

# Permabond®

## Engineering Adhesives

### SAFETY DATA SHEET

#### Permabond ET5401A

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

##### 1.1. Product identifier

**Product name** Permabond ET5401A

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

**Identified uses** Two-component, epoxy-based 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)

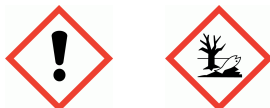
**Physical hazards** Not Classified

**Health hazards** Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Skin Sens. 1 - H317

**Environmental hazards** Aquatic Chronic 2 - H411

##### 2.2. Label elements

###### Hazard pictograms



**Signal word** Warning

**Hazard statements** H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H317 May cause an allergic skin reaction.  
H411 Toxic to aquatic life with long lasting effects.

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<b>Precautionary statements</b>	<p>P273 Avoid release to the environment.</p> <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>
<b>Supplemental label information</b>	EUH205 Contains epoxy constituents. May produce an allergic reaction.
<b>Contains</b>	EPOXY RESIN (Number average MW <= 700 ), 1,2,3-PROPANETRIOL, GLYCIDYL ETHERS, 2-PROPENOIC ACID, REACTION PRODUCT WITH DIPENTAERYTHRITOL
<b>Supplementary precautionary statements</b>	<p>P264 Wash contaminated skin thoroughly after handling.</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>P391 Collect spillage.</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>EPOXY RESIN (Number average MW &lt;= 700 )</b> CAS number: 1675-54-3                      EC number: 216-823-5                      REACH registration number: 01-2119456619-26-XXXX	<b>60-100%</b>
<b>Classification</b> Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Skin Sens. 1 - H317 Aquatic Chronic 2 - H411	
<b>1,2,3-PROPANETRIOL, GLYCIDYL ETHERS</b> CAS number: 90529-77-4                      EC number: 292-011-4                      REACH registration number: 01-2119978955-13-XXXX	<b>5-10%</b>
<b>Classification</b> Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Skin Sens. 1 - H317	

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<b>2-PROPENOIC ACID, REACTION PRODUCT WITH DIPENTAERYTHRITOL</b>	<b>5-10%</b>
CAS number: 1384855-91-7	EC number: 800-838-4
REACH registration number: 01-2119980666-22-XXXX	
<b>Classification</b> Eye Irrit. 2 - H319 Skin Sens. 1 - H317 Aquatic Chronic 3 - H412	

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 if any discomfort continues.
<b>Skin contact</b>	Remove contaminated clothing immediately and wash skin with soap and water. If symptoms develop, obtain medical attention
<b>Eye contact</b>	Rinse immediately with plenty of water for 15 minutes holding the eyelids open. Remove any contact lenses and open eyelids wide apart. Get medical attention if any discomfort continues.

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

<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.
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### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

<b>Suitable extinguishing media</b>	Extinguish with foam, carbon dioxide, dry powder or water fog.
<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. Nitrous gases (NOx). Carbon monoxide, carbon dioxide, and unknown hydrocarbons.
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#### 5.3. Advice for firefighters

<b>Special protective equipment for firefighters</b>	Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.
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### 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.
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#### 6.2. Environmental precautions

<b>Environmental precautions</b>	Do not discharge into drains or watercourses or onto the ground.
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### 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. Wash area with soap and water.

### 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** 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** Store in closed original container at temperatures between 5°C and 25°C.

### 7.3. Specific end use(s)

**Specific end use(s)** Adhesive. Sealant.

## SECTION 8: Exposure controls/Personal protection

### 8.1. Control parameters

#### EPOXY RESIN (Number average MW <= 700 ) (CAS: 1675-54-3)

**DNEL** Workers - Inhalation; Long term systemic effects: 12.25 mg/m<sup>3</sup>  
Workers - Dermal; Long term systemic effects: 8.33 mg/kg/day  
Workers - Inhalation; Short term systemic effects: 12.25 mg/m<sup>3</sup>  
Workers - Dermal; Short term systemic effects: 8.33 mg/kg/day

**PNEC** - Fresh water; Long term 0.006 mg/l  
- Sediment (Freshwater); Long term 0.996 mg/l  
- Sediment (Marinewater); 0.0996 mg/l  
- STP; Long term 10 mg/l  
- Soil; Long term 0.196 mg/l  
- marine water; 0.0006 mg/l  
- Water; 0.0018 mg/l

#### 2-PROPENOIC ACID, REACTION PRODUCT WITH DIPENTAERYTHRITOL (CAS: 1384855-91-7)

**DNEL** Workers - Inhalation; Long term systemic effects: 1.76 mg/m<sup>3</sup>  
Workers - Dermal; Long term systemic effects: 0.5 mg/kg

**PNEC** Fresh water; 0.013 mg/l  
marine water; 0.0013 mg/l  
STP; 10 mg/l  
Sediment (Freshwater); 2.8 mg/kg, dw  
Sediment (Marinewater); 0.28 mg/kg, dw  
Intermittent release, Water; 0.13 mg/l  
Soil; 0.55 mg/kg, dw

