

# Permabond®

## Engineering Adhesives

### SAFETY DATA SHEET

#### Permabond TA4610B

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

##### 1.1. Product identifier

Product name Permabond TA4610B

##### 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.  
H319 Causes serious eye irritation.  
H317 May cause an allergic skin reaction.  
H335 May cause respiratory irritation.

## Permabond TA4610B

<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>	<p>BENZYL METHACRYLATE, 2-ETHYLHEXYL METHACRYLATE, TRIETHYLBORANE-1,3-DIAMINOPROPANE COMPLEX</p>
<b>Supplementary precautionary statements</b>	<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>BENZYL METHACRYLATE</b>		<b>30-60%</b>
CAS number: 2495-37-6	EC number: 219-674-4	REACH registration number: 01-2119960155-39-XXXX
<b>Classification</b>		
Skin Irrit. 2 - H315		
Eye Irrit. 2 - H319		
Skin Sens. 1 - H317		
STOT SE 3 - H335		
<b>2-ETHYLHEXYL METHACRYLATE</b>		<b>5-10%</b>
CAS number: 688-84-6	EC number: 211-708-6	REACH registration number: 01-2119490166-35-XXXX
<b>Classification</b>		
Skin Irrit. 2 - H315		
Eye Irrit. 2 - H319		
Skin Sens. 1 - H317		
STOT SE 3 - H335		
Aquatic Chronic 3 - H412		

## Permabond TA4610B

### TRIETHYLBORANE-1,3-DIAMINOPROPANE COMPLEX

1-5%

CAS number: 148861-07-8

REACH registration exemption – &lt; 1 tonne

#### Classification

Acute Tox. 4 - H312

Skin Corr. 1A - H314

Eye Dam. 1 - H318

Skin Sens. 1 - H317

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.
<b>Skin contact</b>	Skin irritation. Mild dermatitis, allergic skin rash.
<b>Eye contact</b>	Irritating and may cause redness and pain.

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

<b>Notes for the doctor</b>	No specific recommendations. Treat symptomatically.
-----------------------------	---

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

<b>Suitable extinguishing media</b>	Foam, carbon dioxide or dry powder.
<b>Unsuitable extinguishing media</b>	Do not use water jet as an extinguisher, as this will spread the fire.

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

<b>Hazardous combustion products</b>	Burning produces irritating, toxic and obnoxious fumes. Carbon monoxide, carbon dioxide, and unknown hydrocarbons. Oxides of nitrogen.
--------------------------------------	--

#### 5.3. Advice for firefighters

<b>Special protective equipment for firefighters</b>	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

<b>Personal precautions</b>	Wear protective clothing as described in Section 8 of this safety data sheet.
-----------------------------	---

#### 6.2. Environmental precautions

## Permabond TA4610B

**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** Keep only in the original container in a cool, well-ventilated place. Keep container dry. Store in closed original container at temperatures between 2°C and 7°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

#### BENZYL METHACRYLATE (CAS: 2495-37-6)

<b>DNEL</b>	Workers, Industry - Inhalation; Long term systemic effects: 24.2 mg/m <sup>3</sup> Workers, Industry - Dermal; Long term systemic effects: 6.94 mg/kg/day
<b>PNEC</b>	Workers, Industry - Fresh water; 0.0216 mg/l Workers, Industry - marine water; 0.00216 mg/l Workers, Industry - STP; 1.3 mg/l Workers, Industry - Soil; 0.165 mg/kg Workers, Industry - Sediment (Freshwater); 0.888 mg/kg Workers, Industry - Sediment (Marinewater); 0.0888 mg/kg

#### 2-ETHYLHEXYL METHACRYLATE (CAS: 688-84-6)

<b>DNEL</b>	Workers - Inhalation; Long term systemic effects: 2.5 mg/m <sup>3</sup> Workers, Industry/Professional - Dermal; Long term : 5 mg/kg/day
<b>PNEC</b>	Fresh water; 0.003 mg/l marine water; 0 mg/l STP; 10 mg/l Sediment (Freshwater); 2.24 mg/kg Sediment (Marinewater); 0.224 mg/kg Soil; 0.446 mg/kg

### 8.2. Exposure controls

## Permabond TA4610B

### 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	Colourless to pale yellow.
Odour	Acrylic
Odour threshold	Not available.
pH	Not relevant.
Melting point	Not available.
Initial boiling point and range	Not applicable.
Flash point	$>100^{\circ}\text{C}$
Evaporation rate	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	1.0

## Permabond TA4610B

<b>Solubility(ies)</b>	Miscible with the following materials: Organic solvents.
<b>Partition coefficient</b>	Not available.
<b>Auto-ignition temperature</b>	Not available.
<b>Decomposition Temperature</b>	Not available.
<b>Viscosity</b>	≈25000 mPa s @ 25°C
<b>Oxidising properties</b>	Not available.

### 9.2. Other information

**Other information** Not relevant.

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

**Reactivity** The following materials may react with the product: Strong oxidising agents.

### 10.2. Chemical stability

**Stability** Stable at normal ambient temperatures.

### 10.3. Possibility of hazardous reactions

**Possibility of hazardous reactions** There are no known reactivity hazards associated with this product.

### 10.4. Conditions to avoid

**Conditions to avoid** Stable at normal ambient temperatures and when used as recommended.

### 10.5. Incompatible materials

**Materials to avoid** No specific material or group of materials is likely to react with the product to produce a hazardous situation.

