



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

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LOCTITE ABLESTIK ABP 8920TC

SDS No. : 641392

V001.0

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Replaces version from: -

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

#### 1.1. Product identifier

LOCTITE ABLESTIK ABP 8920TC

#### 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 Ltd

Wood Lane End

HP2 4RQ Hemel Hempstead

Great Britain

Phone: +44 1442 278000

Fax-no.: +44 1442 278071

ua-productsafety.uk@henkel.com

#### 1.4. Emergency telephone number

24 Hours Emergency Tel: +44 (0)1442 278497

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (CLP):

Skin sensitizer

Category 1

H317 May cause an allergic skin reaction.

Germ cell mutagenicity

Category 2

H341 Suspected of causing genetic defects.

Toxic to reproduction

Category 1B

H360D May damage the unborn child.

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

Isobornyl acrylate

1,4-bis(2,3 epoxypropoxy)butane  
 2,6-Diglycidyl phenylallyl ether oligomer  
 Polyglycidylester  
 bis( $\alpha$ ,  $\alpha$ -dimethylbenzyl)  
 Epoxy cyclohexylethyltrimethoxysilane  
 Dihydro-3-(tetrapropenyl)furan-2,5-dione  
 maleic anhydride

<b>Signal word:</b>	Danger
<b>Hazard statement:</b>	H317 May cause an allergic skin reaction. H341 Suspected of causing genetic defects. H360D May damage the unborn child. H411 Toxic to aquatic life with long lasting effects.
<b>Supplemental information</b>	Restricted to professional users.
<b>Precautionary statement: Prevention</b>	P201 Obtain special instructions before use. P273 Avoid release to the environment. P280 Wear protective gloves/protective clothing.
<b>Precautionary statement: Response</b>	P308+P313 IF exposed or concerned: Get medical advice/attention. P333+P313 If skin irritation or rash occurs: 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

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

<b>Hazardous components CAS-No.</b>	<b>EC Number REACH-RegNo.</b>	<b>content</b>	<b>Classification</b>
Isobornyl acrylate 5888-33-5	227-561-6 01-2119957862-25	1- < 5 %	Skin Irrit. 2 H315 Eye Irrit. 2 H319 STOT SE 3 H335 Skin Sens. 1B H317 Aquatic Acute 1 H400 Aquatic Chronic 1 H410
2,2-dimethyl-1,3-propanediyl bismethacrylate 1985-51-9	217-856-8	1- < 5 %	STOT SE 3 H335 Skin Irrit. 2 H315 Eye Irrit. 2 H319
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	219-371-7 01-2119494060-45	1- < 5 %	Acute Tox. 4; Oral H302 Acute Tox. 4; Dermal H312 Acute Tox. 4; Inhalation H332 Skin Irrit. 2 H315 Skin Sens. 1 H317 Eye Irrit. 2 H319 Aquatic Chronic 3 H412
2,6-Diglycidyl phenyl allyl ether oligomer	417-470-1	1- < 5 %	Muta. 2 H341 Skin Sens. 1 H317
Polyglycidyl ester 68475-94-5	500-215-4	1- < 5 %	Aquatic Chronic 4 H413 Skin Sens. 1 H317 STOT SE 3 H335 Eye Irrit. 2 H319 Skin Irrit. 2 H315
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	201-279-3 01-2119541688-27	0,1- < 1 %	Aquatic Chronic 2 H411 Org. Perox. F H242 Eye Irrit. 2 H319 Skin Irrit. 2 H315 Repr. 1B H360D
Epoxy-cyclohexylethyltrimethoxysilane 3388-04-3	222-217-1	0,1- < 1 %	Skin Sens. 1B H317 Muta. 2 H341 Carc. 2 H351 Aquatic Chronic 3 H412
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	247-781-6 01-2119979080-37	0,1- < 1 %	Skin Sens. 1A H317 Eye Irrit. 2 H319 Aquatic Chronic 4 H413 STOT RE 2 H373

maleic anhydride 108-31-6	203-571-6 01-2119463268-32 01-2119472428-31	0,0001- < 0,01 % ( 1 ppm- <100 ppm)	Resp. Sens. 1 H334 Skin Sens. 1A H317 Acute Tox. 4; Oral H302 STOT RE 1; Inhalation H372 Skin Corr. 1B H314 Eye Dam. 1 H318
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**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

SKIN: Rash, Urticaria.

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

See section: Description of first aid measures

## SECTION 5: Fire fighting 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 (CO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) 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**

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.

