



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

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Loctite 278

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V007.0

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

1.1. Product identifier

Loctite 278

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

Intended use:
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

SDSinfo.Adhesive@henkel.com

For Safety Data Sheet updates please visit our website <https://mysds.henkel.com/index.html#/appSelection> or www.henkel-adhesives.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 damage	Category 1
H318 Causes serious eye damage.	
Skin sensitizer	Category 1
H317 May cause an allergic skin reaction.	
Specific target organ toxicity - single exposure	Category 3
H335 May cause respiratory irritation.	
Target organ: respiratory tract irritation	

Chronic hazards to the aquatic environment Category 2

H411 Toxic to aquatic life with long lasting effects.

2.2. Label elements

Label elements (CLP):

Hazard pictogram:**Contains**

2-Propenoic acid, 2-methyl-, (octahydro-4,7-methano-1H-indene-5-diyl)bis(methylene) ester

Hydroxypropyl methacrylate
Methacryloyloxyethyl succinate
2-Hydroxyethyl methacrylate

Hydroxyethyl methacrylate phosphate
Acetic acid, 2-phenylhydrazide
maleic acid

Signal word:

Danger

Hazard statement:

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement:

For consumer use only: P101 If medical advice is needed, have product container or label at hand. P102 Keep out of reach of children. P501 Dispose of contents/container in accordance with national regulation.

**Precautionary statement:
Prevention**

P261 Avoid breathing vapors.
P273 Avoid release to the environment.
P280 Wear protective gloves/eye protection.

**Precautionary statement:
Response**

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P302+P352 IF ON SKIN: Wash with plenty of soap and water.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

2.3. Other hazards

None if used properly.

Following substances are present in a concentration \geq the concentration limit for depiction in Section 3 and fulfill the criteria for PBT/vPvB, or were identified as endocrine disruptor (ED):

This mixture does not contain any substances in a concentration \geq the concentration limit for depiction in Section 3 that are assessed to be a PBT, vPvB or ED.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

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

Hazardous components CAS-No. EC Number REACH-Reg No.	Concentration	Classification	Specific Conc. Limits, M- factors and ATEs	Add. Information
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-{4-[2-(4-{2-[2-(methacryloyloxy)etho	50- 100 %	Aquatic Chronic 4, H413		
2-Propenoic acid, 2-methyl-, (octahydro-4,7-methano-1H-indene-5-diy)bis(methylene) ester 43048-08-4 256-062-6 01-2120164868-39	10- 20 %	STOT SE 3, H335 Skin Irrit. 2, H315 Eye Irrit. 2, H319 Skin Sens. 1B, H317 Aquatic Chronic 1, H410 Aquatic Acute 1, H400	STOT SE 3; H335; C >= 10 % ===== M acute = 1 M chronic = 1	
Hydroxypropyl methacrylate 27813-02-1 248-666-3 01-2119490226-37	5- < 10 %	Skin Sens. 1, H317 Eye Irrit. 2, H319		
Methacryloyloxyethyl succinate 20882-04-6 244-096-4 01-2120137902-58	5- < 10 %	Skin Sens. 1, H317 Eye Dam. 1, H318		
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid 01-2119980659-17	1- < 5 %	Aquatic Chronic 4, H413		
Cumene hydroperoxide 80-15-9 201-254-7 01-2119475796-19	1- < 2,5 %	STOT RE 2, H373 Skin Corr. 1B, H314 Acute Tox. 2, Inhalation, H330 Aquatic Chronic 2, H411 Acute Tox. 4, Oral, H302 Acute Tox. 4, Dermal, H312 Org. Perox. E, H242 STOT SE 3, H335	Eye Irrit. 2; H319; C 1 - < 3 % Skin Irrit. 2; H315; C 3 - < 10 % Eye Dam. 1; H318; C 3 - < 10 % STOT SE 3; H335; C >= 1 % Skin Corr. 1B; H314; C >= 10 % ===== dermal:ATE = 1.100 mg/kg	
2-Hydroxyethyl methacrylate 868-77-9 212-782-2 01-2119490169-29	0,1- < 1 %	Skin Irrit. 2, H315 Skin Sens. 1, H317 Eye Irrit. 2, H319		
Hydroxyethyl methacrylate phosphate 52628-03-2 258-053-2 01-2119980575-25	0,1- < 1 %	Skin Corr. 1C, H314 Skin Sens. 1B, H317 Eye Dam. 1, H318	oral:ATE = 2.500 mg/kg	
Acetic acid, 2-phenylhydrazide 114-83-0 204-055-3	0,1- < 1 %	Acute Tox. 3, Oral, H301 Skin Irrit. 2, H315 Skin Sens. 1, H317 Eye Irrit. 2, H319 STOT SE 3, Inhalation, H335 Carc. 2, H351		
maleic acid 110-16-7 203-742-5 01-2119488705-25	0,1- < 1 %	Acute Tox. 4, Oral, H302 Eye Irrit. 2, H319 STOT SE 3, H335 Skin Irrit. 2, H315 Skin Sens. 1, H317 Acute Tox. 4, Dermal, H312	Skin Sens. 1; H317; C >= 0,1 %	

If no ATE values are displayed, please refer to LD/LC50 values in Section 11.