### 10.6. Hazardous decomposition products

**Hazardous decomposition products** Thermal decomposition could produce carbon monoxide, carbon dioxide, and unidentified organic compounds.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

**Toxicological effects** 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.

### Skin corrosion/irritation

**Animal data** Irritating to skin.

### Serious eye damage/irritation

**Serious eye damage/irritation** Irritating to eyes.

### Skin sensitisation

**Skin sensitisation** May cause sensitisation by skin contact.

### Aspiration hazard

**Aspiration hazard** Not anticipated to present an aspiration hazard, based on chemical structure.

## Permabond TA4610B

**Inhalation** May cause respiratory system irritation.

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

### Toxicological information on ingredients.

#### BENZYL METHACRYLATE

##### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 3,980.0

**Species** Rat

##### Acute toxicity - dermal

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

**Species** Rat

##### 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). Fully reversible within 72 hours. Slightly 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** Gene mutation: Negative.

##### Carcinogenicity

**Carcinogenicity** No information available.

##### Reproductive toxicity

**Reproductive toxicity - fertility** No evidence of reproductive toxicity in animal studies.

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

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

##### Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** NOAEL 500 mg/kg, Oral, Rat

##### Aspiration hazard

**Aspiration hazard** Not available.

#### 2-ETHYLHEXYL METHACRYLATE

##### Acute toxicity - oral

## Permabond TA4610B

<b>Acute toxicity oral (LD<sub>50</sub> mg/kg)</b>	2,000.1
<b>Species</b>	Rat
<b><u>Acute toxicity - dermal</u></b>	
<b>Notes (dermal LD<sub>50</sub>)</b>	No information available.
<b><u>Acute toxicity - inhalation</u></b>	
<b>Notes (inhalation LC<sub>50</sub>)</b>	No information available.
<b><u>Skin corrosion/irritation</u></b>	
<b>Human skin model test</b>	Not irritating.
<b><u>Serious eye damage/irritation</u></b>	
<b>Serious eye damage/irritation</b>	Not irritating.
<b><u>Skin sensitisation</u></b>	
<b>Skin sensitisation</b>	Local Lymph Node Assay (LLNA) - Mouse: Not sensitising.
<b><u>Germ cell mutagenicity</u></b>	
<b>Genotoxicity - in vitro</b>	Chromosome aberration: Negative.
<b><u>Carcinogenicity</u></b>	
<b>Carcinogenicity</b>	NOAEC >=2.05 mg/l, Inhalation, Rat
<b><u>Reproductive toxicity</u></b>	
<b>Reproductive toxicity - fertility</b>	Screening - NOAEL 300 mg/kg/day, Oral, Rat F1
<b>Reproductive toxicity - development</b>	Developmental toxicity: - LOAEL: 1000 mg/kg/day, Oral, Rat
<b><u>Specific target organ toxicity - single exposure</u></b>	
<b>STOT - single exposure</b>	Not available.
<b><u>Specific target organ toxicity - repeated exposure</u></b>	
<b>STOT - repeated exposure</b>	Not available.
<b><u>Aspiration hazard</u></b>	
<b>Aspiration hazard</b>	Not available.

### SECTION 12: Ecological information

**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.

#### BENZYL METHACRYLATE

#### Acute aquatic toxicity



## Permabond TA4610B

<b>Acute toxicity - fish</b>	LC <sub>50</sub> , 48 hours: 4.67 mg/l, Pimephales promelas (Fat-head Minnow)
<b>Acute toxicity - aquatic plants</b>	NOEC, 72 hours: 0.899 mg/l, Desmodesmus subspicatus EC <sub>50</sub> , 72 hours: 2.28 mg/l, Desmodesmus subspicatus
<b><u>Chronic aquatic toxicity</u></b>	
<b>Chronic toxicity - aquatic invertebrates</b>	NOEC, 21 days: 4.21 mg/l, Daphnia magna

### 2-ETHYLHEXYL METHACRYLATE

<b><u>Acute aquatic toxicity</u></b>	
<b>Acute toxicity - fish</b>	EC <sub>50</sub> , 96 hours: 2.78 mg/l, Oryzias latipes (Red killifish)
<b>Acute toxicity - aquatic invertebrates</b>	EC <sub>50</sub> , 48 hours: 4.56 mg/l, Daphnia magna
<b>Acute toxicity - aquatic plants</b>	EC <sub>50</sub> , 72 hours: 7.68 mg/l, Selenastrum capricornutum NOEC, 72 hours: 0.28 mg/l, Selenastrum capricornutum
<b>Acute toxicity - microorganisms</b>	NOEC, 28 days: 100 mg/l, Activated sludge
<b><u>Chronic aquatic toxicity</u></b>	
<b>Chronic toxicity - aquatic invertebrates</b>	NOEC, 21 days: 0.11 mg/l, Daphnia magna

### 12.2. Persistence and degradability

**Persistence and degradability** No data available.

### Ecological information on ingredients.

#### BENZYL METHACRYLATE

**Biodegradation** Water - Degradation 74%: 28 days

#### 2-ETHYLHEXYL METHACRYLATE

**Biodegradation** Water - Degradation 88%: 28 days

### 12.3. Bioaccumulative potential

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

**Partition coefficient** Not available.

### 12.4. Mobility in soil

**Mobility** No data available.

### Ecological information on ingredients.

#### BENZYL METHACRYLATE

**Adsorption/desorption coefficient** - log K<sub>oc</sub>: 2.57 @ 25°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.

## Permabond TA4610B

### 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** Not applicable.

**Annex II of MARPOL 73/78**

**and the IBC Code**

## SECTION 15: Regulatory information

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

**National regulations** The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No. 716).

**EU legislation** 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)

## Permabond TA4610B

**Guidance** 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>	14/12/2018
<b>Revision</b>	7
<b>Supersedes date</b>	21/07/2017
<b>Hazard statements in full</b>	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. H335 May cause respiratory irritation. 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.