

# Permabond®

## Engineering Adhesives

### SAFETY DATA SHEET

#### Permabond TA4391

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

##### 1.1. Product identifier

Product name Permabond TA4391

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

Identified uses Adhesive.

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

Supplier Permabond Engineering Adhesives Ltd.  
Wessex Way  
Colden Common  
Winchester  
Hampshire SO21 1WP  
United Kingdom  
Tel: +44 (0)1962 711 661  
Fax: +44 (0)1962 711 662  
info.europe@permabond.com

##### 1.4. Emergency telephone number

Emergency telephone CHEMTREC UK: +(44)-870-8200418 CHEMTREC US: 800-424-9300 (CCN: 829878)

National emergency telephone number CHEMTREC Ireland: +(353)-19014670  
CHEMTREC Australia: +(61)-290372994  
CHEMTREC New Zealand: +(64)-98010034

#### SECTION 2: Hazards identification

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

###### Classification (EC 1272/2008)

Physical hazards Not Classified

Health hazards Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Skin Sens. 1 - H317 STOT SE 3 - H335

Environmental hazards Not Classified

##### 2.2. Label elements

###### Pictogram



Signal word Warning

Hazard statements  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H319 Causes serious eye irritation.  
H335 May cause respiratory irritation.

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<b>Precautionary statements</b>	<p>P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.</p> <p>P302+P352a IF ON SKIN: Wash with plenty of soap and water</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P308+P313 IF exposed or concerned: Get medical advice/ attention.</p>
<b>Contains</b>	2-HYDROXYETHYL METHACRYLATE, ISOBORNOLMETHACRYLATE, MALEIC ACID
<b>Supplementary precautionary statements</b>	<p>P261 Avoid breathing vapour/ spray.</p> <p>P264 Wash contaminated skin thoroughly after handling.</p> <p>P271 Use only outdoors or in a well-ventilated area.</p> <p>P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.</p> <p>P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.</p> <p>P337+P313 If eye irritation persists: Get medical advice/ attention.</p> <p>P362+P364 Take off contaminated clothing and wash it before reuse.</p> <p>P403+P233 Store in a well-ventilated place. Keep container tightly closed.</p> <p>P501 Dispose of contents/container in accordance with existing Community, National and local regulations.</p>

### 2.3. Other hazards

None under normal conditions. This substance is not classified as PBT or vPvB according to current EU criteria.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

<b>2-HYDROXYETHYL METHACRYLATE</b>	<b>30-60%</b>
CAS number: 868-77-9	EC number: 212-782-2
	REACH registration number: 01-2119490169-29-XXXX
<b>Classification</b> Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Skin Sens. 1 - H317	
<b>ISOBORNOLMETHACRYLATE</b>	<b>10-30%</b>
CAS number: 7534-94-3	EC number: 231-403-1
	REACH registration number: 01-2119886505-27-XXXX
<b>Classification</b> Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 STOT SE 3 - H335 Aquatic Chronic 3 - H412	

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<b>MALEIC ACID</b>		<b>1-5%</b>
CAS number: 110-16-7	EC number: 203-742-5	REACH registration number: 01-2119488705-25-XXXX
<b>Classification</b>		
Acute Tox. 4 - H302		
Acute Tox. 4 - H312		
Skin Irrit. 2 - H315		
Eye Dam. 1 - H318		
Skin Sens. 1 - H317		
STOT SE 3 - H335		
<b>tert-AMYL HYDROPEROXIDE</b>		<b>&lt;1%</b>
CAS number: 3425-61-4	EC number: 222-321-7	REACH registration number: 01-2119964027-36-XXXX
<b>Classification</b>		
Flam. Liq. 3 - H226		
Org. Perox. A - H240		
Acute Tox. 4 - H302		
Acute Tox. 3 - H311		
Acute Tox. 3 - H331		
Skin Corr. 1B - H314		
Eye Dam. 1 - H318		
Skin Sens. 1 - H317		
Aquatic Chronic 2 - H411		
<b>ETHYLENE DIMETHACRYLATE</b>		<b>&lt;1%</b>
CAS number: 97-90-5	EC number: 202-617-2	REACH registration number: 01-2119965172-38-XXXX
<b>Classification</b>		
Skin Sens. 1 - H317		
STOT SE 3 - H335		

The full text for all hazard statements is displayed in Section 16.