For full text of the H - statements and other abbreviations see section 16 "Other information".

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:

Move to fresh air. If symptoms persist, seek medical advice.

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

SKIN: Redness, inflammation.

RESPIRATORY: Irritation, coughing, shortness of breath, chest tightness.

SKIN: Rash, Urticaria.

After eye contact: Corrosive, may cause permanent damage to eyes (impairment of vision).

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 (NO_x) can be released.

5.3. Advice for firefighters

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

Additional information:

In case of fire, keep containers cool with water spray.

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.

Keep away from 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

Dispose of contaminated material as waste according to Section 13.

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.

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:

Good industrial hygiene practices should be observed.

Wash hands before work breaks and after finishing work.

Do not eat, drink or smoke while working.

7.2. Conditions for safe storage, including any incompatibilities

Store in a cool, dry place.

Refer to Technical Data Sheet

7.3. Specific end use(s)

Adhesive

SECTION 8: Exposure controls/personal protection**8.1. Control parameters****Occupational Exposure Limits**

Valid for

Germany

None

Predicted No-Effect Concentration (PNEC):

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-[4-[2-(4-[2-[2-(methacryloyloxy)etho	sewage treatment plant (STP)		1 mg/l				
(Octahydro-4,7-methano-1H-indenediyl)bis(methylene) bismethacrylate 43048-08-4	aqua (freshwater)		0,000144 mg/l				
(Octahydro-4,7-methano-1H-indenediyl)bis(methylene) bismethacrylate 43048-08-4	aqua (intermittent releases)		0,00144 mg/l				
(Octahydro-4,7-methano-1H-indenediyl)bis(methylene) bismethacrylate 43048-08-4	aqua (marine water)		0,000014 mg/l				
(Octahydro-4,7-methano-1H-indenediyl)bis(methylene) bismethacrylate 43048-08-4	Sewage treatment plant		10 mg/l				
(Octahydro-4,7-methano-1H-indenediyl)bis(methylene) bismethacrylate 43048-08-4	sediment (freshwater)				0,125 mg/kg		
(Octahydro-4,7-methano-1H-indenediyl)bis(methylene) bismethacrylate 43048-08-4	sediment (marine water)				0,013 mg/kg		
(Octahydro-4,7-methano-1H-indenediyl)bis(methylene) bismethacrylate 43048-08-4	Soil				0,022 mg/kg		
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	aqua (freshwater)		0,904 mg/l				
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	aqua (marine water)		0,904 mg/l				
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	sewage treatment plant (STP)		10 mg/l				
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	aqua (intermittent releases)		0,972 mg/l				
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	sediment (freshwater)				6,28 mg/kg		
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	sediment (marine water)				6,28 mg/kg		
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	Soil				0,727 mg/kg		
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	Marine water - intermittent		0,972 mg/l				
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	Air						no hazard identified
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	Predator						no potential for bioaccumulation
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	aqua (freshwater)		0,0031 mg/l				
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	aqua (intermittent releases)		0,031 mg/l				
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	aqua (marine water)		0,00031 mg/l				
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	sewage treatment plant (STP)		0,35 mg/l				
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide	sediment (freshwater)				0,023 mg/kg		

80-15-9							
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	sediment (marine water)				0,0023 mg/kg		
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	Soil				0,0029 mg/kg		
2-Hydroxyethyl methacrylate 868-77-9	aqua (freshwater)		0,482 mg/l				
2-Hydroxyethyl methacrylate 868-77-9	aqua (marine water)		0,482 mg/l				
2-Hydroxyethyl methacrylate 868-77-9	sewage treatment plant (STP)		10 mg/l				
2-Hydroxyethyl methacrylate 868-77-9	aqua (intermittent releases)		1 mg/l				
2-Hydroxyethyl methacrylate 868-77-9	sediment (freshwater)				3,79 mg/kg		
2-Hydroxyethyl methacrylate 868-77-9	sediment (marine water)				3,79 mg/kg		
2-Hydroxyethyl methacrylate 868-77-9	Soil				0,476 mg/kg		
2-Hydroxyethyl methacrylate 868-77-9	Predator						no potential for bioaccumulation
2-Hydroxyethyl methacrylate 868-77-9	Marine water - intermittent		1 mg/l				
2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate 52628-03-2	aqua (freshwater)		0,068 mg/l				
2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate 52628-03-2	aqua (marine water)		0,007 mg/l				
2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate 52628-03-2	sewage treatment plant (STP)		0,546 mg/l				
2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate 52628-03-2	sediment (freshwater)				0,481 mg/kg		
2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate 52628-03-2	sediment (marine water)				0,048 mg/kg		
2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate 52628-03-2	Soil				0,056 mg/kg		
Maleic acid 110-16-7	aqua (freshwater)		0,1 mg/l				
Maleic acid 110-16-7	aqua (intermittent releases)		0,4281 mg/l				
Maleic acid 110-16-7	sediment (freshwater)				0,334 mg/kg		
Maleic acid 110-16-7	sewage treatment plant (STP)		44,6 mg/l				
Maleic acid 110-16-7	aqua (marine water)		0,01 mg/l				
Maleic acid 110-16-7	sediment (marine water)				0,0334 mg/kg		
Maleic acid 110-16-7	Soil				0,0415 mg/kg		