### 8.2. Exposure controls

#### Protective equipment



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<b>Appropriate engineering controls</b>	Provide adequate ventilation.
<b>Eye/face protection</b>	The following protection should be worn: Chemical splash goggles or face shield. Personal eye protection should conform to EN 166
<b>Hand protection</b>	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.
<b>Other skin and body protection</b>	Employee must wear appropriate protective clothing and equipment to prevent any possibility of skin contact with this substance.
<b>Hygiene measures</b>	Wash at the end of each work shift and before eating, smoking and using the toilet. Promptly remove any clothing that becomes contaminated. Use appropriate skin cream to prevent drying of skin. When using do not eat, drink or smoke. Use of good industrial hygiene practices is required.
<b>Respiratory protection</b>	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

<b>Appearance</b>	Paste.
<b>Colour</b>	White.
<b>Odour</b>	Mild.
<b>Odour threshold</b>	Not available.
<b>pH</b>	Not available.
<b>Melting point</b>	Not determined.
<b>Initial boiling point and range</b>	Not applicable.
<b>Flash point</b>	>100°C
<b>Evaporation rate</b>	Not available.
<b>Upper/lower flammability or explosive limits</b>	Not applicable.
<b>Vapour pressure</b>	Not determined.
<b>Vapour density</b>	Not available.
<b>Relative density</b>	1.2
<b>Solubility(ies)</b>	Insoluble in water. Soluble in the following materials: Organic solvents.
<b>Partition coefficient</b>	Not applicable.

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<b>Auto-ignition temperature</b>	Not determined.
<b>Decomposition Temperature</b>	Not available.
<b>Viscosity</b>	≈350000 mPa s @ 23°C Thixotropic
<b>Explosive properties</b>	Not determined.
<b>Oxidising properties</b>	Not determined.
<b>9.2. Other information</b>	
<b>Other information</b>	Not relevant.
<b>Volatile organic compound</b>	This product contains a maximum VOC content of 1 %.

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

**Reactivity** Under normal conditions of storage and use, no hazardous reactions will occur.

#### 10.2. Chemical stability

**Stability** Stable at normal ambient temperatures.

#### 10.3. Possibility of hazardous reactions

**Possibility of hazardous reactions** Reactions with the following materials may generate heat: Amines.

#### 10.4. Conditions to avoid

**Conditions to avoid** Avoid excessive heat for prolonged periods of time.

#### 10.5. Incompatible materials

**Materials to avoid** Strong oxidising agents. Strong acids. Strong alkalis.

#### 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 cause sensitisation by skin contact.

#### Aspiration hazard

**Aspiration hazard** None under normal conditions.

#### **Inhalation**

Unlikely to be hazardous by inhalation because of the low vapour pressure of the product at ambient temperature. In high concentrations, vapours may irritate throat and respiratory system and cause coughing.

#### **Ingestion**

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

#### **Skin contact**

Irritating to skin.

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

### Toxicological information on ingredients.

#### EPOXY RESIN (Number average MW <= 700 )

##### Acute toxicity - oral

Acute toxicity oral (LD<sub>50</sub> mg/kg) 11,400.0

Species Rat

##### Acute toxicity - dermal

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

Species Rabbit

##### Acute toxicity - inhalation

Notes (inhalation LC<sub>50</sub>) No specific test data are available.

##### Skin corrosion/irritation

Skin corrosion/irritation Not irritating.

Animal data Oedema score: Very slight oedema - barely perceptible (1).

##### Serious eye damage/irritation

Serious eye damage/irritation Not irritating.

##### Respiratory sensitisation

Respiratory sensitisation No specific test data are available.

##### Skin sensitisation

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

##### Germ cell mutagenicity

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

##### Carcinogenicity

Carcinogenicity Conclusive data but not sufficient for classification.

IARC carcinogenicity IARC Group 3 Not classifiable as to its carcinogenicity to humans.

##### Reproductive toxicity

Reproductive toxicity - fertility Fertility - NOAEL 750 mg/kg/day, Oral, Rat

Reproductive toxicity - development Developmental toxicity: - NOAEL: 180 mg/kg/day, Oral, Rat

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

STOT - single exposure No specific test data are available.

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

STOT - repeated exposure Conclusive data but not sufficient for classification.