### SECTION 4: First aid measures

#### 4.1. Description of first aid measures

<b>Inhalation</b>	Move the exposed person to fresh air. Get medical attention if any discomfort continues.
<b>Ingestion</b>	Rinse mouth thoroughly with water. Give plenty of water to drink. Do not induce vomiting. Get medical attention.
<b>Skin contact</b>	Wash skin thoroughly with soap and water. If symptoms develop, obtain medical attention
<b>Eye contact</b>	Remove any contact lenses and open eyelids wide apart. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention if any discomfort continues.

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

<b>Inhalation</b>	May cause respiratory irritation.
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**Skin contact** Skin irritation. Mild dermatitis, allergic skin rash.

**Eye contact** Irritating and may cause redness and pain.

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

**Notes for the doctor** No specific recommendations. Treat symptomatically.

## **SECTION 5: Firefighting measures**

### **5.1. Extinguishing media**

**Suitable extinguishing media** Foam, carbon dioxide or dry powder.

**Unsuitable extinguishing media** Do not use water jet as an extinguisher, as this will spread the fire.

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

**Hazardous combustion products** Burning produces irritating, toxic and obnoxious fumes. Carbon monoxide, carbon dioxide, and unknown hydrocarbons. Oxides of nitrogen.

### **5.3. Advice for firefighters**

**Special protective equipment for firefighters** Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

## **SECTION 6: Accidental release measures**

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

**Personal precautions** Wear protective clothing as described in Section 8 of this safety data sheet.

### **6.2. Environmental precautions**

**Environmental precautions** Not considered to be a significant hazard due to the small quantities used. Avoid discharge into drains.

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

**Methods for cleaning up** Absorb spillage with sand or other inert absorbent. Transfer to suitable, labelled containers for disposal.

### **6.4. Reference to other sections**

**Reference to other sections** For personal protection, see Section 8. For waste disposal, see section 13.

## **SECTION 7: Handling and storage**

### **7.1. Precautions for safe handling**

**Usage precautions** Use in a well ventilated area. Avoid contact with skin and eyes. Do not ingest or inhale. Avoid eating, drinking and smoking when using the product.

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

**Storage precautions** Store in closed original container at temperatures between 5°C and 25°C. Never return unused material to storage receptacle.

### **7.3. Specific end use(s)**

**Usage description** Adhesive.

## **SECTION 8: Exposure Controls/personal protection**

### **8.1. Control parameters**

**2-HYDROXYETHYL METHACRYLATE (CAS: 868-77-9)**

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**DNEL** Workers, Industry - Inhalation; Long term systemic effects: 4.9 mg/m<sup>3</sup>  
Workers, Industry - Dermal; Long term systemic effects: 1.3 mg/kg/day

**PNEC** Workers, Industry - Water; Long term 0.482 mg/l  
Workers, Industry - Soil; Long term 0.476 mg/kg  
Workers, Industry - STP; Long term 10 mg/l  
Workers, Industry - Fresh water; 3.79 mg/kg

### ISOBORNILMETHACRYLATE (CAS: 7534-94-3)

**PNEC** Workers, Industry - Fresh water; 4.66 µg/L  
Workers, Industry - Sediment (Freshwater); 0.604 mg/kg  
Workers, Industry - Soil; 0.118 mg/kg  
Workers, Industry - STP; 2.45 mg/l

### MALEIC ACID (CAS: 110-16-7)

**DNEL** Workers - Inhalation; Short term local effects: 3 mg/m<sup>3</sup>  
Workers - Inhalation; Long term systemic effects: 3 mg/m<sup>3</sup>  
Workers - Inhalation; Long term local effects: 3 mg/m<sup>3</sup>  
Workers - Inhalation; Short term systemic effects: 3 mg/m<sup>3</sup>