Dispose of contaminated material as waste according to Section 13.

**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**

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  
Great Britain

Ingredient [Regulated substance]	ppm	mg/m <sup>3</sup>	Value type	Short term exposure limit category / Remarks	Regulatory list
Aluminium oxide 1344-28-1 [ALUMINIUM OXIDES, INHALABLE DUST]		10	Time Weighted Average (TWA):		EH40 WEL
Aluminium oxide 1344-28-1 [ALUMINIUM OXIDES, RESPIRABLE DUST]		4	Time Weighted Average (TWA):		EH40 WEL
Maleic anhydride 108-31-6 [MALEIC ANHYDRIDE]		1	Time Weighted Average (TWA):		EH40 WEL
Maleic anhydride 108-31-6 [MALEIC ANHYDRIDE]		3	Short Term Exposure Limit (STEL):	15 minutes	EH40 WEL

#### Occupational Exposure Limits

Valid for  
Ireland

Ingredient [Regulated substance]	ppm	mg/m <sup>3</sup>	Value type	Short term exposure limit category / Remarks	Regulatory list
Aluminium oxide 1344-28-1 [ALUMINIUM OXIDES]		4	Time Weighted Average (TWA):		IR_OEL
Aluminium oxide 1344-28-1 [ALUMINIUM OXIDES]		10	Time Weighted Average (TWA):		IR_OEL
Maleic anhydride 108-31-6 [MALEIC ANHYDRIDE]	0,01		Time Weighted Average (TWA):		IR_OEL

**Predicted No-Effect Concentration (PNEC):**

Name on list	Environmental Compartment	Exposure period	Value				Remarks
			mg/l	ppm	mg/kg	others	
Isobornyl acrylate 5888-33-5	aqua (freshwater)		0,00092 mg/l				
Isobornyl acrylate 5888-33-5	aqua (marine water)		0,000092 mg/l				
Isobornyl acrylate 5888-33-5	sewage treatment plant (STP)		2 mg/l				
Isobornyl acrylate 5888-33-5	aqua (intermittent releases)		0,00704 mg/l				
Isobornyl acrylate 5888-33-5	sediment (freshwater)				0,145 mg/kg		
Isobornyl acrylate 5888-33-5	sediment (marine water)				0,0145 mg/kg		
Isobornyl acrylate 5888-33-5	Soil				0,0285 mg/kg		
Isobornyl acrylate 5888-33-5	Air						no hazard identified
Isobornyl acrylate 5888-33-5	Predator						no potential for bioaccumulation
1,4-Bis(2,3-epoxypropoxy)butane 2425-79-8	aqua (freshwater)		0,024 mg/l				
1,4-Bis(2,3-epoxypropoxy)butane 2425-79-8	oral				0,028 mg/kg		
1,4-Bis(2,3-epoxypropoxy)butane 2425-79-8	sediment (freshwater)				0,084 mg/kg		
1,4-Bis(2,3-epoxypropoxy)butane 2425-79-8	Soil				0,003 mg/kg		
1,4-Bis(2,3-epoxypropoxy)butane 2425-79-8	aqua (marine water)		0,002 mg/l				
1,4-Bis(2,3-epoxypropoxy)butane 2425-79-8	sewage treatment plant (STP)		100 mg/l				
1,4-Bis(2,3-epoxypropoxy)butane 2425-79-8	sediment (marine water)				0,008 mg/kg		
bis(.alpha,..alpha.-Dimethylbenzyl) peroxide 80-43-3	aqua (freshwater)		0,00234 mg/l				
bis(.alpha,..alpha.-Dimethylbenzyl) peroxide 80-43-3	sewage treatment plant (STP)		100 mg/l				
bis(.alpha,..alpha.-Dimethylbenzyl) peroxide 80-43-3	sediment (freshwater)				2,2 mg/kg		
bis(.alpha,..alpha.-Dimethylbenzyl) peroxide 80-43-3	Soil				0,447 mg/kg		
bis(.alpha,..alpha.-Dimethylbenzyl) peroxide 80-43-3	aqua (marine water)		0,00023 mg/l				
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	aqua (freshwater)		0,02 mg/l				
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	sediment (freshwater)				1,7 mg/kg		
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	aqua (marine water)		0,002 mg/l				
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	sediment (marine water)				0,17 mg/kg		
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	aqua (intermittent releases)		0,2 mg/l				
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	Soil				0,2 mg/kg		
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	sewage treatment plant (STP)		10 mg/l				
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	Air						no hazard identified
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	Predator						no potential for bioaccumulation
maleic anhydride 108-31-6	aqua (freshwater)		0,1 mg/l				
maleic anhydride	aqua (marine		0,01 mg/l				