##### Aspiration hazard

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

### 1,2,3-PROPANETRIOL, GLYCIDYL ETHERS

#### Acute toxicity - oral

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

**Species** Rat

### 2-PROPENOIC ACID, REACTION PRODUCT WITH DIPENTAERYTHRITOL

#### Acute toxicity - oral

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

**Species** Rat

#### Acute toxicity - dermal

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

**Species** Rabbit

#### Acute toxicity - inhalation

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

#### Skin corrosion/irritation

**Animal data** Rabbit Not irritating.

#### Serious eye damage/irritation

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

#### Skin sensitisation

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

#### Germ cell mutagenicity

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

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

#### Carcinogenicity

**Carcinogenicity** No information available.

#### Reproductive toxicity

**Reproductive toxicity - fertility** - NOAEL 200 mg/kg, Oral, Rat F1

**Reproductive toxicity - development** Developmental toxicity: - NOAEL: 10 mg/kg, Oral, Rat

#### Specific target organ toxicity - single exposure

**STOT - single exposure** NOAEL 75 mg/kg, Oral, Rat

#### Specific target organ toxicity - repeated exposure

**STOT - repeated exposure** NOAEL 75 mg/kg, Oral, Rat



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### Aspiration hazard

**Aspiration hazard** No information available.

## SECTION 12: Ecological information

**Ecotoxicity** Toxic to aquatic life with long lasting effects.

### 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.

#### EPOXY RESIN (Number average MW <= 700 )

##### Acute aquatic toxicity

**Acute toxicity - fish** LC<sub>50</sub>, 24 hours: 4.4 mg/l, Oncorhynchus mykiss (Rainbow trout)

**Acute toxicity - aquatic invertebrates** LC<sub>50</sub>, 24 hours: 4.9 mg/l, Daphnia magna

**Acute toxicity - aquatic plants** EC<sub>50</sub>, 48 hours: 9.1 mg/l, Selenastrum capricornutum

**Acute toxicity - microorganisms** IC<sub>50</sub>, 3 hours: > 100 mg/l, Activated sludge

##### Chronic aquatic toxicity

**Chronic toxicity - aquatic invertebrates** NOEC, 21 days: 0.3 mg/l, Daphnia magna

#### 2-PROPENOIC ACID, REACTION PRODUCT WITH DIPENTAERYTHRITOL

##### Acute aquatic toxicity

**Acute toxicity - fish** LL<sub>50</sub>, 96 hours: 13 mg/l, Cyprinus carpio (Common carp)

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 48 hours: 18 mg/l, Daphnia magna

**Acute toxicity - aquatic plants** NOEC, 72 hours: 6.6 mg/l, Pseudokirchneriella subcapitata

**Acute toxicity - microorganisms** EC<sub>50</sub>, 3 hours: > 100 mg/l, Activated sludge

### 12.2. Persistence and degradability

**Persistence and degradability** The product is not readily biodegradable.

### Ecological information on ingredients.

#### EPOXY RESIN (Number average MW <= 700 )

**Biodegradation** Water - 6 - 12%: 28 days

#### 2-PROPENOIC ACID, REACTION PRODUCT WITH DIPENTAERYTHRITOL

**Stability (hydrolysis)** - Half-life : > 8.760 hours @ 25°C

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**Biodegradation** Water - Degradation 0 - 2%: 29 days

### 12.3. Bioaccumulative potential

**Partition coefficient** Not applicable.

### Ecological information on ingredients.

#### EPOXY RESIN (Number average MW <= 700 )

**Bioaccumulative potential** BCF: 100 - 3000,

**Partition coefficient** log Pow: 3.242

#### 2-PROPENOIC ACID, REACTION PRODUCT WITH DIPENTAERYTHRITOL

**Bioaccumulative potential** BCF: 18.6 - 86.4,

**Partition coefficient** log Kow: 2.43 - 3.44

### 12.4. Mobility in soil

**Mobility** No data available. The product has poor water-solubility.

### Ecological information on ingredients.

#### EPOXY RESIN (Number average MW <= 700 )

**Adsorption/desorption coefficient** Water - log Koc: 2.65 @ 20°C

#### 2-PROPENOIC ACID, REACTION PRODUCT WITH DIPENTAERYTHRITOL

**Surface tension** 51.4 mN/m @ 20°C

### 12.5. Results of PBT and vPvB assessment

**Results of PBT and vPvB assessment** This substance is not classified as PBT or vPvB according to current EU criteria.

### 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

**Road transport notes** Applies only to inner containers >5 litres. See SP 375

**Sea transport notes** Applies only to inner containers >5 litres. See 2.10.2.7 of the IMDG code.

**Air transport notes** Applies only to inner containers >5 litres. See SP A197 (375)

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### 14.1. UN number

3082

### 14.2. UN proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (contains Epoxy resin)

### 14.3. Transport hazard class(es)

9

#### Transport labels



### 14.4. Packing group

III

### 14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant



### 14.6. Special precautions for user

EmS F-A, S-F

Tunnel restriction code (E)

### 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

<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. Safety Data Sheets for Substances and Preparations. Approved Classification and Labelling Guide (Sixth edition) L131.

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

## SECTION 16: Other information

## Permabond ET5401A

<b>Revision date</b>	02/10/2020
<b>Revision</b>	4
<b>Supersedes date</b>	18/05/2017
<b>Hazard statements in full</b>	H315 Causes skin irritation. H317 May cause an allergic skin reaction. H319 Causes serious eye 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.

# Permabond®

## Engineering Adhesives

### SAFETY DATA SHEET

#### Permabond ET5401B

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

##### 1.1. Product identifier

**Product name** Permabond ET5401B

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

**Identified uses** Two-component, epoxy-based adhesive.

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

**Supplier** Permabond Engineering Adhesives GmbH  
Niederkasseler Lohweg 18  
40547 Düsseldorf  
Germany  
info.europe@permabond.com

**Manufacturer** 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@permabond.co.uk

##### 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 Corr. 1B - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317

**Environmental hazards** Aquatic Chronic 3 - H412

##### 2.2. Label elements

###### Hazard pictograms



**Signal word** Danger

## Permabond ET5401B

<b>Hazard statements</b>	H314 Causes severe skin burns and eye damage. H317 May cause an allergic skin reaction. H412 Harmful to aquatic life with long lasting effects.
<b>Precautionary statements</b>	P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. 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.
<b>Contains</b>	ATBN POLYMER, POLYOXYPROPYLENEDIAMINE, AMINES, POLYETHYLENEPOLY-, TRIETHYLENETETRAMINE FRACTION, 3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE
<b>Supplementary precautionary statements</b>	P264 Wash contaminated skin thoroughly after handling. P273 Avoid release to the environment. 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. P362+P364 Take off contaminated clothing and wash it before reuse. P405 Store locked up. P501 Dispose of contents/container in accordance with existing Community, National and local regulations.

