3	222-217-1	0,1-< 1 %	H411 Skin Sens. 1B H317
			Muta. 2 H341 Carc. 2 H351 Aquatic Chronic 3 H412
2-Propenoic acid, 2-methyl, palladium (2+) salt		0,1-< 1%	Acute Tox. 4 H302 Acute Tox. 3 H311 Acute Tox. 4 H332
			Skin Corr. 1A H314 Eye Dam. 1 H318 Skin Sens. 1 H317
			STOT SE 3 H335 Aquatic Acute 1 H400 Aquatic Chronic 2
			H411 M factor (Acute Aquat Tox): 10

Declaration of the ingredients according to CLP (EC) No 1272/2008:

For full text of the H - statements and other abbreviations see section 16 "Other information". Substances without classification may have community workplace exposure limits available.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation: Move to fresh air, consult doctor if complaint persists.

Skin contact: Rinse with running water and soap. Obtain medical attention if irritation persists.

Eye contact: Rinse immediately with plenty of running water (for 10 minutes), seek medical attention from a specialist.

Ingestion: Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

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

EYE: Irritation, conjunctivitis.

SKIN: Redness, inflammation.

Prolonged or repeated skin contact with silver and its salts may cause a blue-gray discoloration of the skin and mucous membranes that is irreversible (Argyria).

4.3. Indication of any immediate medical attention and special treatment needed See section: Description of first aid measures

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: water, carbon dioxide, foam, powder

Extinguishing media which must not be used for safety reasons:

High pressure waterjet

5.2. Special hazards arising from the substance or mixture

In the event of a fire, carbon monoxide (CO), carbon dioxide (CO2) and nitrogen oxides (NOx) can be released. In case of fire, keep containers cool with water spray.

5.3. Advice for firefighters

Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid contact with skin and eyes. Wear protective equipment. Ensure adequate ventilation. Remove sources of ignition.

6.2. Environmental precautions

Do not empty into drains / surface water / ground water.

6.3. Methods and material for containment and cleaning up

For small spills wipe up with paper towel and place in container for disposal. For large spills absorb onto inert absorbent material and place in sealed container for disposal. Do not empty into drains / surface water / ground water.

6.4. Reference to other sections

See advice in section 8

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid skin and eye contact. See advice in section 8

Hygiene measures:

Wash hands before work breaks and after finishing work. Do not eat, drink or smoke while working. Good industrial hygiene practices should be observed.

7.2. Conditions for safe storage, including any incompatibilities

Ensure good ventilation/extraction. Keep container tightly sealed. Refer to Technical Data Sheet

7.3. Specific end use(s)

Die attach adhesive

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational Exposure Limits

Valid for

Germany

Ingredient [Regulated substance]	ppm	mg/m ³	Value type	Short term exposure limit	Regulatory list
				category / Remarks	
Silver		0,1	Time Weighted Average	Indicative	ECTLV
7440-22-4			(TWA):		
[SILVER, METALLIC]					
Silver			Short Term Exposure	Category II: substances with a	TRGS 900
7440-22-4			Classification:	resorptive effect.	
Silver		0,1	Exposure limit(s):	8	TRGS 900
7440-22-4			•		

Predicted No-Effect Concentration (PNEC):

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	aqua (freshwater)		0,00004 mg/l				
Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	aqua (marine water)		0,00086 mg/l				
Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	sewage treatment plant (STP)		0,025 mg/l				
Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	sediment (freshwater)				438,13 mg/kg		
Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	sediment (marine water)				438,13 mg/kg		
Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	Air						
Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	Soil				1,41 mg/kg		

Derived No-Effect Level (DNEL):

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	Workers	inhalation	Long term exposure - systemic effects		0,1 mg/m3	
Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	General population	inhalation	Long term exposure - systemic effects		0,04 mg/m3	
Silver >= 99,9 % Ag as powder (>100nm<1mm) classified for environment 7440-22-4	General population	oral	Long term exposure - systemic effects		1,2 mg/kg	

Biological Exposure Indices:

None

8.2. Exposure controls:

Engineering controls: Ensure good ventilation/extraction.

Respiratory protection:

Ensure adequate ventilation. An approved mask or respirator fitted with an organic vapour cartridge should be worn if the product is used in a poorly ventilated area Filter type: A (EN 14387)

Hand protection:

Chemical-resistant protective gloves (EN 374).

Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):

nitrile rubber (NBR; >= 0.4 mm thickness)

Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):

nitrile rubber (NBR; ≥ 0.4 mm thickness)

This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:

Safety glasses with sideshields or chemical safety goggles should be worn if there is a risk of splashing. Protective eye equipment should conform to EN166.

Skin protection: Wear suitable protective clothing. Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.

Advices to personal protection equipment:

The information provided on personal protective equipment is for guidance purposes only. A full risk assessment should be conducted prior to using this product to determine the appropriate personal protective equipment to suit local conditions. Personal protective equipment should conform to the relevant EN standard.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties Appearance paste

Odor Odour threshold paste grey mild No data available / Not applicable

pН

pH	No data available / Not applicable
Melting point	No data available / Not applicable
Solidification temperature	No data available / Not applicable
Initial boiling point	No data available / Not applicable
Flash point	110,5 °C (230.9 °F); Closed cup
Evaporation rate	No data available / Not applicable
Flammability	No data available / Not applicable
Explosive limits	No data available / Not applicable
Vapour pressure	No data available / Not applicable
Relative vapour density:	No data available / Not applicable
Density	No data available / Not applicable
Bulk density	No data available / Not applicable
Solubility	No data available / Not applicable
Solubility (qualitative)	Insoluble
(Solvent: Water)	
Partition coefficient: n-octanol/water	No data available / Not applicable
Auto-ignition temperature	No data available / Not applicable
Decomposition temperature	No data available / Not applicable
Viscosity	No data available / Not applicable
Viscosity (kinematic)	No data available / Not applicable
Explosive properties	No data available / Not applicable
Oxidising properties	No data available / Not applicable

9.2. Other information

No data available / Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

Strong oxidizing agents. Strong bases. Acids. Reducing agents.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

See section reactivity

10.4. Conditions to avoid

No decomposition if stored and applied as directed.

10.5. Incompatible materials

See section reactivity.

10.6. Hazardous decomposition products

carbon oxides. Hydrocarbons nitrogen oxides Rapid polymerisation may generate excessive heat and pressure.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity:

May cause irritation to the digestive tract.

Hazardous substances CAS-No.	Value type	Value	Species	Method
Silver >= 99,9 % Ag in powder (>100nm<1mm) 7440-22-4	LD50	> 2.000 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
Epoxycyclohexylethyltri methoxysilane 3388-04-3	LD50	13.000 mg/kg	rat	
2-Propenoic acid, 2- methyl, palladium (2+) salt	LD50	1.320 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)

Acute dermal toxicity:

Prolonged or repeated skin contact with silver and its salts may cause a blue-gray discoloration of the skin and mucous membranes that is irreversible (Argyria).

Hazardous substances CAS-No.	Value type	Value	Species	Method
Silver >= 99,9 % Ag in powder (>100nm<1mm) 7440-22-4	LD50	> 2.000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)
Epoxycyclohexylethyltri methoxysilane 3388-04-3	LD50	6.700 mg/kg	rabbit	
2-Propenoic acid, 2- methyl, palladium (2+) salt	LD50	500 - 1.000 mg/kg	rabbit	Dermal Toxicity Screening

Acute inhalative toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Test atmosphere	Exposure time	Species	Method
2-Propenoic acid, 2- methyl, palladium (2+) salt	LC50	> 3,6 mg/l	dust/mist	4 h	rat	OECD Guideline 403 (Acute Inhalation Toxicity)

Skin corrosion/irritation:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
2-Propenoic acid, 2- methyl, palladium (2+) salt	corrosive	3 min	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)

Serious eye damage/irritation:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Exposure time	Species	Method
2-Propenoic acid, 2- methyl, palladium (2+) salt	corrosive		rabbit	Draize Test

Respiratory or skin sensitization:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Test type	Species	Method
Epoxycyclohexylethyltri methoxysilane 3388-04-3	sensitising	Buehler test	guinea pig	OECD Guideline 406 (Skin Sensitisation)
2-Propenoic acid, 2- methyl, palladium (2+) salt	sensitising	other:	not specified	Weight of evidence

Germ cell mutagenicity:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Type of study / Route of administration	Metabolic activation / Exposure time	Species	Method
Silver >= 99,9 % Ag in powder (>100nm<1mm) 7440-22-4	negative	in vitro mammalian cell micronucleus test	with and without		OECD Guideline 487 (In vitro Mammalian Cell Micronucleus Test)

Carcinogenicity

No data available.