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108-31-6	water)						
maleic anhydride 108-31-6	Soil				0,042 mg/kg		
maleic anhydride 108-31-6	sediment (freshwater)				0,334 mg/kg		
maleic anhydride 108-31-6	sediment (marine water)				0,0334 mg/kg		
maleic anhydride 108-31-6	sewage treatment plant (STP)		44,6 mg/l				
maleic anhydride 108-31-6	aqua (intermittent releases)		0,4281 mg/l				



**Derived No-Effect Level (DNEL):**

Name on list	Application Area	Route of Exposure	Health Effect	Exposure Time	Value	Remarks
Isobornyl acrylate 5888-33-5	Workers	dermal	Long term exposure - systemic effects		1,39 mg/kg	no hazard identified
Isobornyl acrylate 5888-33-5	General population	oral	Long term exposure - systemic effects		0,83 mg/kg	no hazard identified
Isobornyl acrylate 5888-33-5	General population	dermal	Long term exposure - systemic effects		0,83 mg/kg	no hazard identified
1,4-Bis(2,3-epoxypropoxy)butane 2425-79-8	Workers	inhalation	Long term exposure - systemic effects		4,7 mg/m3	
1,4-Bis(2,3-epoxypropoxy)butane 2425-79-8	Workers	dermal	Long term exposure - systemic effects		6,66 mg/kg	
1,4-Bis(2,3-epoxypropoxy)butane 2425-79-8	General population	inhalation	Long term exposure - systemic effects		1,16 mg/m3	
1,4-Bis(2,3-epoxypropoxy)butane 2425-79-8	General population	dermal	Long term exposure - systemic effects		3,33 mg/kg	
1,4-Bis(2,3-epoxypropoxy)butane 2425-79-8	General population	oral	Long term exposure - systemic effects		0,33 mg/kg	
bis(.alpha.,.alpha.-Dimethylbenzyl) peroxide 80-43-3	Workers	Inhalation	Long term exposure - systemic effects		1,4 mg/m3	
bis(.alpha.,.alpha.-Dimethylbenzyl) peroxide 80-43-3	Workers	dermal	Long term exposure - systemic effects		2 mg/kg	
bis(.alpha.,.alpha.-Dimethylbenzyl) peroxide 80-43-3	General population	Inhalation	Long term exposure - systemic effects		0,42 mg/m3	
bis(.alpha.,.alpha.-Dimethylbenzyl) peroxide 80-43-3	General population	dermal	Long term exposure - systemic effects		1 mg/kg	
bis(.alpha.,.alpha.-Dimethylbenzyl) peroxide 80-43-3	General population	oral	Long term exposure - systemic effects		0,1 mg/kg	
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	Workers	dermal	Long term exposure - systemic effects		0,33 mg/kg	no hazard identified
maleic anhydride 108-31-6	Workers	inhalation	Acute/short term exposure - systemic effects		0,8 mg/m3	
maleic anhydride 108-31-6	Workers	inhalation	Acute/short term exposure - local effects		0,8 mg/m3	
maleic anhydride 108-31-6	Workers	inhalation	Long term exposure - systemic effects		0,4 mg/m3	
maleic anhydride 108-31-6	Workers	inhalation	Long term exposure - local effects		0,4 mg/m3	
maleic anhydride 108-31-6	Workers	dermal	Acute/short term exposure - systemic effects		0,04 mg/kg	
maleic anhydride 108-31-6	Workers	dermal	Acute/short term exposure - local effects		0,04 mg/cm2	
maleic anhydride 108-31-6	Workers	dermal	Long term exposure - systemic effects		0,04 mg/kg	
maleic anhydride 108-31-6	Workers	dermal	Long term exposure - local effects		0,04 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 &gt; 30 minutes permeation time as per EN 374):

nitrile rubber (NBR;  $\geq$  0.4 mm thickness)

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

nitrile rubber (NBR;  $\geq$  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 liquid white
Odor	None
Odour threshold	No data available / Not applicable
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	> 93,3 °C (> 199.94 °F)
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	2,7 g/cm <sup>3</sup>
( )	