### 2.3. Other hazards

None under normal conditions.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

<b>ATBN POLYMER</b> <span style="float: right;"><b>30-60%</b></span> CAS number: 68683-29-4 REACH registration exemption – POLYMER
<b>Classification</b> Skin Irrit. 2 - H315 Skin Sens. 1 - H317
<b>POLYOXYPROPYLENEDIAMINE</b> <span style="float: right;"><b>10-30%</b></span> CAS number: 9046-10-0      REACH registration number: 01-2119557899-12-XXXX
<b>Classification</b> Skin Corr. 1B - H314 Eye Dam. 1 - H318 Aquatic Chronic 3 - H412

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<b>AMINES, POLYETHYLENEPOLY-, TRIETHYLENETETRAMINE FRACTION</b>	<b>5-10%</b>
CAS number: 90640-67-8                      EC number: 292-588-2                      REACH registration number: 01-2119487919-13-XXXX	
<b>Classification</b> Acute Tox. 4 - H302 Acute Tox. 4 - H312 Skin Corr. 1B - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317 Aquatic Chronic 3 - H412	
<b>TRIS-2,4,6-(DIMETHYLAMINOMETHYL)PHENOL</b>	<b>5-10%</b>
CAS number: 90-72-2                      EC number: 202-013-9                      REACH registration number: 01-2119560597-27-XXXX	
<b>Classification</b> Acute Tox. 4 - H302 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319	
<b>3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE</b>	<b>1-5%</b>
CAS number: 2855-13-2                      EC number: 220-666-8                      REACH registration number: 01-2119514687-32-XXXX	
<b>Classification</b> Acute Tox. 4 - H302 Acute Tox. 4 - H312 Skin Corr. 1B - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317 Aquatic Chronic 3 - H412	
<b>AMINES, POLYETHYLENEPOLY-, TRIETHYLENETETRAMINE FRACTION POLYMER ADDUCT</b>	<b>1-5%</b>
CAS number: — REACH registration exemption – POLYMER	
<b>Classification</b> Acute Tox. 4 - H302 Acute Tox. 4 - H312 Skin Corr. 1B - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317 Aquatic Chronic 3 - H412	

## Permabond ET5401B

<b>2-PIPERAZIN-1-YLETHYLAMINE</b> <span style="float: right;"><b>&lt;1%</b></span>		
CAS number: 140-31-8	EC number: 205-411-0	REACH registration number: 01-2119471486-30-XXXX

<b>Classification</b> Acute Tox. 4 - H302 Acute Tox. 3 - H311 Skin Corr. 1B - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317 Repr. 2 - H361 STOT RE 1 - H372 Aquatic Chronic 3 - H412
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<b>3-AMINOPROPYLTRIETHOXYSILANE</b> <span style="float: right;"><b>&lt;1%</b></span>		
CAS number: 919-30-2	EC number: 213-048-4	REACH registration number: 01-2119480479-24-XXXX

<b>Classification</b> Acute Tox. 4 - H302 Skin Corr. 1B - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317
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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>	Never give anything by mouth to an unconscious person. Rinse mouth thoroughly with water. Give plenty of water to drink. DO NOT induce vomiting. Get medical attention immediately.
<b>Skin contact</b>	Remove contaminated clothing immediately and wash skin with soap and water. If symptoms develop, obtain medical attention
<b>Eye contact</b>	Rinse immediately with plenty of water for 15 minutes holding the eyelids open. Remove any contact lenses and open eyelids wide apart. Get medical attention. Show this Safety Data Sheet to the medical personnel.

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

<b>Inhalation</b>	Irritation of nose, throat and airway.
<b>Ingestion</b>	May cause chemical burns in mouth and throat.
<b>Skin contact</b>	Chemical burns. Mild dermatitis, allergic skin rash.
<b>Eye contact</b>	May cause serious eye damage.

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

<b>Notes for the doctor</b>	No specific recommendations. Treat symptomatically.
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### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media



## Permabond ET5401B

**Suitable extinguishing media** Extinguish with foam, carbon dioxide, dry powder or water fog.

**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

**Specific hazards** No unusual fire or explosion hazards noted.

**Hazardous combustion products** Burning produces irritating, toxic and obnoxious fumes. Nitrous gases (NOx). Carbon monoxide, carbon dioxide, and unknown hydrocarbons.

### 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** Do not discharge into drains or watercourses or onto the ground.

### 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. Wash area with soap and water.

### 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** 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** Store in closed original container at temperatures between 5°C and 25°C.