Reproductive toxicity:

No data available.

STOT-single exposure:

No data available.

STOT-repeated exposure::

No data available.

Aspiration hazard:

No data available.

SECTION 12: Ecological information

General ecological information:

Do not empty into drains / surface water / ground water.

12.1. Toxicity

Toxicity (Fish):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances	Value	Value	Exposure time	Species	Method
CAS-No.	type				
8	LC50	0,0012 mg/l	96 h	Pimephales promelas	other guideline:
powder (>100nm<1mm)					
7440-22-4					
Silver >= 99,9 % Ag in	EC10	0,00019 mg/l	217 d	Salmo trutta	OECD Guideline 210 (fish
powder (>100nm<1mm)					early lite stage toxicity test)
7440-22-4					
Dicyclopentenyloxyethyl	LC50	9 mg/l	96 h	Lepomis macrochirus	OECD Guideline 203 (Fish,
Methacrylate.					Acute Toxicity Test)
68586-19-6					
Epoxycyclohexylethyltrimetho	LC50	42,3 mg/l	96 h	Cyprinus carpio	OECD Guideline 203 (Fish,
xysilane					Acute Toxicity Test)
3388-04-3					-
2-Propenoic acid, 2-methyl,	LC50	0,34 mg/l	96 h	not specified	OECD Guideline 203 (Fish,
palladium (2+) salt					Acute Toxicity Test)

Toxicity (Daphnia):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances	Value	Value	Exposure time	Species	Method
CAS-No.	type				
Silver >= 99,9 % Ag in powder (>100nm<1mm) 7440-22-4	EC50	0,00022 mg/l	48 h	Daphnia magna	other guideline:
Epoxycyclohexylethyltrimetho xysilane 3388-04-3	EC50	58 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
2-Propenoic acid, 2-methyl, palladium (2+) salt	EC50	0,103 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Chronic toxicity to aquatic invertebrates

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances	Value	Value	Exposure time	Species	Method
CAS-No.	type				
Silver >= 99,9 % Ag in powder (>100nm<1mm) 7440-22-4	NOEC	0,00032 mg/l	21 d	Daphnia magna	EPA OPPTS 850.1300 (Daphnid Chronic Toxicity Test)
Epoxycyclohexylethyltrimetho xysilane 3388-04-3	NOEC	16 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
2-Propenoic acid, 2-methyl, palladium (2+) salt	NOEC	0,0259 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)

Toxicity (Algae):

The mixture is classified based on calculation method referring to the classified substances present in	the mixture
The mixture is classified subsci on calculation method referring to the classified substances present in	the minitare.

Hazardous substances	Value	Value	Exposure time	Species	Method
CAS-No.	type		_		
Silver >= 99,9 % Ag in powder (>100nm<1mm) 7440-22-4	EC10	0,00016 mg/l	15 d	other:	other guideline:
Epoxycyclohexylethyltrimetho xysilane 3388-04-3	NOEC	6 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Epoxycyclohexylethyltrimetho xysilane 3388-04-3	EC50	90 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
2-Propenoic acid, 2-methyl, palladium (2+) salt	EC50	0,052 mg/l	72 h	1	OECD Guideline 201 (Alga, Growth Inhibition Test)
2-Propenoic acid, 2-methyl, palladium (2+) salt	NOEC	0,0315 mg/l	72 h	not specified	OECD Guideline 201 (Alga, Growth Inhibition Test)

Toxicity to microorganisms

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

Hazardous substances	Value	Value	Exposure time	Species	Method
CAS-No.	type				
Epoxycyclohexylethyltrimetho	EC 50	> 100 mg/l	30 min		OECD Guideline 209
xysilane		-			(Activated Sludge,
3388-04-3					Respiration Inhibition Test)

12.2. Persistence and degradability

The product is not biodegradable.