Bulk density	No data available / Not applicable
Solubility	No data available / Not applicable
Solubility (qualitative) (Solvent: Water)	Insoluble
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

Reacts with strong oxidants.  
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

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

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### 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
Isobornyl acrylate 5888-33-5	LD50	4.350 mg/kg	rat	not specified
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	LD50	1.118 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)
Polyglycidyl ester 68475-94-5	LD50	2.020 mg/kg	rat	not specified
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	LD50	4.000 mg/kg	rat	not specified
Epoxyhexahydroethyltri methoxysilane 3388-04-3	LD50	13.000 mg/kg	rat	
Dihydro-3- (tetrapropenyl)furan-2,5- dione 26544-38-7	LD50	2.900 mg/kg	rat	OECD Guideline 423 (Acute Oral toxicity)
maleic anhydride 108-31-6	LD50	1.090 mg/kg	rat	OECD Guideline 401 (Acute Oral Toxicity)

#### 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
Isobornyl acrylate 5888-33-5	LD50	> 3.000 mg/kg	rabbit	other guideline:
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	LD50	1.130 mg/kg	rabbit	not specified
Polyglycidyl ester 68475-94-5	LD50	> 2.000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	LD50	> 2.000 mg/kg	rat	OECD Guideline 402 (Acute Dermal Toxicity)
Epoxyhexahydroethyltri methoxysilane 3388-04-3	LD50	6.700 mg/kg	rabbit	
Dihydro-3- (tetrapropenyl)furan-2,5- dione 26544-38-7	LD50	6.200 mg/kg	rabbit	OECD Guideline 402 (Acute Dermal Toxicity)
maleic anhydride 108-31-6	LD50	2.620 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
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	LC50	5,3 mg/l	dust/mist	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
Isobornyl acrylate 5888-33-5	irritating		rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	not irritating	4 h	rabbit	OECD Guideline 404 (Acute Dermal Irritation / Corrosion)
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	not irritating		rabbit	other guideline:
maleic anhydride 108-31-6	highly irritating		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
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Category 1 (irreversible effects on the eye)		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	not irritating		rabbit	OECD Guideline 405 (Acute Eye Irritation / Corrosion)
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	irritating		rabbit	Evaluated according F.H.S.A.= Federal Hazardous Substance Act.
maleic anhydride 108-31-6	corrosive		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
Isobornyl acrylate 5888-33-5	sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	sensitising	Guinea pig maximisation test	guinea pig	OECD Guideline 406 (Skin Sensitisation)
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	not sensitising	Mouse local lymphnode assay (LLNA)	mouse	OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay)
Epoxyhexahydroethyltri methoxysilane 3388-04-3	sensitising	Buehler test	guinea pig	OECD Guideline 406 (Skin Sensitisation)
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	sensitising	Guinea pig maximisation test	guinea pig	OECD Guideline 406 (Skin Sensitisation)
maleic anhydride 108-31-6	sensitising	Guinea pig maximisation test	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
Isobornyl acrylate 5888-33-5	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Isobornyl acrylate 5888-33-5	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Isobornyl acrylate 5888-33-5	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	positive	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	positive	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	positive	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
2,6-Diglycidyl phenyl allyl ether oligomer	positive with metabolic activation	bacterial reverse mutation assay (e.g Ames test)			not specified
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	negative	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
Dihydro-3- (tetrapropenyl)furan-2,5- dione 26544-38-7	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
Dihydro-3- (tetrapropenyl)furan-2,5- dione 26544-38-7	negative	in vitro mammalian chromosome aberration test	with and without		OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)
Dihydro-3- (tetrapropenyl)furan-2,5- dione 26544-38-7	negative	mammalian cell gene mutation assay	with and without		OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)
maleic anhydride 108-31-6	negative	bacterial reverse mutation assay (e.g Ames test)	with and without		OECD Guideline 471 (Bacterial Reverse Mutation Assay)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	negative	oral: gavage		mouse	OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)
2,6-Diglycidyl phenyl allyl ether oligomer	positive	intraperitoneal			not specified
maleic anhydride 108-31-6	negative	inhalation		rat	OECD Guideline 475 (Mammalian Bone Marrow Chromosome Aberration Test)

**Carcinogenicity**

No data available.