**Storage class** Corrosive storage.

### 7.3. Specific end use(s)

**Specific end use(s)** Adhesive. Sealant.

## SECTION 8: Exposure controls/Personal protection

### 8.1. Control parameters

#### POLYOXYPROPYLENEDIAMINE (CAS: 9046-10-0)

**DNEL**

Workers - Inhalation; Long term systemic effects: 1.36 mg/m<sup>3</sup>  
Workers - Dermal; Long term systemic effects: 2.5 mg/kg/day

## Permabond ET5401B

**PNEC** Fresh water; 0.015 mg/l  
 marine water; 0.014 mg/l  
 STP; 7.5 mg/l  
 Sediment (Freshwater); 0.132 mg/kg  
 Sediment (Marinewater); 0.125 mg/kg  
 Soil; 0.018 mg/kg

### AMINES, POLYETHYLENEPOLY-, TRIETHYLENETETRAMINE FRACTION (CAS: 90640-67-8)

**DNEL** Workers - Inhalation; Long term systemic effects: 1 mg/m<sup>3</sup>  
 Workers - Inhalation; Short term systemic effects: 5380 mg/m<sup>3</sup>  
 Workers - Dermal; Long term systemic effects: 0.57 mg/kg/day  
 Workers - Dermal; Long term local effects: 28 µg/cm<sup>2</sup>

**PNEC** Fresh water; 0.0068 mg/l  
 marine water; 0.0068 mg/l  
 Sediment (Freshwater); 3.43 mg/kg  
 Sediment (Marinewater); 0.343 mg/kg  
 STP; 9.73 mg/l

### TRIS-2,4,6-(DIMETHYLAMINOMETHYL)PHENOL (CAS: 90-72-2)

**PNEC** Fresh water; 0.084 mg/l  
 marine water; 0.008 mg/l  
 STP; 0.2 mg/l

### 3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE (CAS: 2855-13-2)

**DNEL** Workers - Inhalation; Long term local effects: 0.073 mg/m<sup>3</sup>  
 Workers - Inhalation; Short term local effects: 0.073 mg/m<sup>3</sup>

**PNEC** Fresh water; 0.06 mg/l  
 marine water; 0.006 mg/l  
 STP; 3.18 mg/l  
 Sediment (Freshwater); 5.784 mg/kg  
 Sediment (Marinewater); 0.578 mg/kg

### AMINES, POLYETHYLENEPOLY-, TRIETHYLENETETRAMINE FRACTION POLYMER ADDUCT

**DNEL** Workers - Inhalation; Long term local effects: 6940 mg/m<sup>3</sup>  
 Workers - Inhalation; Long term systemic effects: 1.29 mg/m<sup>3</sup>  
 Workers - Dermal; Long term local effects: 0.036 mg/cm<sup>2</sup>

**PNEC** Fresh water; 0.0068 mg/l  
 marine water; 0.0068 mg/l  
 Sediment (Freshwater); 3.43 mg/kg  
 Sediment (Marinewater); 0.343 mg/kg  
 STP; 9.73 mg/l

### 2-PIPERAZIN-1-YLETHYLAMINE (CAS: 140-31-8)

**DNEL** Workers - Inhalation; Long term systemic effects: 10.6 mg/m<sup>3</sup>  
 Workers - Inhalation; Short term systemic effects: 10.6 mg/m<sup>3</sup>  
 Workers - Inhalation; Long term local effects: 15 µg/m<sup>3</sup>  
 Workers - Inhalation; Short term local effects: 80 mg/m<sup>3</sup>  
 Workers - Dermal; Long term systemic effects: 3.33 mg/kg/day

## Permabond ET5401B

### PNEC

Fresh water; 0.058 mg/l  
 marine water; 0.006 mg/l  
 STP; 250 mg/l  
 Sediment (Freshwater); 215 mg/kg  
 Sediment (Marinewater); 21.5 mg/kg  
 Intermittent release; 0.58 mg/l

### 8.2. Exposure controls

#### Protective equipment



#### Appropriate engineering controls

Provide adequate general and local exhaust ventilation.

#### 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. Promptly remove any clothing that becomes contaminated. Use appropriate skin cream to prevent drying of skin. 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	Black.
Odour	Amine.
Odour threshold	Not determined.
pH	Not determined.
Melting point	Not determined.
Initial boiling point and range	Not determined.

## Permabond ET5401B

Flash point	>100°C
Evaporation rate	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not determined.
Vapour density	Not determined.
Relative density	1.1
Solubility(ies)	Slightly soluble in water. Soluble in the following materials: Organic solvents.
Partition coefficient	Not available.
Auto-ignition temperature	Not determined.
Decomposition Temperature	Not determined.
Viscosity	≈200000 mPa s @ 23°C Thixotropic
Explosive properties	Not determined.
Oxidising properties	Not applicable.
<b>9.2. Other information</b>	
Other information	Not relevant.

### SECTION 10: Stability and reactivity

#### 10.1. Reactivity

**Reactivity** Under normal conditions of storage and use, no hazardous reactions will occur.

#### 10.2. Chemical stability

**Stability** Stable at normal ambient temperatures.

#### 10.3. Possibility of hazardous reactions

**Possibility of hazardous reactions** Reactions with the following materials may generate heat: Epoxy resin

#### 10.4. Conditions to avoid

**Conditions to avoid** Avoid excessive heat for prolonged periods of time.

#### 10.5. Incompatible materials

**Materials to avoid** Avoid contact with the following materials: Acids. Oxidising agents.

#### 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

## Permabond ET5401B

<b>Skin sensitisation</b>	May cause sensitisation by skin contact.
<b><u>Aspiration hazard</u></b>	
<b>Aspiration hazard</b>	None under normal conditions.
<b>Inhalation</b>	Unlikely to be hazardous by inhalation because of the low vapour pressure of the product at ambient temperature. In high concentrations, vapours may irritate throat and respiratory system and cause coughing.
<b>Ingestion</b>	Causes burns. May cause chemical burns in mouth and throat. May cause stomach pain or vomiting.
<b>Skin contact</b>	This product is strongly irritating. Prolonged contact may cause burns.
<b>Eye contact</b>	Causes serious eye damage.