Hazardous substances	Result	Test type	Degradability	Exposure	Method
CAS-No.				time	
Dicyclopentenyloxyethyl		aerobic	0 %	30 d	OECD Guideline 301 D (Ready
Methacrylate.					Biodegradability: Closed Bottle
68586-19-6					Test)
Epoxycyclohexylethyltrimetho		aerobic	28 %	28 d	OECD Guideline 301 D (Ready
xysilane					Biodegradability: Closed Bottle
3388-04-3					Test)
2-Propenoic acid, 2-methyl,	readily biodegradable	aerobic	> 60 %	28 d	OECD 301 A - F
palladium (2+) salt					

12.3. Bioaccumulative potential

No data available.

Hazardous substances	Bioconcentratio	Exposure time	Temperature	Species	Method
CAS-No.	n factor (BCF)				
Silver >= 99,9 % Ag in powder (>100nm<1mm) 7440-22-4	70	42 d	20 °C	Cyprinus carpio	other guideline:

12.4. Mobility in soil

Cured adhesives are immobile.

Hazardous substances CAS-No.	LogPow	Temperature	Method
Dicyclopentenyloxyethyl Methacrylate. 68586-19-6	3,39		not specified
Epoxycyclohexylethyltrimetho xysilane 3388-04-3	4,1	23 °C	OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)

12.5. Results of PBT and vPvB assessment

Hazardous substances	PBT / vPvB
CAS-No.	
Silver >= 99,9 % Ag in powder (>100nm<1mm	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very
)	Bioaccumulative (vPvB) criteria.
7440-22-4	

12.6. Other adverse effects

No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product disposal:

Dispose of in accordance with local and national regulations.

Collection and delivery to recycling enterprise or other registered elimination institution.

Disposal of uncleaned packages:

After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.

Waste code

08 04 09 waste adhesives and sealants containing organic solvents and other dangerous substances

The valid EWC waste code numbers are source-related. The manufacturer is therefore unable to specify EWC waste codes for the articles or products used in the various sectors. The EWC codes listed are intended as a recommendation for users. We will be happy to advise you.

SECTION 14: Transport information

14.1.	UN number	
	ADR	3082
	RID	3082
	ADN	3082
	IMDG	3082
	IATA	3082
	IATA	5082
14.2.	UN proper shipping name	
	ADR	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver)
	RID	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver)
	ADN	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver)
	IMDG	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Silver)
	IATA	Environmentally hazardous substance, liquid, n.o.s. (Silver)
14.3.	Transport hazard class(es)	
	ADR	9
	RID	9
	ADN	9
	IMDG	9
	IATA	9
14.4.	Packing group	
	ADR	III
	RID	III
	ADN	III
	IMDG	III
	IATA	III
14.5.	.5. Environmental hazards	
1.007		
	ADR	not applicable
	RID	not applicable
	ADN	not applicable
	IMDG	Marine pollutant
	IATA	not applicable
14.6.	Special precautions for user	
	ADR	not applicable
		Tunnelcode:
	RID	not applicable
	ADN	not applicable
	IMDG	not applicable
	IATA	not applicable
	The transport classifications in this section apply generally to packed and bulk goods alike. For containers with a net volume of no more than 5 L for liquid substances or a net mass of no more than 5 kg for solid substances per individual or inner package, the exemptions SP 375 (ADR), 197 (IATA), 969 (IMDG) may be applied, which can result in a deviation from the transport classification for packed goods.	
14.7.	Transport in bulk according to Annex II of Marpol and the IBC Code	

not applicable

SECTION 15: Regulatory information

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

VOC content (2010/75/EC) < 3 %

15.2. Chemical safety assessment

A chemical safety assessment has not been carried out.

National regulations/information (Germany):

WGK:

WGK = 3, highly water endangering mixture. Classification according to the mixture rules in German AwSV regulation annex 1, number 5.2 from 18. April 2017.

Storage class according to TRGS 510: 10

SECTION 16: Other information

The labelling of the product is indicated in Section 2. The full text

of all abbreviations indicated by codes in this safety data sheet are as follows:

- H302 Harmful if swallowed.
- H311 Toxic in contact with skin.
- H312 Harmful in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H318 Causes serious eye damage.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H335 May cause respiratory irritation.
- H341 Suspected of causing genetic defects.
- H351 Suspected of causing cancer.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.
- H411 Toxic to aquatic life with long lasting effects.
- H412 Harmful to aquatic life with long lasting effects.

Further information:

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This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

Relevant changes in this safety data sheet are indicated by vertical lines at the left margin in the body of this document. Corresponding text is displayed in a different color on shadowed fields.