Derived No-Effect Level (DNEL):

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	Workers	dermal	Long term exposure - systemic effects		4,2 mg/kg	no hazard identified
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	Workers	Inhalation	Long term exposure - systemic effects		14,7 mg/m ³	no hazard identified
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	General population	dermal	Long term exposure - systemic effects		2,5 mg/kg	no hazard identified
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	General population	Inhalation	Long term exposure - systemic effects		8,8 mg/m ³	no hazard identified
Methacrylic acid, monoester with propane-1,2-diol 27813-02-1	General population	oral	Long term exposure - systemic effects		2,5 mg/kg	no hazard identified
.alpha.,.alpha.-Dimethylbenzyl hydroperoxide 80-15-9	Workers	inhalation	Long term exposure - systemic effects		6 mg/m ³	
2-Hydroxyethyl methacrylate 868-77-9	Workers	dermal	Long term exposure - systemic effects		1,3 mg/kg	no potential for bioaccumulation
2-Hydroxyethyl methacrylate 868-77-9	Workers	Inhalation	Long term exposure - systemic effects		4,9 mg/m ³	no potential for bioaccumulation
2-Hydroxyethyl methacrylate 868-77-9	General population	dermal	Long term exposure - systemic effects		0,83 mg/kg	no potential for bioaccumulation
2-Hydroxyethyl methacrylate 868-77-9	General population	Inhalation	Long term exposure - systemic effects		2,9 mg/m ³	no potential for bioaccumulation
2-Hydroxyethyl methacrylate 868-77-9	General population	oral	Long term exposure - systemic effects		0,83 mg/kg	no potential for bioaccumulation
2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate 52628-03-2	Workers	inhalation	Long term exposure - systemic effects		7,04 mg/m ³	
2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate 52628-03-2	Workers	dermal	Long term exposure - systemic effects		1 mg/kg	
2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate 52628-03-2	General population	inhalation	Long term exposure - systemic effects		1,74 mg/m ³	
2-Propenoic acid, 2-methyl-, 2-hydroxyethyl ester, phosphate 52628-03-2	General population	dermal	Long term exposure - systemic effects		0,5 mg/kg	
Maleic acid 110-16-7	Workers	dermal	Acute/short term exposure - local effects			
Maleic acid 110-16-7	Workers	dermal	Long term exposure - local effects			
Maleic acid 110-16-7	Workers	dermal	Acute/short term exposure - systemic effects			
Maleic acid 110-16-7	Workers	dermal	Long term exposure - systemic effects			
Maleic acid 110-16-7	Workers	inhalation	Acute/short term exposure - local effects		3 mg/m ³	
Maleic acid 110-16-7	Workers	inhalation	Long term exposure - systemic effects		3 mg/m ³	
Maleic acid 110-16-7	Workers	inhalation	Long term exposure - local effects		3 mg/m ³	
Maleic acid 110-16-7	Workers	inhalation	Acute/short term exposure - systemic effects		3 mg/m ³	

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**

Delivery form	liquid
Colour	green
Odor	mild, Acrylic
Physical state	liquid
Melting point	Not applicable, Product is a liquid
Solidification temperature	< -30 °C (< -22 °F)
Initial boiling point	> 150 °C (> 302 °F)
Flammability	The product is not flammable.
Explosive limits	Not applicable, The product is not flammable.
Flash point	> 100 °C (> 212 °F)
Auto-ignition temperature	Not applicable, The product is not flammable.
Decomposition temperature	Not applicable, Substance/mixture is not self-reactive, no organic peroxide and does not decompose under foreseen conditions of use
pH	Not applicable, Product is non-polar/aprotic.
Viscosity (kinematic) (40 °C (104 °F);)	> 20,5 mm ² /s
Viscosity, dynamic (Cone and plate; Instrument: Haake cone and plate, RV1, C35/2°Ti; 25 °C (77 °F); Shear	1.500 - 2.500 mPa.s LCT STM 740; cone & plate viscosity

gradient: 129 s-1)	
Solubility (qualitative) (20 °C (68 °F); Solvent: Water)	Slight
Partition coefficient: n-octanol/water	Not applicable
Vapour pressure (50 °C (122 °F))	Mixture < 300 mbar;no method / method unknown
Vapour pressure (20 °C (68 °F))	< 0,13 mbar
Density (20 °C (68 °F))	1,11 g/cm3 no method / method unknown
Relative vapour density: (20 °C)	> 1
Particle characteristics	Not applicable Product is a liquid

