SAFETY DATA SHEET
Permabond ET514.9A

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

1.1. Product identifier

Product name Permabond ET514.9A

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 UK +44 (0)1962 711 661 USA 0800 640 7599 Asia +86 (0)21 5773 4913

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

Environmental hazards Aquatic Chronic 2 - H411

2.2. Label elements

Pictogram

Signal word Danger

Hazard statements

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
H411 Toxic to aquatic life with long lasting effects.

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Precautionary statements	P273 Avoid release to the environment. 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.
Supplemental label information	EUH205 Contains epoxy constituents. May produce an allergic reaction.
Contains	EPOXY RESIN (Number average MW <= 700), 1,4-BIS(2,3-EPOXYPROPOXY)BUTANE, TRIMETHYLOLPROPANE TRIACRYLATE
Supplementary precautionary statements	P264 Wash contaminated skin thoroughly after handling. P333+P313 If skin irritation or rash occurs: Get medical advice/ attention. P362+P364 Take off contaminated clothing and wash it before reuse. P391 Collect spillage. 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

PHENOL, POLYMER WITH FORMALDEHYDE, GLYCIDYL ETHER **30-60%**

CAS number: 28064-14-4 EC number: 608-164-0 REACH registration number: 01-2119454392-40-XXXX

Classification
Skin Sens. 1B - H317
Aquatic Chronic 2 - H411

EPOXY RESIN (Number average MW <= 700) **30-60%**

CAS number: 25068-38-6 EC number: 500-033-5 REACH registration number: 01-2119456619-26-XXXX

Classification
Skin Irrit. 2 - H315
Eye Irrit. 2 - H319
Skin Sens. 1 - H317
Aquatic Chronic 2 - H411

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1,4-BIS(2,3-EPOXYPROPOXY)BUTANE		1-5%
CAS number: 2425-79-8	EC number: 219-371-7	REACH registration number: 01-2119494060-45-XXXX

Classification
Acute Tox. 4 - H302
Acute Tox. 4 - H312
Acute Tox. 4 - H332
Skin Irrit. 2 - H315
Eye Dam. 1 - H318
Skin Sens. 1 - H317
Aquatic Chronic 3 - H412

TRIMETHYLOLPROPANE TRIACRYLATE		1-5%
CAS number: 15625-89-5	EC number: 239-701-3	REACH registration number: 01-2119489896-11-XXXX

Classification
Skin Irrit. 2 - H315
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

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 if any discomfort continues.

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

Eye contact 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.

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

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

Eye contact May cause 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 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

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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 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

8.2. Exposure controls

Protective equipment

Appropriate engineering controls Provide adequate 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 Nitrile rubber or Viton™ gloves are recommended. Cotton or other absorbent gloves should not be worn. Gloves should conform to EN 374. 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.

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

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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.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Paste.
Colour	White.
Odour	Mild.
Odour threshold	Not available.
pH	Not available.
Melting point	Not determined.
Initial boiling point and range	Not applicable.
Flash point	>100°C
Evaporation rate	Not available.
Vapour pressure	Not determined.
Vapour density	Not available.
Relative density	1.4
Solubility(ies)	Insoluble in water. Soluble in the following materials: Organic solvents.
Auto-ignition temperature	Not determined.
Decomposition Temperature	Not available.
Viscosity	≈90000 mPa s @ 23°C
Explosive properties	Not determined.
Oxidising properties	Not determined.

9.2. Other information

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: Amines.

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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 toxicological properties of this product have not been fully evaluated. Avoid direct contact with skin or eyes. Do not ingest or inhale.

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. May cause an allergic skin reaction.

Eye contact Causes serious eye damage.

Toxicological information on ingredients.

PHENOL, POLYMER WITH FORMALDEHYDE, GLYCIDYL ETHER

Acute toxicity - oral

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

Acute toxicity - dermal

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

EPOXY RESIN (Number average MW <= 700)

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	11,400.0

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Species	Rat
ATE oral (mg/kg)	11,400.0

Acute toxicity - dermal

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

1,4-BIS(2,3-EPOXYPROPOXY)BUTANE

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	1,163.0
Species	Rat
ATE oral (mg/kg)	1,163.0

Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg)	2,000.0
Species	Rabbit
ATE dermal (mg/kg)	2,000.0

Acute toxicity - inhalation

ATE inhalation (gases ppm)	4,500.0
ATE inhalation (vapours mg/l)	11.0
ATE inhalation (dusts/mists mg/l)	1.5

Skin corrosion/irritation

Animal data	Irritating to skin.

Serious eye damage/irritation

Serious eye damage/irritation	Irritating to eyes.

TRIMETHYLOLPROPANE TRIACRYLATE

Acute toxicity - oral

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

Acute toxicity - dermal

Permabond ET514.9A

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

SECTION 12: Ecological Information

Ecotoxicity Toxic to aquatic life with long lasting effects. Avoid release to the environment.

12.1. Toxicity

Toxicity No data available.

Ecological information on ingredients.