**PNEC** - Fresh water; 0.1 mg/l  
- Marine water; 0.01 mg/l  
- Intermittent release; 0.4281 mg/l  
- Sediment (Freshwater); 0.334 mg/kg  
- Sediment (Marinewater); 0.0334 mg/kg  
- Soil; 0.0415 mg/kg  
- STP; 44.6 mg/l

### tert-AMYL HYDROPEROXIDE (CAS: 3425-61-4)

**DNEL** Workers - Inhalation; Long term systemic effects: 0.78 mg/m<sup>3</sup>  
Workers - Dermal; Long term systemic effects: 0.44 mg/kg

**PNEC** - Fresh water; 0.012 mg/l  
- Marine water; 0.0012 mg/l  
- Intermittent release; 0.012 mg/l  
- STP; 3.3 mg/l  
- Sediment (Freshwater); 0.4374 mg/kg  
- Sediment (Marinewater); 0.0437 mg/kg  
- Soil; 0.0804 mg/kg

### ETHYLENE DIMETHACRYLATE (CAS: 97-90-5)

**DNEL** Workers - Inhalation; Long term systemic effects: 2.45 mg/m<sup>3</sup>  
Workers - Dermal; Long term systemic effects: 1.3 mg/kg/day

**PNEC** - Fresh water; 0.139 mg/l  
- Marine water; 0.014 mg/l  
- STP; 57 mg/l  
- Sediment (Freshwater); 1.6 mg/kg  
- Sediment (Marinewater); 0.16 mg/kg

## 8.2. Exposure controls

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### Protective equipment



### Appropriate engineering controls

Provide adequate ventilation. Avoid inhalation of vapours. Observe any occupational exposure limits for the product or ingredients.

### Eye/face protection

The following protection should be worn: Chemical splash goggles or face shield. Personal eye protection should conform to EN 166

### Hand protection

It is recommended that chemical-resistant, impervious gloves are worn. Gloves should conform to EN 374. For exposure up to 4 hours, wear gloves made of the following material: Nitrile rubber. Thickness:  $\geq 0.4$  mm The selected gloves should have a breakthrough time of at least 0.5 hours. For exposure up to 8 hours, wear gloves made of the following material: Nitrile rubber. Thickness:  $\geq 0.4$  mm The selected gloves should have a breakthrough time of at least 8 hours. The breakthrough time for any glove material may be different for different glove manufacturers. The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material. Considering the data specified by the glove manufacturer, check during use that the gloves are retaining their protective properties and change them as soon as any deterioration is detected.

### Other skin and body protection

Employee must wear appropriate protective clothing and equipment to prevent any possibility of skin contact with this substance.

### Hygiene measures

Wash at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Use of good industrial hygiene practices is required.

### Respiratory protection

Ensure adequate ventilation of the working area. Respiratory protection may be required if excessive airborne contamination occurs. Respiratory protection complying with an approved standard should be worn if a risk assessment indicates inhalation of contaminants is possible. Organic vapour filter. Type A. (EN14387)

## SECTION 9: Physical and Chemical Properties

### 9.1. Information on basic physical and chemical properties

Appearance	Liquid.
Colour	Amber. Transparent.
Odour	Acrylic
Odour threshold	Not available.
pH	Not relevant.
Melting point	Not available.
Initial boiling point and range	Not applicable.
Flash point	>100°C
Evaporation rate	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	1.03

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<b>Solubility(ies)</b>	Slightly soluble in water.
<b>Partition coefficient</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition Temperature</b>	Not available.
<b>Viscosity</b>	≈800 mPa s @ 23°C
<b>Oxidising properties</b>	Not available.