9.2. Other information

Other information not applicable for this product

SECTION 10: Stability and reactivity

10.1. Reactivity

Reacts with strong oxidants.
Acids.
Reducing agents.
Strong bases.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

See section reactivity

10.4. Conditions to avoid

Stable under normal conditions of storage and use.

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 hazard classes as defined in Regulation (EC) No 1272/2008

Acute oral 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	Species	Method
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-[4-[2-(4-[2-[2-(methacryloyloxy)etho	LD50	> 35.000 mg/kg	rat	not specified
2-Propenoic acid, 2-methyl-, (octahydro-4,7-methano-1H-indene-5-diyl)bis(methylene) ester 43048-08-4	LD50	> 2.000 mg/kg	rat	OECD Guideline 423 (Acute Oral toxicity)
Hydroxypropyl methacrylate 27813-02-1	LD50	> 2.000 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
Methacryloyloxyethyl succinate 20882-04-6	LD50	> 2.000 mg/kg	rat	OECD Guideline 423 (Acute Oral toxicity)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	LD50	> 2.000 mg/kg	rat	OECD Guideline 423 (Acute Oral toxicity)
Cumene hydroperoxide 80-15-9	LD50	382 mg/kg	rat	other guideline:
2-Hydroxyethyl methacrylate 868-77-9	LD50	5.564 mg/kg	rat	FDA Guideline
Hydroxyethyl methacrylate phosphate 52628-03-2	LD50	> 2.000 mg/kg	rat	OECD Guideline 425 (Acute Oral Toxicity: Up-and-Down Procedure)
Hydroxyethyl methacrylate phosphate 52628-03-2	Acute toxicity estimate (ATE)	2.500 mg/kg		Expert judgement
Acetic acid, 2-phenylhydrazide 114-83-0	LD50	270 mg/kg	rat	not specified
maleic acid 110-16-7	LD50	708 mg/kg	rat	not specified

Acute dermal 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	Species	Method
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-[4-[2-(4-{2-[2-(methacryloyloxy)etho	LD50	> 2.000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)
2-Propenoic acid, 2-methyl-, (octahydro-4,7-methano-1H-indene-5-diyl)bis(methylene) ester 43048-08-4	LD50	> 2.000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)
Hydroxypropyl methacrylate 27813-02-1	LD50	> 5.000 mg/kg	rabbit	not specified
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	LD50	> 2.000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)
Cumene hydroperoxide 80-15-9	Acute toxicity estimate (ATE)	1.100 mg/kg		Expert judgement
2-Hydroxyethyl methacrylate 868-77-9	LD50	> 5.000 mg/kg	rabbit	not specified
maleic acid 110-16-7	LD50	1.560 mg/kg	rabbit	not specified

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
Cumene hydroperoxide 80-15-9	LC50	1,370 mg/l	vapour	4 h	rat	not specified

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
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-{4-[2-(4-{2-[2-(methacryloyloxy)etho	not irritating	24 h	rabbit	not specified
Hydroxypropyl methacrylate 27813-02-1	not irritating	24 h	rabbit	Draize Test
Methacryloyloxyethyl succinate 20882-04-6	not irritating	0,25 h	Human, EPISKIIN™ Reconstituted Human Epidermis model	OECD Guideline 439 (In Vitro Skin Irritation: Reconstructed Human Epidermis (RHE) Test Method)
Methacryloyloxyethyl succinate 20882-04-6	not corrosive	4 h	Human, EPISKIIN™ Reconstituted Human Epidermis model	OECD Guideline 431 (In Vitro Skin Corrosion: Reconstructed Human Epidermis (RHE) Test Method)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	not irritating	15 min	Human, EpiSkin™ (SM), Reconstructed Human Epidermis (RHE)	OECD Guideline 439 (In Vitro Skin Irritation: Reconstructed Human Epidermis (RHE) Test Method)
Cumene hydroperoxide 80-15-9	corrosive		rabbit	Draize Test
2-Hydroxyethyl methacrylate 868-77-9	slightly irritating	24 h	rabbit	Draize Test
Hydroxyethyl methacrylate phosphate 52628-03-2	corrosive	4 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
maleic acid 110-16-7	irritating	24 h	human	Patch Test