### Toxicological information on ingredients.

#### ATBN POLYMER

##### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 15,400.0

**Species** Rat

##### Acute toxicity - dermal

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

**Species** Rabbit

##### Acute toxicity - inhalation

**Notes (inhalation LC<sub>50</sub>)** No specific test data are available.

##### Skin corrosion/irritation

**Skin corrosion/irritation** Moderately irritating. Rabbit

##### Serious eye damage/irritation

**Serious eye damage/irritation** Slightly irritating. Rabbit

##### Skin sensitisation

**Skin sensitisation** Sensitising. Guinea pig

##### Germ cell mutagenicity

**Genotoxicity - in vitro** No specific test data are available.

##### Carcinogenicity

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

##### Reproductive toxicity

**Reproductive toxicity - fertility** No specific test data are available.

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

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

## Permabond ET5401B

### Specific target organ toxicity - repeated exposure

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

### Aspiration hazard

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

### POLYOXYPROPYLENEDIAMINE

#### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 2,885.3

**Species** Rat

#### Acute toxicity - dermal

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)** 2,979.7

**Species** Rabbit

#### Skin corrosion/irritation

**Animal data** Corrosive.

#### Serious eye damage/irritation

**Serious eye damage/irritation** Corrosive

#### Germ cell mutagenicity

**Genotoxicity - in vitro** Negative.

**Genotoxicity - in vivo** Negative.

#### Reproductive toxicity

**Reproductive toxicity - development** Developmental toxicity: - NOAEL: 30 mg/kg, Dermal, 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.

**Ingestion** May cause burns in mucous membranes, throat, oesophagus and stomach.

**Skin contact** Causes severe burns.

**Eye contact** Causes serious eye damage.

### AMINES, POLYETHYLENEPOLY-, TRIETHYLENETETRAMINE FRACTION

#### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 1,716.0

## Permabond ET5401B

<b>Species</b>	Rat
<b><u>Acute toxicity - dermal</u></b>	
<b>Acute toxicity dermal (LD<sub>50</sub> mg/kg)</b>	1,465.0
<b>Species</b>	Rabbit
<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>Skin corrosion/irritation</b>	Causes severe burns.
<b><u>Serious eye damage/irritation</u></b>	
<b>Serious eye damage/irritation</b>	Causes serious eye damage.
<b><u>Respiratory sensitisation</u></b>	
<b>Respiratory sensitisation</b>	May cause allergic reaction.
<b><u>Skin sensitisation</u></b>	
<b>Skin sensitisation</b>	May cause an allergic skin reaction.
<b><u>Germ cell mutagenicity</u></b>	
<b>Genotoxicity - in vitro</b>	Based on available data the classification criteria are not met.
<b><u>Carcinogenicity</u></b>	
<b>Carcinogenicity</b>	Based on available data the classification criteria are not met.
<b><u>Reproductive toxicity</u></b>	
<b>Reproductive toxicity - fertility</b>	Based on available data the classification criteria are not met.
<b><u>Specific target organ toxicity - single exposure</u></b>	
<b>STOT - single exposure</b>	Based on available data the classification criteria are not met.
<b><u>Specific target organ toxicity - repeated exposure</u></b>	
<b>STOT - repeated exposure</b>	Based on available data the classification criteria are not met.
<b><u>Aspiration hazard</u></b>	
<b>Aspiration hazard</b>	Based on available data the classification criteria are not met.
<b><u>TRIS-2,4,6-(DIMETHYLAMINOMETHYL)PHENOL</u></b>	
<b><u>Acute toxicity - oral</u></b>	
<b>Acute toxicity oral (LD<sub>50</sub> mg/kg)</b>	2,169.0
<b>Species</b>	Rat
<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>Skin corrosion/irritation</b>	Method: OECD 404, Rabbit Corrosive

## Permabond ET5401B

### Serious eye damage/irritation

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

### Skin sensitisation

**Skin sensitisation** Guinea pig maximization test (GPMT) - Guinea pig: Mild dermatitis, allergic skin rash.

### Germ cell mutagenicity

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

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

### Carcinogenicity

**Carcinogenicity** No information available.

### Reproductive toxicity

**Reproductive toxicity - fertility** Screening - NOAEL 15 mg/kg/day, Oral, Rat F1

**Reproductive toxicity - development** Developmental toxicity: - NOAEL: >150 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** No information available.