### 9.2. Other information

<b>Other information</b>	Not relevant.
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## SECTION 10: Stability and reactivity

### 10.1. Reactivity

<b>Reactivity</b>	The following materials may react with the product: Strong oxidising agents.
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### 10.2. Chemical stability

<b>Stability</b>	Stable at normal ambient temperatures.
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### 10.3. Possibility of hazardous reactions

<b>Possibility of hazardous reactions</b>	There are no known reactivity hazards associated with this product.
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### 10.4. Conditions to avoid

<b>Conditions to avoid</b>	Stable at normal ambient temperatures and when used as recommended.
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### 10.5. Incompatible materials

<b>Materials to avoid</b>	No specific material or group of materials is likely to react with the product to produce a hazardous situation.
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### 10.6. Hazardous decomposition products

<b>Hazardous decomposition products</b>	Thermal decomposition could produce carbon monoxide, carbon dioxide, and unidentified organic compounds.
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## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

<b>Toxicological effects</b>	The mixture is classified based on the available hazard information for the ingredients as defined in the classification criteria for mixtures for each hazard class or differentiation in Annex I to Regulation 1272/2008/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.
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### Skin corrosion/irritation

<b>Animal data</b>	Irritating to skin.
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### Serious eye damage/irritation

<b>Serious eye damage/irritation</b>	Irritating to eyes.
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### Skin sensitisation

<b>Skin sensitisation</b>	May cause sensitisation by skin contact.
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### Aspiration hazard

<b>Aspiration hazard</b>	Not anticipated to present an aspiration hazard, based on chemical structure.
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## Permabond TA4391

**Inhalation** May cause respiratory system irritation.

**Ingestion** No harmful effects expected from quantities likely to be ingested by accident.

### Toxicological information on ingredients.

#### 2-HYDROXYETHYL METHACRYLATE

##### Acute toxicity - oral

Acute toxicity oral (LD<sub>50</sub> mg/kg) 5,000.0

Species Rat

ATE oral (mg/kg) 5,000.0

##### Acute toxicity - dermal

Acute toxicity dermal (LD<sub>50</sub> mg/kg) 5,000.0

Species Rabbit

ATE dermal (mg/kg) 5,000.0

##### Acute toxicity - inhalation

Notes (inhalation LC<sub>50</sub>) No information available.

##### Skin corrosion/irritation

Animal data Erythema/eschar score: Very slight erythema - barely perceptible (1). Not irritating.

##### Serious eye damage/irritation

Serious eye damage/irritation Moderately irritating.

##### Respiratory sensitisation

Respiratory sensitisation No information available.

##### Skin sensitisation

Skin sensitisation Guinea pig maximization test (GPMT) - Guinea pig: Sensitising.

##### Germ cell mutagenicity

Genotoxicity - in vitro Conclusive data but not sufficient for classification.

Genotoxicity - in vivo Chromosome aberration: Negative.

##### Carcinogenicity

Carcinogenicity No specific test data are available.

##### Reproductive toxicity

Reproductive toxicity - fertility Screening - NOAEL  $\geq$ 1000 mg/kg/day, Oral, Rat F1

Reproductive toxicity - development Developmental toxicity: - NOAEL:  $\geq$ 1000 mg/kg/day, Oral, Rat

##### Specific target organ toxicity - single exposure

STOT - single exposure No specific test data are available.

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### Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** No specific test data are available.