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
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-[4-[2-(4-[2-[2-(methacryloyloxy)etho	not irritating		rabbit	not specified
Hydroxypropyl methacrylate 27813-02-1	Category 2B (mildly irritating to eyes)		rabbit	Draize Test
Methacryloyloxyethyl succinate 20882-04-6	Category I	10 min	Bovine, cornea, in vitro test	OECD Guideline 437 (BCOP)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	not irritating		Bovine, cornea, in vitro test	OECD Guideline 437 (BCOP)
2-Hydroxyethyl methacrylate 868-77-9	Category 2B (mildly irritating to eyes)		rabbit	Draize Test
maleic acid 110-16-7	highly irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)

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
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-[4-[2-(4-{2-[2-(methacryloyloxy)etho	not sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
2-Propenoic acid, 2-methyl-, (octahydro-4,7-methano-1H-indene-5-diyl)bis(methylene) ester 43048-08-4	sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
Hydroxypropyl methacrylate 27813-02-1	not sensitising	Mouse local lymphnode assay (LLNA)	mouse	equivalent or similar to OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
Hydroxypropyl methacrylate 27813-02-1	sensitising	Guinea pig maximisation test	guinea pig	not specified
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	not sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
2-Hydroxyethyl methacrylate 868-77-9	not sensitising	Buehler test	guinea pig	Buehler test
2-Hydroxyethyl methacrylate 868-77-9	sensitising	Guinea pig maximisation test	guinea pig	Magnusson and Kligman Method
Hydroxyethyl methacrylate phosphate 52628-03-2	Sub-Category 1B (sensitising)	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
maleic acid 110-16-7	sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
maleic acid 110-16-7	sensitising	Mouse local lymphnode assay (LLNA)	guinea pig	OECD Guideline 406 (Skin Sensitisation)

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
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-[4-[2-(4-{2-[2-(methacryloyloxy)etho	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-[4-[2-(4-{2-[2-(methacryloyloxy)etho	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-[4-[2-(4-{2-[2-(methacryloyloxy)etho	negative	in vitro mammalian cell micronucleus test	with and without		OECD Guideline 487 (In vitro Mammalian Cell Micronucleus Test)
Hydroxypropyl methacrylate 27813-02-1	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Hydroxypropyl methacrylate 27813-02-1	positive	in vitro mammalian chromosome aberration test	with and without		Chromosome Aberration Test
Hydroxypropyl methacrylate 27813-02-1	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Methacryloyloxyethyl succinate 20882-04-6	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	negative	in vitro mammalian cell micronucleus test	with and without		OECD Guideline 487 (In vitro Mammalian Cell Micronucleus Test)
Cumene hydroperoxide 80-15-9	positive	bacterial reverse mutation assay (e.g Ames test)	without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
2-Hydroxyethyl methacrylate 868-77-9	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
2-Hydroxyethyl methacrylate 868-77-9	positive	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
2-Hydroxyethyl methacrylate 868-77-9	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Hydroxyethyl methacrylate phosphate 52628-03-2	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Hydroxyethyl methacrylate phosphate 52628-03-2	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)

Hydroxyethyl methacrylate phosphate 52628-03-2	negative	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
maleic acid 110-16-7	negative	bacterial reverse mutation assay (e.g Ames test)	no data		Ames Test
maleic acid 110-16-7	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Hydroxypropyl methacrylate 27813-02-1	negative	oral: gavage		mouse	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
Hydroxypropyl methacrylate 27813-02-1	negative	oral: gavage		Drosophila melanogaster	not specified
Cumene hydroperoxide 80-15-9	negative	dermal		mouse	not specified
2-Hydroxyethyl methacrylate 868-77-9	negative	oral: gavage		rat	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
2-Hydroxyethyl methacrylate 868-77-9	negative	oral: gavage		Drosophila melanogaster	not specified

Carcinogenicity

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

Hazardous components CAS-No.	Result	Route of application	Exposure time / Frequency of treatment	Species	Sex	Method
Hydroxypropyl methacrylate 27813-02-1	not carcinogenic	inhalation	2 y 6 h/d, 5 d/w	rat	male	equivalent or similar OECD Guideline 451 (Carcinogenicity Studies)
2-Hydroxyethyl methacrylate 868-77-9	not carcinogenic	inhalation	2 y 6 h/d, 5 d/w	rat	female	equivalent or similar OECD Guideline 451 (Carcinogenicity Studies)
2-Hydroxyethyl methacrylate 868-77-9	not carcinogenic	inhalation	2 y 6 h/d, 5 d/w	rat	male	equivalent or similar OECD Guideline 451 (Carcinogenicity Studies)
maleic acid 110-16-7	not carcinogenic	oral: feed	2 y daily	rat	male/female	OECD Guideline 451 (Carcinogenicity Studies)

Reproductive toxicity:

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

Hazardous substances CAS-No.	Result / Value	Test type	Route of application	Species	Method
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-[4-[2-(4-[2-[2-(methacryloyloxy)etho	NOAEL P 1.000 mg/kg	screening	oral: gavage	rat	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
Hydroxypropyl methacrylate 27813-02-1	NOAEL P 300 mg/kg NOAEL F1 1.000 mg/kg	screening	oral: gavage	rat	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
Hydroxypropyl methacrylate 27813-02-1	NOAEL P 400 mg/kg NOAEL F1 400 mg/kg	two-generation study	oral: gavage	rat	OECD Guideline 416 (Two-Generation Reproduction Toxicity Study)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	NOAEL P 1.000 mg/kg NOAEL F1 1.000 mg/kg	screening	oral: gavage	rat	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
2-Hydroxyethyl methacrylate 868-77-9	NOAEL P >= 1.000 mg/kg NOAEL F1 >= 1.000 mg/kg	screening	oral: gavage	rat	equivalent or similar to OECD Guideline 422 (Combined Repeated Dose Toxicity Study)
maleic acid 110-16-7	NOAEL F1 150 mg/kg NOAEL F2 55 mg/kg	Two generation study	oral: gavage	rat	OECD Guideline 416 (Two-Generation Reproduction Toxicity Study)

STOT-single exposure:

No data available.

STOT-repeated exposure:

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

Hazardous substances CAS-No.	Result / Value	Route of application	Exposure time / Frequency of treatment	Species	Method
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-[4-[2-(4-{2-[2-(methacryloyloxy)etho	NOAEL 1.000 mg/kg	oral: gavage	13 weeks daily	rat	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
Hydroxypropyl methacrylate 27813-02-1	NOAEL 300 mg/kg	oral: gavage	49 d daily	rat	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
Hydroxypropyl methacrylate 27813-02-1	NOAEL 0,352 mg/l	inhalation	90 d 6 h/d, 5 d/w	rat	OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	NOAEL 1.000 mg/kg	oral: gavage	13 weeks daily	rat	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
Cumene hydroperoxide 80-15-9		inhalation: aerosol	6 h/d 5 d/w	rat	not specified
2-Hydroxyethyl methacrylate 868-77-9	NOAEL 100 mg/kg	oral: gavage	49 d daily	rat	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
2-Hydroxyethyl methacrylate 868-77-9	NOAEL 0,352 mg/l	inhalation	90 d 6 h/d, 5 d/w	rat	OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day)
maleic acid 110-16-7	NOAEL >= 40 mg/kg	oral: feed	90 d daily	rat	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)

Aspiration hazard:

No data available.

11.2 Information on other hazards

not applicable

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.

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-{4-[2-(4-{2-[2-(methacryloyloxy)etho	LL50	Toxicity > Water solubility	96 h	Danio rerio	OECD Guideline 203 (Fish, Acute Toxicity Test)
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-{4-[2-(4-{2-[2-(methacryloyloxy)etho	NOEC	Toxicity > Water solubility	34 d	Danio rerio	OECD Guideline 210 (fish early lite stage toxicity test)
2-Propenoic acid, 2-methyl-, (octahydro-4,7-methano-1H-indene-5-diyl)bis(methylene) ester 43048-08-4	LC50	0,144 mg/l	96 h	Brachydanio rerio (new name: Danio rerio)	OECD Guideline 203 (Fish, Acute Toxicity Test)
Hydroxypropyl methacrylate 27813-02-1	LC50	493 mg/l	48 h	Leuciscus idus melanotus	DIN 38412-15
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	LL50	Toxicity > Water solubility	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
Cumene hydroperoxide 80-15-9	LC50	3,9 mg/l	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
2-Hydroxyethyl methacrylate 868-77-9	LC50	> 100 mg/l	96 h	Oryzias latipes	OECD Guideline 203 (Fish, Acute Toxicity Test)
Hydroxyethyl methacrylate phosphate 52628-03-2	LC50	> 112 mg/l	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
maleic acid 110-16-7	LC50	> 245 mg/l	48 h	Leuciscus idus	DIN 38412-15

Toxicity (aquatic invertebrates):

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

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-{4-[2-(4-{2-[2-(methacryloyloxy)etho	EL50	Toxicity > Water solubility	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
2-Propenoic acid, 2-methyl-, (octahydro-4,7-methano-1H-indene-5-diyl)bis(methylene) ester 43048-08-4	EC50	2,36 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Hydroxypropyl methacrylate	EC50	> 143 mg/l	48 h	Daphnia magna	OECD Guideline 202

27813-02-1					(Daphnia sp. Acute Immobilisation Test)
Methacryloyloxyethyl succinate 20882-04-6	EC50	> 515,4 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	EL50	Toxicity > Water solubility	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Cumene hydroperoxide 80-15-9	EC50	18,84 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
2-Hydroxyethyl methacrylate 868-77-9	EC50	380 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Hydroxyethyl methacrylate phosphate 52628-03-2	EC50	68 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
maleic acid 110-16-7	EC50	42,81 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)

