SAFETY DATA SHEET
Permabond TA4610A

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

1.1. Product identifier

Product name Permabond TA4610A

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 Dam. 1 - H318 Skin Sens. 1 - H317 STOT SE 3 - H335

Environmental hazards Not Classified

2.2. Label elements

Pictogram

Signal word Danger

Hazard statements

H315 Causes skin irritation.
H318 Causes serious eye damage.
H317 May cause an allergic skin reaction.
H335 May cause respiratory irritation.

Permabond TA4610A

Precautionary statements	P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P302+P352a IF ON SKIN: Wash with plenty of soap and water P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313 IF exposed or concerned: Get medical advice/ attention.
Contains	BENZYL METHACRYLATE, [2-[(2-METHYL-1-OXOALLYL)OXY]ETHYL] HYDROGEN SUCCINATE , 2-HYDROXYETHYL METHACRYLATE
Supplementary precautionary statements	P271 Use only outdoors or in a well-ventilated area. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P333+P313 If skin irritation or rash occurs: Get medical advice/ attention. P337+P313 If eye irritation persists: Get medical advice/ attention. P362+P364 Take off contaminated clothing and wash it before reuse. P403+P233 Store in a well-ventilated place. Keep container tightly closed. P501 Dispose of contents/container in accordance with existing Community, National and local regulations.

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

BENZYL METHACRYLATE **60-100%**

CAS number: 2495-37-6 EC number: 219-674-4 REACH registration number: 01-2119960155-39-XXXX

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

[2-[(2-METHYL-1-OXOALLYL)OXY]ETHYL] HYDROGEN SUCCINATE **5-10%**

CAS number: 20882-04-6 EC number: 244-096-4

REACH registration exemption – < 1 tonne

Classification
Eye Dam. 1 - H318
Skin Sens. 1 - H317

2-HYDROXYETHYL METHACRYLATE **1-5%**

CAS number: 868-77-9 EC number: 212-782-2 REACH registration number: 01-2119490169-29-XXXX

Classification
Skin Irrit. 2 - H315
Eye Irrit. 2 - H319
Skin Sens. 1 - H317

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

Permabond TA4610A

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation Move the exposed person to fresh air. Get medical attention if any discomfort continues.

Ingestion Rinse mouth thoroughly with water. Give plenty of water to drink. Do not induce vomiting. Get medical attention.

Skin contact Remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms develop, obtain medical attention

Eye contact 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.

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

Inhalation May cause irritation.

Skin contact Skin irritation. Mild dermatitis, allergic skin rash.

Eye contact Causes serious eye damage.

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

Permabond TA4610A

Usage precautions Use in a well ventilated area. Avoid contact with skin and eyes. Do not ingest or inhale. Do not eat, drink or smoke when using this 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)

DNEL
Workers, Industry - Inhalation; Long term systemic effects: 24.2 mg/m³
Workers, Industry - Dermal; Long term systemic effects: 6.94 mg/kg/day

PNEC
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-HYDROXYETHYL METHACRYLATE (CAS: 868-77-9)

DNEL
Workers, Industry - Inhalation; Long term systemic effects: 4.9 mg/m³
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

8.2. Exposure controls

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

Permabond TA4610A

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: ≥ 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: ≥ 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	Paste.
Colour	White/off-white.
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	1.0
Solubility(ies)	Slightly soluble in water. Miscible with the following materials: Organic solvents.
Partition coefficient	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	≈400000 mPa s @ 25°C
Oxidising properties	Not available.

Permabond TA4610A

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 sensitisation

Skin sensitisation May produce an allergic reaction.

Aspiration hazard

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

Inhalation May cause respiratory system irritation.

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

Skin contact Causes skin irritation.

Eye contact May cause serious eye damage.

Toxicological information on ingredients.