PHENOL, POLYMER WITH FORMALDEHYDE, GLYCIDYL ETHER

Acute toxicity - fish	LC_{50}, : 1 - 10 mg/l, Algae LC_{50}, 96 hours: 5.7 mg/l, Leuciscus idus (Golden orfe)
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 3.5 mg/l, Daphnia magna

EPOXY RESIN (Number average MW <= 700)

Acute toxicity - fish	LC_{50}, 24 hours: 4.4 mg/l, Onchorhynchus mykiss (Rainbow trout)
Acute toxicity - aquatic invertebrates	LC_{50}, 24 hours: 4.9 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC_{50}, 48 hours: 9.1 mg/l, Selenastrum capricornutum
Acute toxicity - microorganisms	IC_{50}, 3 hours: > 100 mg/l, Activated sludge
Chronic toxicity - aquatic invertebrates	NOEC, 21 days: 0.3 mg/l, Daphnia magna

1,4-BIS(2,3-EPOXYPROPOXY)BUTANE

Acute toxicity - fish	LC_{50}, 96 hours: 19.8 mg/l, Brachydanio rerio (Zebra Fish)
Acute toxicity - aquatic invertebrates	EC_{50}, 24 hours: 75 mg/l, Daphnia magna

TRIMETHYLOLPROPANE TRIACRYLATE

Acute toxicity - fish	LC_{50}, 96 hours: 1.47 mg/l, Leuciscus idus (Golden orfe)
Acute toxicity - aquatic invertebrates	LC_{50}, 48 hours: 19.9 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC_{50}, 72 hours: 18.85 mg/l, Pseudokirchneriella subcapitata

12.2. Persistence and degradability

Persistence and degradability The product is not readily biodegradable.

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Ecological information on ingredients.

PHENOL, POLYMER WITH FORMALDEHYDE, GLYCIDYL ETHER

Biodegradation - Degradation 10 - 16%: 28 days

EPOXY RESIN (Number average MW <= 700)

Biodegradation Water - 6 - 12%: 28 days

TRIMETHYLOLPROPANE TRIACRYLATE

Biodegradation Water - 86%: 28 days

12.3. Bioaccumulative potential

Ecological information on ingredients.

PHENOL, POLYMER WITH FORMALDEHYDE, GLYCIDYL ETHER

Bioaccumulative potential BCF: 100 - 3000,

Partition coefficient log Pow: 3.6

EPOXY RESIN (Number average MW <= 700)

Bioaccumulative potential BCF: 100 - 3000,

Partition coefficient log Pow: 3.242

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

TRIMETHYLOLPROPANE TRIACRYLATE

Adsorption/desorption coefficient - log Koc: 2.2 @ 25°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.

Permabond ET514.9A

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)

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 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).

Permabond ET514.9A

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. 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

Revision date	26/06/2017
Revision	2
Supersedes date	29/03/2016
Hazard statements in full	H302 Harmful if swallowed. H312 Harmful in contact with skin. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H319 Causes serious eye irritation. H332 Harmful if inhaled. H411 Toxic to aquatic life with long lasting effects. H412 Harmful to aquatic life with long lasting effects.

SAFETY DATA SHEET
Permabond ET514.9B

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

1.1. Product identifier

Product name Permabond ET514.9B

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 UK +44 (0)1962 711 661 USA 0800 640 7599 Asia +86 (0)21 5773 4913

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

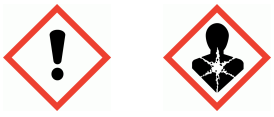
Physical hazards Not Classified

Health hazards Acute Tox. 4 - H332 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Resp. Sens. 1 - H334 Skin Sens. 1 - H317

Environmental hazards Not Classified

2.2. Label elements

Pictogram



Signal word Danger

Hazard statements

H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Permabond ET514.9B

Precautionary statements	P261 Avoid breathing vapour/ spray. 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. P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.
Supplemental label information	EUH205 Contains epoxy constituents. May produce an allergic reaction.
Contains	ETHYLENEDIAMINE
Supplementary precautionary statements	P264 Wash contaminated skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. P284 [In case of inadequate ventilation] wear respiratory protection. 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. 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

ETHYLENEDIAMINE **1-5%**

CAS number: 107-15-3 EC number: 203-468-6

Classification
Flam. Liq. 3 - H226
Acute Tox. 4 - H302
Acute Tox. 4 - H312
Skin Corr. 1B - H314
Eye Dam. 1 - H318
Resp. Sens. 1 - H334
Skin Sens. 1 - H317

Classification (67/548/EEC or 1999/45/EC)
R10 C;R34 Xn;R21/22 R42/43

EPOXY RESIN (Number average MW <= 700) **<1%**

CAS number: 25068-38-6 EC number: 500-033-5 REACH registration number: 01-2119456619-26-XXXX

Classification
Skin Irrit. 2 - H315
Eye Irrit. 2 - H319
Skin Sens. 1 - H317
Aquatic Chronic 2 - H411

Classification (67/548/EEC or 1999/45/EC)
R43 Xi;R36/38 N;R51/53

Permabond ET514.9B

OXIRANE, MONO [(C12-14- ALKYLOXY)METHYL] DERIVS		<1%
CAS number: 68609-97-2	EC number: 271-846-8	REACH registration number: 01-2119485289-22-XXXX

Classification	Classification (67/548/EEC or 1999/45/EC)
Skin Irrit. 2 - H315 Skin Sens. 1 - H317	R43 Xi;R38

The Full Text for all R-Phrases and Hazard Statements are 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 Never give anything by mouth to an unconscious person. Do not induce vomiting. Rinse mouth thoroughly with water. Give plenty of water to drink. Get medical attention if any discomfort continues.