Chronic toxicity (aquatic invertebrates):

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-{4-[2-(4-{2-[2-(methacryloyloxy)etho	EC10	Toxicity > Water solubility	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
Hydroxypropyl methacrylate 27813-02-1	NOEC	45,2 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	EC10	Toxicity > Water solubility	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
2-Hydroxyethyl methacrylate 868-77-9	NOEC	24,1 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
maleic acid 110-16-7	NOEC	10 mg/l	21 d	Daphnia magna	other guideline:

Toxicity (Algae):

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

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-{4-[2-(4-{2-[2-(methacryloyloxy)etho	EL50	Toxicity > Water solubility	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
2-Propenoic acid, 2-methyl-, (octahydro-4,7-methano-1H-indene-5-diyl)bis(methylene) ester 43048-08-4	EC50	1,6 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
2-Propenoic acid, 2-methyl-, (octahydro-4,7-methano-1H-indene-5-diyl)bis(methylene) ester 43048-08-4	EC10	0,64 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Hydroxypropyl methacrylate 27813-02-1	EC50	> 97,2 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Hydroxypropyl methacrylate 27813-02-1	NOEC	> 97,2 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Methacryloyloxyethyl succinate 20882-04-6	EC50	> 312 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Methacryloyloxyethyl succinate 20882-04-6	NOEC	21,1 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	EL50	Toxicity > Water solubility	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	EL10	Toxicity > Water solubility	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Cumene hydroperoxide 80-15-9	EC50	3,1 mg/l	72 h	Desmodesmus subspicatus (reported as Scenedesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Cumene hydroperoxide 80-15-9	NOEC	1 mg/l	72 h	Desmodesmus subspicatus (reported as Scenedesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
2-Hydroxyethyl methacrylate 868-77-9	EC50	836 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
2-Hydroxyethyl methacrylate 868-77-9	NOEC	400 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Hydroxyethyl methacrylate phosphate 52628-03-2	EC50	> 120 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Hydroxyethyl methacrylate phosphate 52628-03-2	NOEC	> 30 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
maleic acid 110-16-7	EC50	74,35 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
maleic acid 110-16-7	EC10	11,8 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)

Toxicity (microorganisms):

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

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Reaction mass of (1-methylethylidene)bis(4,1-	EC50	Toxicity > Water solubility	3 h	activated sludge of a predominantly domestic sewage	OECD Guideline 209 (Activated Sludge,

phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-{4-[2-(4-{2-[2-(methacryloyloxy)etho					Respiration Inhibition Test)
Hydroxypropyl methacrylate 27813-02-1	EC10	1.140 mg/l	16 h		not specified
Cumene hydroperoxide 80-15-9	EC10	70 mg/l	30 min	not specified	not specified
2-Hydroxyethyl methacrylate 868-77-9	EC0	> 3.000 mg/l	16 h	Pseudomonas fluorescens	other guideline:
maleic acid 110-16-7	EC10	44,6 mg/l	18 h	Pseudomonas putida	DIN 38412, part 8 (Pseudomonas Zellvermehrungshemm-Test)

12.2. Persistence and degradability

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Result	Test type	Degradability	Exposure time	Method
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-{4-[2-(4-{2-[2-(methacryloyloxy)etho	not readily biodegradable.	aerobic	> 19,9 - 41,3 %	28 d	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediyl) bismethacrylate and 2-{4-[2-(4-{2-[2-(methacryloyloxy)etho	inherently biodegradable	aerobic	> 52,2 - 65,5 %	60 d	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
2-Propenoic acid, 2-methyl-, (octahydro-4,7-methano-1H-indene-5-diyl)bis(methylene) ester 43048-08-4	not readily biodegradable.	aerobic	28 %	28 d	other guideline:
Hydroxypropyl methacrylate 27813-02-1	readily biodegradable	aerobic	94,2 %	28 d	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)
Methacryloyloxyethyl succinate 20882-04-6	readily biodegradable, but failing 10-day window	aerobic	80 %	28 d	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	not readily biodegradable.	aerobic	43 %	28 d	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	inherently biodegradable	aerobic	66 %	60 d	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
Cumene hydroperoxide 80-15-9	not readily biodegradable.	aerobic	3 %	28 d	OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)
2-Hydroxyethyl methacrylate 868-77-9	readily biodegradable	aerobic	92 - 100 %	14 d	OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
Hydroxyethyl methacrylate phosphate 52628-03-2	readily biodegradable	aerobic	78,3 %	28 d	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
maleic acid 110-16-7	readily biodegradable	aerobic	97,08 %	28 d	OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)