## 3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE

### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 1,030.0

**Species** Rat

### Acute toxicity - dermal

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)** 2,000.0

**Species** Rat

### Acute toxicity - inhalation

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

### Skin corrosion/irritation

**Skin corrosion/irritation** Corrosive to skin.

### Serious eye damage/irritation

**Serious eye damage/irritation** Method: OECD 405, Rabbit Corrosive

### Skin sensitisation



## Permabond ET5401B

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

### Germ cell mutagenicity

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

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

### Carcinogenicity

**Carcinogenicity** No information available.

### Reproductive toxicity

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

**Reproductive toxicity - development** Developmental toxicity: - NOAEL: >250 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

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

## AMINES, POLYETHYLENEPOLY-, TRIETHYLENETETRAMINE FRACTION POLYMER ADDUCT

### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 2,140.0

**Species** Rat

### Acute toxicity - dermal

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)** 1,260.0

**Species** Rabbit

## 2-PIPERAZIN-1-YLETHYLAMINE

### Acute toxicity - oral

**Acute toxicity oral (LD<sub>50</sub> mg/kg)** 1,500.0

**Species** Rat

### Acute toxicity - dermal

**Acute toxicity dermal (LD<sub>50</sub> mg/kg)** 866.0

**Species** Rabbit

### Acute toxicity - inhalation

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

### Skin corrosion/irritation

## Permabond ET5401B

<b>Animal data</b>	Severe skin irritation. Rabbit
<b><u>Serious eye damage/irritation</u></b>	
<b>Serious eye damage/irritation</b>	Highly irritating. Rabbit
<b><u>Skin sensitisation</u></b>	
<b>Skin sensitisation</b>	Guinea pig maximization test (GPMT) - Guinea pig: Sensitising.
<b><u>Germ cell mutagenicity</u></b>	
<b>Genotoxicity - in vitro</b>	Gene mutation: Negative.
<b>Genotoxicity - in vivo</b>	Chromosome aberration: Negative.
<b><u>Carcinogenicity</u></b>	
<b>Carcinogenicity</b>	No information available.
<b><u>Reproductive toxicity</u></b>	
<b>Reproductive toxicity - fertility</b>	Screening - NOAEC 8000 mg/l, Oral, Rat P
<b>Reproductive toxicity - development</b>	Developmental toxicity: - NOAEL: 75 mg/kg/day, Oral, Rabbit
<b><u>Specific target organ toxicity - single exposure</u></b>	
<b>STOT - single exposure</b>	No information available.
<b><u>Specific target organ toxicity - repeated exposure</u></b>	
<b>STOT - repeated exposure</b>	No information available.
<b><u>Aspiration hazard</u></b>	
<b>Aspiration hazard</b>	No information available.

### 3-AMINOPROPYLTRIETHOXYSILANE

<b><u>Acute toxicity - oral</u></b>	
<b>Acute toxicity oral (LD<sub>50</sub> mg/kg)</b>	1,780.0
<b>Species</b>	Rat
<b><u>Acute toxicity - inhalation</u></b>	
<b>Acute toxicity inhalation (LC<sub>50</sub> dust/mist mg/l)</b>	7.35
<b>Species</b>	Rat
<b><u>Skin corrosion/irritation</u></b>	
<b>Animal data</b>	Rabbit Corrosive.
<b><u>Serious eye damage/irritation</u></b>	
<b>Serious eye damage/irritation</b>	Rabbit Irreversible effect.
<b><u>Skin sensitisation</u></b>	
<b>Skin sensitisation</b>	Guinea pig maximization test (GPMT) - Guinea pig: Not sensitising. Buehler test - Guinea pig: Sensitising.

## Permabond ET5401B

### Germ cell mutagenicity

**Genotoxicity - in vitro** Ames test: Negative. Chromosome aberration: Negative.

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

### Carcinogenicity

**Carcinogenicity** NOAEL 209 mg/kg/day, Dermal, Mouse

### Reproductive toxicity

**Reproductive toxicity - fertility** - NOAEL 200 mg/kg/day, Oral, Rat P

**Reproductive toxicity - development** Developmental toxicity: - NOAEL: 100 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

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

## SECTION 12: Ecological information

**Ecotoxicity** Harmful to aquatic life with long lasting effects. Do not empty into drains.

### 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.

#### ATBN POLYMER

##### Acute aquatic toxicity

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 48 hours: > 1000 mg/l, Daphnia magna

**Acute toxicity - aquatic plants** EC<sub>50</sub>, 72 hours: > 1000 mg/l, Algae

#### POLYOXYPROPYLENEDIAMINE

##### Acute aquatic toxicity

**Acute toxicity - fish** EC<sub>50</sub>, 96 hours: 15 mg/l, Oncorhynchus mykiss (Rainbow trout)  
LC<sub>50</sub>, 96 hours: 772.14 mg/l, Cyprinodon variegatus (Sheepshead minnow)

**Acute toxicity - aquatic invertebrates** EC<sub>50</sub>, 48 hours: 80 mg/l, Daphnia magna

**Acute toxicity - aquatic plants** IC<sub>50</sub>, 72 hours: 141.72 mg/l, Algae  
EC<sub>50</sub>, 72 hours: 15 mg/l, Pseudokirchneriella subcapitata

#### AMINES, POLYETHYLENEPOLY-, TRIETHYLENETETRAMINE FRACTION

## Permabond ET5401B

### Acute aquatic toxicity

<b>Acute toxicity - fish</b>	LC <sub>50</sub> , 96 hours: 330 mg/l, Pimephales promelas (Fat-head Minnow)
<b>Acute toxicity - aquatic invertebrates</b>	EC <sub>50</sub> , 48 hours: 31.1 mg/l, Daphnia magna
<b>Acute toxicity - aquatic plants</b>	EC <sub>50</sub> , 48 hours: 3.7 mg/l, Scenedesmus subspicatus