**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
Isobornyl acrylate 5888-33-5	NOAEL P 100 mg/kg NOAEL F1 100 mg/kg		oral: gavage	rat	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	NOAEL P 50 mg/kg	screening	oral: gavage	rat	OECD Guideline 421 (Reproduction / Developmental Toxicity Screening Test)
maleic anhydride 108-31-6	NOAEL P 55 mg/kg NOAEL F1 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
Isobornyl acrylate 5888-33-5	NOAEL 100 mg/kg	oral: gavage	once daily	rat	OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	NOAEL 200 mg/kg	oral: gavage	28 d daily	rat	OECD Guideline 407 (Repeated Dose 28-Day Oral Toxicity in Rodents)
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	NOAEL 80 mg/kg	oral: gavage	90 d daily	rat	OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents)
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	NOAEL 50 mg/kg	oral: gavage	28 days	rat	EPA Guideline
maleic anhydride 108-31-6	NOAEL 40 mg/kg	oral: feed	90 d daily	rat	not specified

**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 CAS-No.	Value type	Value	Exposure time	Species	Method
Isobornyl acrylate 5888-33-5	LC50	0,704 mg/l	96 h	Danio rerio	OECD Guideline 203 (Fish, Acute Toxicity Test)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	LC50	24 mg/l	96 h	Brachydanio rerio (new name: Danio rerio)	OECD Guideline 203 (Fish, Acute Toxicity Test)
Polyglycidyl ester 68475-94-5	LL50	Toxicity > Water solubility	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	LC50	4,2 mg/l	48 h	Oryzias latipes	OECD Guideline 203 (Fish, Acute Toxicity Test)
Epoxy cyclohexylethyltrimethoxysilane 3388-04-3	LC50	42,3 mg/l	96 h	Cyprinus carpio	OECD Guideline 203 (Fish, Acute Toxicity Test)
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	LC50	Toxicity > Water solubility	96 h	Oncorhynchus mykiss	OECD Guideline 203 (Fish, Acute Toxicity Test)
maleic anhydride 108-31-6	LC50	115 mg/l			OECD Guideline 203 (Fish, Acute Toxicity Test)

#### Toxicity (Daphnia):

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

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Isobornyl acrylate 5888-33-5	EC50	1 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	EC50	75 mg/l	24 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Polyglycidyl ester 68475-94-5	EL50	Toxicity > Water solubility	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	EC50	> 100 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Epoxy cyclohexylethyltrimethoxysilane 3388-04-3	EC50	58 mg/l	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	EC50	Toxicity > Water solubility	48 h	Daphnia magna	OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test)
maleic anhydride 108-31-6	EC50	42,81 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 CAS-No.	Value type	Value	Exposure time	Species	Method
Isobornyl acrylate 5888-33-5	NOEC	0,092 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	NOEC	0,177 mg/l	21 d	Daphnia magna	OECD 211 (Daphnia magna, Reproduction Test)
Epoxy cyclohexylethyltrimethoxysilane 3388-04-3	NOEC	16 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.

Hazardous substances CAS-No.	Value type	Value	Exposure time	Species	Method
Isobornyl acrylate 5888-33-5	NOEC	0,405 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Isobornyl acrylate 5888-33-5	EC50	1,98 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	EC50	> 160 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	EC10	97 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Polyglycidyl ester 68475-94-5	EL50	Toxicity > Water solubility	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Polyglycidyl ester 68475-94-5	NOELR	Toxicity > Water solubility	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
bis(α, α-dimethylbenzyl) 80-43-3	EC50	> 20 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
bis(α, α-dimethylbenzyl) 80-43-3	NOEC	8 mg/l	72 h	Pseudokirchneriella subcapitata	OECD Guideline 201 (Alga, Growth Inhibition Test)
Epoxy cyclohexylethyltrimethoxysilane 3388-04-3	NOEC	6 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Epoxy cyclohexylethyltrimethoxysilane 3388-04-3	EC50	90 mg/l	72 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	EC50	Toxicity > Water solubility	96 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	NOEC	Toxicity > Water solubility	96 h	Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata)	OECD Guideline 201 (Alga, Growth Inhibition Test)
maleic anhydride 108-31-6	EC50	29 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	OECD Guideline 201 (Alga, Growth Inhibition Test)
maleic anhydride 108-31-6	EC10	23 mg/l	72 h	Scenedesmus subspicatus (new name: Desmodesmus subspicatus)	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 CAS-No.	Value type	Value	Exposure time	Species	Method
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	IC50	> 100 mg/l	3 h	activated sludge	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
bis(α, α-dimethylbenzyl) 80-43-3	NOEC	> 1.000 mg/l	30 min	activated sludge of a predominantly domestic sewage	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
Epoxy cyclohexylethyltrimethoxysilane 3388-04-3	EC 50	> 100 mg/l	30 min		OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	EC50	Toxicity > Water solubility	3 h	activated sludge, domestic	OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test)
maleic anhydride 108-31-6	EC0	> 10.000 mg/l	30 min		not specified