12.3. Bioaccumulative potential

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	Bioconcentration factor (BCF)	Exposure time	Temperature	Species	Method
Cumene hydroperoxide 80-15-9	9,1			calculation	OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)

12.4. Mobility in soil

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	LogPow	Temperature	Method
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediy) bismethacrylate and 2-{4-[2-(4-{2-[2-(methacryloyloxy)etho	> 6,2		OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
Hydroxypropyl methacrylate 27813-02-1	0,97	20 °C	not specified
Methacryloyloxyethyl succinate 20882-04-6	0,783	23 °C	EU Method A.8 (Partition Coefficient)
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	> 5,3 - 5,62		OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
Cumene hydroperoxide 80-15-9	1,6	25 °C	OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
2-Hydroxyethyl methacrylate 868-77-9	0,42	25 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)
Hydroxyethyl methacrylate phosphate 52628-03-2	1 - < 2,72	30 °C	OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)
Acetic acid, 2-phenylhydrazide 114-83-0	0,74		not specified
maleic acid 110-16-7	-1,3	20 °C	OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method)

12.5. Results of PBT and vPvB assessment

The table below presents the data of the classified substances present in the mixture.

Hazardous substances CAS-No.	PBT / vPvB
Reaction mass of (1-methylethylidene)bis(4,1-phenyleneoxy-2,1-ethanediy) bismethacrylate and 2-{4-[2-(4-{2-[2-(methacryloyloxy)etho	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
2-Propenoic acid, 2-methyl-, (octahydro-4,7-methano-1H-indene-5-diy)bis(methylene) ester 43048-08-4	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
Hydroxypropyl methacrylate 27813-02-1	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
Reaction products of 4,4'-isopropylidenediphenol, ethoxylated and methacrylic acid	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
Cumene hydroperoxide 80-15-9	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
2-Hydroxyethyl methacrylate 868-77-9	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
Hydroxyethyl methacrylate phosphate 52628-03-2	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
maleic acid 110-16-7	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

12.6. Endocrine disrupting properties

not applicable

12.7. Other adverse effects

No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product disposal:

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

Dispose of in accordance with local and national regulations.

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 or ID number

ADR	3082
RID	3082
ADN	3082
IMDG	3082
IATA	3082

14.2. UN proper shipping name

ADR	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Dicyclopentylidimethylene dimethacrylate)
RID	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Dicyclopentylidimethylene dimethacrylate)
ADN	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Dicyclopentylidimethylene dimethacrylate)
IMDG	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Dicyclopentylidimethylene dimethacrylate)
IATA	Environmentally hazardous substance, liquid, n.o.s. (Dicyclopentylidimethylene dimethacrylate)

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. Environmental hazards

ADR	Environmentally Hazardous
RID	Environmentally Hazardous

ADN	Environmentally Hazardous
IMDG	Marine Pollutant
IATA	Environmentally Hazardous

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), A197 (IATA), 2.10.2.7 (IMDG) may be applied, which can result in a deviation from the transport classification for packed goods.

14.7. Maritime transport in bulk according to IMO instruments

not applicable

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

Ozone Depleting Substance (ODS) (Regulation (EC) No 1005/2009):	Not applicable
Prior Informed Consent (PIC) (Regulation (EU) No 649/2012):	Not applicable
Persistent organic pollutants (Regulation (EU) 2019/1021):	Not applicable
VOC content (2010/75/EC)	< 5 %

15.2. Chemical safety assessment

A chemical safety assessment has not been carried out.

National regulations/information (Germany):

WGK: WGK 2: significantly water endangering (Ordinance on facilities for handling substances that are hazardous to water (AwSV))
Classification according to AwSV, Annex 1 (5.2)

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:

H242 Heating may cause a fire.
 H301 Toxic if swallowed.
 H302 Harmful if swallowed.
 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.
 H330 Fatal if inhaled.
 H335 May cause respiratory irritation.
 H351 Suspected of causing cancer.
 H373 May cause damage to organs through prolonged or repeated exposure.
 H400 Very toxic to aquatic life.
 H410 Very toxic to aquatic life with long lasting effects.
 H411 Toxic to aquatic life with long lasting effects.
 H413 May cause long lasting harmful effects to aquatic life.

ED:	Substance identified as having endocrine disrupting properties
EU OEL:	Substance with a Union workplace exposure limit
EU EXPLD 1:	Substance listed in Annex I, Reg (EC) No. 2019/1148
EU EXPLD 2	Substance listed in Annex II, Reg (EC) No. 2019/1148
SVHC:	Substance of very high concern (REACH Candidate List)
PBT:	Substance fulfilling persistent, bioaccumulative and toxic criteria
PBT/vPvB:	Substance fulfilling persistent, bioaccumulative and toxic plus very persistent and very bioaccumulative criteria
vPvB:	Substance fulfilling very persistent and very bioaccumulative criteria

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.

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