### Aspiration hazard

**Aspiration hazard** Not applicable.

### ISOBORNLYMETHACRYLATE

### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 2,000.1

**Species** Rat

**ATE oral (mg/kg)** 2,000.1

### Acute toxicity - dermal

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)** 3,000.0

**Species** Rabbit

**ATE dermal (mg/kg)** 3,000.0

### Acute toxicity - inhalation

**Notes (inhalation LC<sub>50</sub>)** No information available.

### Skin corrosion/irritation

**Animal data** Erythema/eschar score: Well defined erythema (2). Fully reversible within 7 days.

### Serious eye damage/irritation

**Serious eye damage/irritation** Rabbit Not irritating.

### Skin sensitisation

**Skin sensitisation** Guinea pig maximization test (GPMT) - Guinea pig: Not sensitising.

### Germ cell mutagenicity

**Genotoxicity - in vitro** Gene mutation: Negative.

### Carcinogenicity

**Carcinogenicity** No specific test data are available.

### Reproductive toxicity

**Reproductive toxicity - fertility** Screening - NOAEL 500 mg/kg/day, Oral, Rat F1

**Reproductive toxicity - development** Developmental toxicity: - NOEC: >500 mg/kg/day, Oral, Rat

### Specific target organ toxicity - single exposure

**STOT - single exposure** Based on available data the classification criteria are not met.

### Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** Based on available data the classification criteria are not met.

### Aspiration hazard

## Permabond TA4391

**Aspiration hazard** Not applicable.

### MALEIC ACID

#### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 708.0

**Species** Rat

**ATE oral (mg/kg)** 500.0

#### Acute toxicity - dermal

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)** 1,560.0

**Species** Rabbit

**ATE dermal (mg/kg)** 1,560.0

#### Acute toxicity - inhalation

**Notes (inhalation LC<sub>50</sub>)** No information available.

#### Skin corrosion/irritation

**Skin corrosion/irritation** Rabbit Irritating to skin.

#### Serious eye damage/irritation

**Serious eye damage/irritation** Rabbit Causes serious eye damage.

#### Respiratory sensitisation

**Respiratory sensitisation** Not irritating.

#### Skin sensitisation

**Skin sensitisation** Local Lymph Node Assay (LLNA) - Mouse: Sensitising.

#### Germ cell mutagenicity

**Genotoxicity - in vitro** Chromosome aberration: Positive. Ames test: Negative. DNA damage and/or repair: Negative.

#### Carcinogenicity

**Carcinogenicity** Based on available data the classification criteria are not met.

#### Reproductive toxicity

**Reproductive toxicity - fertility** Two-generation study - NOEL 55 mg/kg/day, Oral, Rat F2

**Reproductive toxicity - development** No information available.

#### Specific target organ toxicity - single exposure

**STOT - single exposure** May cause respiratory irritation.

#### Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** No information available.

#### Aspiration hazard

## Permabond TA4391

**Aspiration hazard** No data available.

### tert-AMYL HYDROPEROXIDE

#### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 582.0

**Species** Rat

**ATE oral (mg/kg)** 582.0

#### Acute toxicity - dermal

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)** 446.0

**Species** Rat

**ATE dermal (mg/kg)** 446.0

#### Acute toxicity - inhalation

**Acute toxicity inhalation (LC<sub>50</sub> vapours mg/l)** 2.425

**Species** Rat

**ATE inhalation (vapours mg/l)** 2.425

#### Skin corrosion/irritation

**Skin corrosion/irritation** Causes burns.

#### Serious eye damage/irritation

**Serious eye damage/irritation** Causes serious eye damage.

#### Skin sensitisation

**Skin sensitisation** No information available.

#### Germ cell mutagenicity

**Genotoxicity - in vitro** Ames test: Positive.

**Genotoxicity - in vivo** No information available.

#### Carcinogenicity

**Carcinogenicity** No information available.

#### Reproductive toxicity

**Reproductive toxicity - fertility** - NOAEL 100 mg/kg/day, Oral, Rat P

#### Specific target organ toxicity - single exposure

**STOT - single exposure** No information available.

#### Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** No information available.