### TRIS-2,4,6-(DIMETHYLAMINOMETHYL)PHENOL

### Acute aquatic toxicity

<b>Acute toxicity - fish</b>	LC <sub>50</sub> , 96 hours: 175 mg/l, Cyprinus carpio (Common carp)
<b>Acute toxicity - aquatic invertebrates</b>	LC <sub>50</sub> , 96 hours: 718 mg/l, Palaemonetes vulgaris
<b>Acute toxicity - aquatic plants</b>	EC <sub>50</sub> , 72 hours: 84 mg/l, Scenedesmus subspicatus
<b>Acute toxicity - microorganisms</b>	NOEC, 28 days: 2 mg/l, Activated sludge

### 3-AMINOMETHYL-3,5,5-TRIMETHYLCYCLOHEXYLAMINE

### Acute aquatic toxicity

<b>Acute toxicity - fish</b>	LC <sub>50</sub> , 96 hours: 110 mg/l, Leuciscus idus (Golden orfe)
<b>Acute toxicity - aquatic invertebrates</b>	EC <sub>50</sub> , 48 hours: 23 mg/l, Daphnia magna
<b>Acute toxicity - aquatic plants</b>	EC <sub>50</sub> , 72 hours: 50 mg/l, Scenedesmus subspicatus

### Chronic aquatic toxicity

<b>Chronic toxicity - aquatic invertebrates</b>	NOEC, 21 days: 3 mg/l, Daphnia magna
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### AMINES, POLYETHYLENEPOLY-, TRIETHYLENETETRAMINE FRACTION POLYMER ADDUCT

### Acute aquatic toxicity

<b>Acute toxicity - fish</b>	LC <sub>50</sub> , 96 hours: 420 mg/l, Poecilia reticulata (Guppy)
<b>Acute toxicity - aquatic invertebrates</b>	EC <sub>50</sub> , 48 hours: 24.1 mg/l, Daphnia magna

### 2-PIPERAZIN-1-YLETHYLAMINE

### Acute aquatic toxicity

<b>Acute toxicity - fish</b>	LC <sub>50</sub> , 96 hours: > 100 mg/l, Pimephales promelas (Fat-head Minnow) LC <sub>50</sub> , 96 hours: 2190 mg/l, Pimephales promelas (Fat-head Minnow)
<b>Acute toxicity - aquatic invertebrates</b>	EC <sub>50</sub> , 48 hours: 58 mg/l, Daphnia magna
<b>Acute toxicity - aquatic plants</b>	EC <sub>50</sub> , 72 hours: > 1000 mg/l, Pseudokirchneriella subcapitata

## Permabond ET5401B

### 3-AMINOPROPYLTRIETHOXYSILANE

#### Acute aquatic toxicity

**Acute toxicity - fish** NOEC, 96 hours:  $\geq$  934 mg/l, Brachydanio rerio (Zebra Fish)

**Acute toxicity - aquatic invertebrates** NOEC, 48 hours: 94 mg/l, Daphnia magna

**Acute toxicity - aquatic plants** NOEC, 72 hours: 1.3 mg/l, Scenedesmus subspicatus

**Acute toxicity - microorganisms** EC<sub>50</sub>, 5.75 hours: 43 mg/l, Pseudomonas putida

#### 12.2. Persistence and degradability

**Persistence and degradability** There are no data on the degradability of this product.

#### Ecological information on ingredients.

### POLYOXYPROPYLENEDIAMINE

**Persistence and degradability** The product is not biodegradable.

### 3-AMINOPROPYLTRIETHOXYSILANE

**Biodegradation** Water - Degradation 67%: 28 days

#### 12.3. Bioaccumulative potential

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

**Partition coefficient** Not available.

#### Ecological information on ingredients.

### 3-AMINOPROPYLTRIETHOXYSILANE

**Bioaccumulative potential** BCF: 3.4, Cyprinus carpio (Common carp)

#### 12.4. Mobility in soil

**Mobility** No data available.

#### Ecological information on ingredients.

### POLYOXYPROPYLENEDIAMINE

**Mobility** No data available.

**Adsorption/desorption coefficient** Not available.

#### 12.5. Results of PBT and vPvB assessment

**Results of PBT and vPvB assessment** This substance is not classified as PBT or vPvB according to current EU criteria.

#### Ecological information on ingredients.

### POLYOXYPROPYLENEDIAMINE

## Permabond ET5401B

**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

### 14.1. UN number

2735

### 14.2. UN proper shipping name

POLYAMINES, LIQUID, CORROSIVE, N.O.S. (contains Polyoxypropylenediamine and 2-Piperazin-1-ylethylamine)

### 14.3. Transport hazard class(es)

8

### Transport labels



### 14.4. Packing group

III

### 14.5. Environmental hazards

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

### 14.6. Special precautions for user

**EmS** F-A, S-B

**Tunnel restriction code** (E)

### 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

## Permabond ET5401B

<b>National regulations</b>	The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (SI 2009 No. 716). Control of Substances Hazardous to Health Regulations 2002 (as amended).
<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. Introduction to Local Exhaust Ventilation HS(G)37. CHIP for everyone HSG228. Approved Classification and Labelling Guide (Sixth edition) L131.

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

### SECTION 16: Other information

<b>Revision date</b>	29/01/2021
<b>Revision</b>	4
<b>Supersedes date</b>	02/07/2015
<b>Hazard statements in full</b>	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. H361 Suspected of damaging fertility or the unborn child. H372 Causes damage to organs through prolonged or repeated exposure. 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.