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 if any discomfort continues.

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

Inhalation Gas or vapour in high concentrations may irritate the respiratory system. Frequent inhalation of vapours may cause respiratory allergy.

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

Eye contact May cause severe eye irritation.

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

Notes for the doctor No specific recommendations. If in doubt, get medical attention promptly. Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

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

Permabond ET514.9B

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 Use in a well ventilated area. Avoid inhalation of vapours. Avoid contact with skin and eyes. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

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

Occupational exposure limits

ETHYLENEDIAMINE

Long-term exposure limit (8-hour TWA): WEL 10 ppm(Sk) 25 mg/m3(Sk)
WEL = Workplace Exposure Limit

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 Nitrile rubber or Viton™ gloves are recommended. Cotton or other absorbent gloves should not be worn. Gloves should conform to EN 374. 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.

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. When using do not eat, drink or smoke.

Respiratory protection If ventilation is inadequate, suitable respiratory protection must be worn.

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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.
Flash point	>100°C
Evaporation rate	Not available.
Vapour pressure	Not determined.
Vapour density	Not determined.
Relative density	1.2
Solubility(ies)	Slightly soluble in water. Soluble in the following materials: Organic solvents.
Auto-ignition temperature	Not determined.
Decomposition Temperature	Not determined.
Viscosity	≈32000 mPa s @ 23°C
Explosive properties	Not determined.
Oxidising properties	Not applicable.

9.2. Other information

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.

Permabond ET514.9B

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicological effects The toxicological properties of this product have not been fully evaluated. Avoid direct contact with skin or eyes. Do not ingest or inhale.

Respiratory sensitisation

Respiratory sensitisation Frequent inhalation of vapours may cause respiratory allergy.

Skin sensitisation

Skin sensitisation May cause sensitisation by skin contact.

Aspiration hazard

Aspiration hazard None under normal conditions.

Inhalation Vapour from this product may be hazardous by inhalation.

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

Skin contact Irritating to skin. May cause sensitisation by skin contact.

Eye contact Irritating and may cause redness and pain.

ETHYLENEDIAMINE

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	500.0
Species	Rat
ATE oral (mg/kg)	500.0

Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg)	730.0
Species	Rabbit
ATE dermal (mg/kg)	1,100.0

EPOXY RESIN (Number average MW <= 700)

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	11,400.0
Species	Rat
ATE oral (mg/kg)	11,400.0

Acute toxicity - dermal

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

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SECTION 12: Ecological Information

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

12.1. Toxicity

Toxicity There are no data on the ecotoxicity of this product.

EPOXY RESIN (Number average MW <= 700)

Acute toxicity - fish	LC_{50}, 24 hours: 4.4 mg/l, Onchorhynchus mykiss (Rainbow trout)
Acute toxicity - aquatic invertebrates	LC_{50}, 24 hours: 4.9 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC_{50}, 48 hours: 9.1 mg/l, Selenastrum capricornutum
Acute toxicity - microorganisms	IC_{50}, 3 hours: > 100 mg/l, Activated sludge
Chronic toxicity - aquatic invertebrates	NOEC, 21 days: 0.3 mg/l, Daphnia magna

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Acute toxicity - fish	LC_{50}, 96 hours: 1.8 mg/l, Onchorhynchus mykiss (Rainbow trout)
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 7.2 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC_{50}, 72 hours: ≈844 mg/l, Freshwater algae

12.2. Persistence and degradability

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

EPOXY RESIN (Number average MW <= 700)

Biodegradation	Water - 6 - 12%: 28 days

12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

EPOXY RESIN (Number average MW <= 700)

Bioaccumulative potential	BCF: 100 - 3000,
Partition coefficient	log Pow: 3.242

12.4. Mobility in soil

Mobility No data available.

EPOXY RESIN (Number average MW <= 700)

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

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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

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).
Control of Substances Hazardous to Health Regulations 2002 (as amended).

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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. 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

Revision date	29/03/2016
Revision	1
Hazard statements in full	H226 Flammable liquid and vapour. H302 Harmful if swallowed. H312 Harmful in contact with skin. H314 Causes severe skin burns and eye damage. H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H319 Causes serious eye irritation. H332 Harmful if inhaled. H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. H411 Toxic to aquatic life with long lasting effects.