#### Aspiration hazard

## Permabond TA4391

**Aspiration hazard** No data available.

### ETHYLENE DIMETHACRYLATE

#### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 8,300.0

**Species** Rat

**ATE oral (mg/kg)** 8,300.0

#### Acute toxicity - dermal

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)** 2,000.1

**Species** Rat

**ATE dermal (mg/kg)** 2,000.1

#### Acute toxicity - inhalation

**Notes (inhalation LC<sub>50</sub>)** No information available.

#### Skin corrosion/irritation

**Animal data** Method: OECD 405, Rabbit Not irritating.

#### Serious eye damage/irritation

**Serious eye damage/irritation** Not irritating.

#### Skin sensitisation

**Skin sensitisation** Local Lymph Node Assay (LLNA) - Mouse: Sensitising.

#### Germ cell mutagenicity

**Genotoxicity - in vitro** Chromosome aberration: Positive.

**Genotoxicity - in vivo** Chromosome aberration: Negative.

#### Carcinogenicity

**Carcinogenicity** NOAEC >=2.05 mg/l, Inhalation, Rat

#### Reproductive toxicity

**Reproductive toxicity - fertility** Screening - NOAEL >=1000 mg/kg/day, Oral, Rat F1

**Reproductive toxicity - development** Developmental toxicity: - NOAEL: 500 mg/kg/day, Oral, Rat

#### Specific target organ toxicity - single exposure

**STOT - single exposure** No information available.

#### Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** No information available.

#### Aspiration hazard

**Aspiration hazard** Not available.

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**Ecotoxicity** The product is not expected to be hazardous to the environment.

### 12.1. Toxicity

#### Toxicity

The mixture is classified based on the available hazard information for the ingredients as defined in the classification criteria for mixtures for each hazard class or differentiation in Annex I to Regulation 1272/2008/EC. Relevant available health/ecological information for the substances listed under Section 3 is provided in the following.

#### Ecological information on ingredients.

#### 2-HYDROXYETHYL METHACRYLATE

##### Acute aquatic toxicity

**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: > 100 mg/l, *Oryzias latipes* (Red killifish)

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 48 hours: 380 mg/l, *Daphnia magna*

**Acute toxicity - aquatic plants** EC<sub>50</sub>, 72 hours: 836 mg/l, *Selenastrum capricornutum*  
NOEC, 72 hours: 400 mg/l, *Selenastrum capricornutum*

**Acute toxicity - microorganisms** EC<sub>50</sub>, 16 hours: > 3000 mg/l, *Pseudomonas fluorescens*

##### Chronic aquatic toxicity

**Chronic toxicity - aquatic invertebrates** NOEC, 21 days: 24.1 mg/l, *Daphnia magna*

#### ISOBORNLYMETHACRYLATE

##### Acute aquatic toxicity

**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: 1.79 mg/l, *Danio rerio* (Zebrafish)

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 48 hours: > 2.57 mg/l, *Daphnia magna*

**Acute toxicity - aquatic plants** EC<sub>50</sub>, 72 hours: 2.28 mg/l, *Pseudokirchneriella subcapitata*

##### Chronic aquatic toxicity

**Chronic toxicity - aquatic invertebrates** NOEC, 21 days: 0.233 mg/l, *Daphnia magna*

#### MALEIC ACID

##### Acute aquatic toxicity

**Acute toxicity - fish** LC<sub>50</sub>, 96 hours: 5 mg/l, *Pimephales promelas* (Fat-head Minnow)  
LC<sub>0</sub>, 96 hours: 300 mg/l, *Lepomis macrochirus* (Bluegill)

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 48 hours: 160 - 400 mg/l, *Daphnia magna*  
EC<sub>100</sub>, 24 hours: 200 mg/l, *Daphnia magna*

**Acute toxicity - aquatic plants** EC<sub>50</sub>, 72 hours: 41 mg/l, *Desmodemus subspicatus*

#### tert-AMYL HYDROPEROXIDE

##### Acute aquatic toxicity

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<b>Acute toxicity - aquatic invertebrates</b>	EC <sub>50</sub> , 48 hours: 6.7 mg/l, Daphnia magna
<b>Acute toxicity - aquatic plants</b>	EC <sub>50</sub> , 72 hours: 1.2 mg/l, Pseudokirchneriella subcapitata
<b>Acute toxicity - microorganisms</b>	EC <sub>50</sub> , 3 hours: 138 mg/l, Activated sludge