BENZYL METHACRYLATE

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	3,980.0
Species	Rat

Permabond TA4610A

Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg)	2,000.1
Species	Rat

Acute toxicity - inhalation

Notes (inhalation LC_{50})	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-[(2-METHYL-1-OXOALLYL)OXY]ETHYL] HYDROGEN SUCCINATE

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	2,000.1
Species	Rat

Skin corrosion/irritation

Skin corrosion/irritation	Not irritating. Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation	Causes serious eye damage.

Skin sensitisation

Skin sensitisation	May cause an allergic skin reaction.

Permabond TA4610A

Carcinogenicity

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

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

Aspiration hazard Based on available data the classification criteria are not met.

2-HYDROXYETHYL METHACRYLATE

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg) 5,000.0

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg) 5,000.0

Species Rabbit

Acute toxicity - inhalation

Notes (inhalation LC_{50}) 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 >=1000 mg/kg/day, Oral, Rat F1

Reproductive toxicity - development Developmental toxicity: - NOAEL: >=1000 mg/kg/day, Oral, Rat

Permabond TA4610A

Specific target organ toxicity - single exposure

STOT - single exposure No specific test data are available.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure No specific test data are available.

Aspiration hazard

Aspiration hazard Not applicable.

SECTION 12: Ecological information

Ecotoxicity Not regarded as dangerous for 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

Acute toxicity - fish LC_{50}, 48 hours: 4.67 mg/l, Pimephales promelas (Fat-head Minnow)

Acute toxicity - aquatic plants NOEC, 72 hours: 0.899 mg/l, Desmodesmus subspicatus
EC_{50}, 72 hours: 2.28 mg/l, Desmodesmus subspicatus

Chronic aquatic toxicity

Chronic toxicity - aquatic invertebrates NOEC, 21 days: 4.21 mg/l, Daphnia magna

[2-[(2-METHYL-1-OXOALLYL)OXY]ETHYL] HYDROGEN SUCCINATE

Acute aquatic toxicity

Acute toxicity - aquatic invertebrates NOEC, 48 hours: >=515.4 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC_{50}, 72 hours: >=197 mg/l, Pseudokirchneriella subcapitata

2-HYDROXYETHYL METHACRYLATE

Acute aquatic toxicity

Acute toxicity - fish LC_{50}, 96 hours: > 100 mg/l, Oryzias latipes (Red killifish)

Acute toxicity - aquatic invertebrates EC_{50}, 48 hours: 380 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC_{50}, 72 hours: 836 mg/l, Selenastrum capricornutum
NOEC, 72 hours: 400 mg/l, Selenastrum capricornutum

Acute toxicity - microorganisms EC_{50}, 16 hours: > 3000 mg/l, Pseudomonas fluorescens

Chronic aquatic toxicity

Permabond TA4610A

Chronic toxicity - aquatic invertebrates NOEC, 21 days: 24.1 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-HYDROXYETHYL METHACRYLATE

Biodegradation Water - Degradation 84%: 28 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,

12.4. Mobility in soil

Mobility No data available.

Ecological information on ingredients.

BENZYL METHACRYLATE

Adsorption/desorption coefficient - log Koc: 2.57 @ 25°C

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.

Permabond TA4610A

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

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)

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

Revision date 14/12/2018

Revision 8

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

Precautionary statements	P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P302+P352a IF ON SKIN: Wash with plenty of soap and water P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P308+P313 IF exposed or concerned: Get medical advice/ attention.
Contains	BENZYL METHACRYLATE, 2-ETHYLHEXYL METHACRYLATE, TRIETHYLBORANE-1,3-DIAMINOPROPANE COMPLEX
Supplementary precautionary statements	P264 Wash contaminated skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing. P333+P313 If skin irritation or rash occurs: Get medical advice/ attention. P337+P313 If eye irritation persists: Get medical advice/ attention. P362+P364 Take off contaminated clothing and wash it before reuse. P403+P233 Store in a well-ventilated place. Keep container tightly closed. P501 Dispose of contents/container in accordance with existing Community, National and local regulations.