**12.2. Persistence and degradability**

Hazardous substances CAS-No.	Result	Test type	Degradability	Exposure time	Method
Isobornyl acrylate 5888-33-5	not readily biodegradable.	aerobic	57 %	28 d	OECD Guideline 310 (Ready Biodegradability CO <sub>2</sub> in Sealed Vessels (Headspace Test))
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	not readily biodegradable.	aerobic	38 %	28 d	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)
Polyglycidyl ester 68475-94-5	not readily biodegradable.	aerobic	28 %	28 d	OECD Guideline 301 B (Ready Biodegradability: CO <sub>2</sub> Evolution Test)
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	not readily biodegradable.	aerobic	20,2 - 43,8 %	28 d	OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
Epoxyhexahydroethyltrimethoxysilane 3388-04-3		aerobic	28 %	28 d	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
Dihydro-3- (tetrapropenyl)furan-2,5-dione 26544-38-7	not readily biodegradable.	aerobic	9,9 %	28 d	OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)
maleic anhydride 108-31-6	readily biodegradable	aerobic	98 %	7 d	OECD Guideline 301 E (Ready biodegradability: Modified OECD Screening Test)

### 12.3. Bioaccumulative potential

Hazardous substances CAS-No.	Bioconcentration factor (BCF)	Exposure time	Temperature	Species	Method
Isobornyl acrylate 5888-33-5	37	56 h	24 °C	Danio rerio	OECD Guideline 305 (Bioconcentration: Flow-through Fish Test)
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	137 - 1.470	56 d	25 °C	Cyprinus carpio	OECD Guideline 305 C (Bioaccumulation: Test for the Degree of Bioconcentration in Fish)

### 12.4. Mobility in soil

Cured adhesives are immobile.

Hazardous substances CAS-No.	LogPow	Temperature	Method
Isobornyl acrylate 5888-33-5	4,52		OECD Guideline 117 (Partition Coefficient (n-octanol/ water), HPLC Method)
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	-0,269	25 °C	OECD Guideline 117 (Partition Coefficient (n-octanol/ water), HPLC Method)
Polyglycidyl ester 68475-94-5	> 6,5	20 °C	OECD Guideline 117 (Partition Coefficient (n-octanol/ water), HPLC Method)
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	5,6	25 °C	EU Method A.8 (Partition Coefficient)
Epoxy cyclohexylethyltrimethoxysilane 3388-04-3	4,1	23 °C	OECD Guideline 117 (Partition Coefficient (n-octanol/ water), HPLC Method)
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	4,39	22 °C	OECD Guideline 107 (Partition Coefficient (n-octanol/ water), Shake Flask Method)
maleic anhydride 108-31-6	1,62		not specified

### 12.5. Results of PBT and vPvB assessment

Hazardous substances CAS-No.	PBT/ vPvB
Isobornyl acrylate 5888-33-5	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
1,4-bis(2,3 epoxypropoxy)butane 2425-79-8	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
bis( $\alpha$ , $\alpha$ -dimethylbenzyl) 80-43-3	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
Dihydro-3-(tetrapropenyl)furan-2,5-dione 26544-38-7	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.
maleic anhydride 108-31-6	Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

### 12.6. 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.

<b>SECTION 14: Transport information</b>
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**14.1. UN 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. (Isobornyl acrylate)
RID	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Isobornyl acrylate)
ADN	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Isobornyl acrylate)
IMDG	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Isobornyl acrylate)
IATA	Environmentally hazardous substance, liquid, n.o.s. (Isobornyl acrylate)

**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	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 < 3 %  
(2010/75/EC)

**15.2. Chemical safety assessment**

A chemical safety assessment has not been carried out.

**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.  
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.  
H332 Harmful if inhaled.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H335 May cause respiratory irritation.  
H341 Suspected of causing genetic defects.  
H351 Suspected of causing cancer.  
H360D May damage the unborn child.  
H372 Causes damage to organs through prolonged or repeated exposure.  
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.  
H412 Harmful to aquatic life with long lasting effects.  
H413 May cause long lasting harmful effects to aquatic life.

**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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