### ETHYLENE DIMETHACRYLATE

<b><u>Acute aquatic toxicity</u></b>	
<b>Acute toxicity - aquatic invertebrates</b>	EC <sub>50</sub> , 48 hours: 44.9 mg/l, Daphnia magna
<b>Acute toxicity - aquatic plants</b>	NOEC, 96 hours: 0.804 mg/l, Pseudokirchneriella subcapitata
<b>Acute toxicity - microorganisms</b>	EC <sub>50</sub> , 180 minutes: 570 mg/l, Activated sludge
<b><u>Chronic aquatic toxicity</u></b>	
<b>Chronic toxicity - aquatic invertebrates</b>	EC <sub>50</sub> , 21 days: >5.05 mg/l, Daphnia magna

### 12.2. Persistence and degradability

**Persistence and degradability** No data available.

### Ecological information on ingredients.

#### 2-HYDROXYETHYL METHACRYLATE

**Biodegradation** Water - Degradation 84%: 28 days

#### ISOBORNOLMETHACRYLATE

**Biodegradation** Water - Degradation 70%: 28 days

#### tert-AMYL HYDROPEROXIDE

**Biodegradation** Water - 0%: 7 days

### 12.3. Bioaccumulative potential

**Bioaccumulative potential** No data available on bioaccumulation.

**Partition coefficient** Not available.

### Ecological information on ingredients.

#### 2-HYDROXYETHYL METHACRYLATE

**Bioaccumulative potential** BCF: 1.34 - 1.54,

#### MALEIC ACID

**Bioaccumulative potential** BCF: < 10, Leuciscus idus (Golden orfe)

### 12.4. Mobility in soil

**Mobility** No data available.

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### Ecological information on ingredients.

#### 2-HYDROXYETHYL METHACRYLATE

Adsorption/desorption coefficient      Water - Koc: 42.7 @ 20°C

### 12.5. Results of PBT and vPvB assessment

**Results of PBT and vPvB assessment**      This product does not contain any substances classified as PBT or vPvB.

### 12.6. Other adverse effects

**Other adverse effects**      None known.

## **SECTION 13: Disposal considerations**

### 13.1. Waste treatment methods

**General information**      Waste disposal should be in accordance with existing Community, National and local regulations Empty containers may contain product residue; follow SDS and label warnings even after they have been emptied.

**Disposal methods**      Do not empty into drains, dispose of this material and its container at hazardous or special waste collection point.

**Waste class**      08 04 09\* waste adhesives and sealants containing organic solvents or other dangerous substances.

## **SECTION 14: Transport information**

**General**      The product is not classified as dangerous for carriage.

### 14.1. UN number

Not applicable.

### 14.2. UN proper shipping name

Not applicable.

### 14.3. Transport hazard class(es)

Not applicable.

### 14.4. Packing group

Not applicable.

### 14.5. Environmental hazards

**Environmentally hazardous substance/marine pollutant**  
No.

### 14.6. Special precautions for user

Not applicable.

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

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**      Not applicable.

## **SECTION 15: Regulatory information**

## Permabond TA4391

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

<b>National regulations</b>	The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No. 716).
<b>EU legislation</b>	Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended). COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
<b>Guidance</b>	Workplace Exposure Limits EH40. CHIP for everyone HSG228. Approved Classification and Labelling Guide (Sixth edition) L131. Safety Data Sheets for Substances and Preparations.

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

### SECTION 16: Other information

<b>Revision date</b>	27/04/2018
<b>Revision</b>	4
<b>Supersedes date</b>	09/11/2016
<b>Hazard statements in full</b>	H226 Flammable liquid and vapour. H240 Heating may cause an explosion. H302 Harmful if swallowed. H311 Toxic in contact with skin. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H319 Causes serious eye irritation. H331 Toxic if inhaled. H335 May cause respiratory irritation. H411 Toxic to aquatic life with long lasting effects. H412 Harmful to aquatic life with long lasting effects.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty, guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.