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

BENZYL METHACRYLATE **30-60%**

CAS number: 2495-37-6 EC number: 219-674-4 REACH registration number: 01-2119960155-39-XXXX

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

2-ETHYLHEXYL METHACRYLATE **5-10%**

CAS number: 688-84-6 EC number: 211-708-6 REACH registration number: 01-2119490166-35-XXXX

Classification
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 – < 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

Inhalation Move the exposed person to fresh air. Get medical attention if any discomfort continues.

Ingestion Rinse mouth thoroughly with water. Give plenty of water to drink. Do not induce vomiting. Get medical attention.

Skin contact Wash skin thoroughly with soap and water. If symptoms develop, obtain medical attention

Eye contact 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

Inhalation May cause respiratory irritation.

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

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)

DNEL Workers, Industry - Inhalation; Long term systemic effects: 24.2 mg/m³
Workers, Industry - Dermal; Long term systemic effects: 6.94 mg/kg/day

PNEC 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)

DNEL Workers - Inhalation; Long term systemic effects: 2.5 mg/m³
Workers, Industry/Professional - Dermal; Long term : 5 mg/kg/day

PNEC 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: ≥ 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: ≥ 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°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

Solubility(ies)	Miscible with the following materials: Organic solvents.
Partition coefficient	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	≈25000 mPa s @ 25°C
Oxidising properties	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_{50} mg/kg)	3,980.0
Species	Rat

Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg)	2,000.1
Species	Rat

Acute toxicity - inhalation

Notes (inhalation LC_{50})	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

Acute toxicity oral (LD_{50} mg/kg)	2,000.1
Species	Rat

Acute toxicity - dermal

Notes (dermal LD_{50})	No information available.

Acute toxicity - inhalation

Notes (inhalation LC_{50})	No information available.

Skin corrosion/irritation

Human skin model test	Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation	Not irritating.

Skin sensitisation

Skin sensitisation	Local Lymph Node Assay (LLNA) - Mouse: Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro	Chromosome aberration: Negative.

Carcinogenicity

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

Reproductive toxicity

Reproductive toxicity - fertility	Screening - NOAEL 300 mg/kg/day, Oral, Rat F1
Reproductive toxicity - development	Developmental toxicity: - LOAEL: 1000 mg/kg/day, Oral, Rat

Specific target organ toxicity - single exposure

STOT - single exposure	Not available.

Specific target organ toxicity - repeated exposure

STOT - repeated exposure	Not available.

Aspiration hazard

Aspiration hazard	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

Acute toxicity - fish	LC_{50}, 48 hours: 4.67 mg/l, Pimephales promelas (Fat-head Minnow)
Acute toxicity - aquatic plants	NOEC, 72 hours: 0.899 mg/l, Desmodesmus subspicatus EC_{50}, 72 hours: 2.28 mg/l, Desmodesmus subspicatus
Chronic aquatic toxicity	
Chronic toxicity - aquatic invertebrates	NOEC, 21 days: 4.21 mg/l, Daphnia magna

2-ETHYLHEXYL METHACRYLATE

Acute aquatic toxicity	
Acute toxicity - fish	EC_{50}, 96 hours: 2.78 mg/l, Oryzias latipes (Red killifish)
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 4.56 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC_{50}, 72 hours: 7.68 mg/l, Selenastrum capricornutum NOEC, 72 hours: 0.28 mg/l, Selenastrum capricornutum
Acute toxicity - microorganisms	NOEC, 28 days: 100 mg/l, Activated sludge
Chronic aquatic toxicity	
Chronic toxicity - aquatic invertebrates	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 Koc: 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 Annex II of MARPOL 73/78 and the IBC Code Not applicable.

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

Revision date	14/12/2018
Revision	7
Supersedes date	21/07/2017
Hazard statements in full	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.

Permabond TA4610A

Supersedes date 21/07/2017

Hazard statements in full

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.