SAFETY DATA SHEET
Permabond ET5428B

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

1.1. Product identifier

Product name Permabond ET5428B

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 Corr. 1A - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317

Environmental hazards Not Classified

Classification (67/548/EEC or 1999/45/EC) C;R34. R52/53.

2.2. Label elements

Pictogram

Signal word Danger

Hazard statements
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.

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Precautionary statements	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.
Contains	3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE), 2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL
Supplementary precautionary statements	P264 Wash contaminated skin thoroughly after handling. 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

3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE) **30-60%**

CAS number: 4246-51-9 EC number: 224-207-2

Classification	Classification (67/548/EEC or 1999/45/EC)
Skin Corr. 1B - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317	C;R34. R52/53.

CALCIUM NITRATE TETRAHYDRATE **5-10%**

CAS number: 13477-34-4 EC number: 603-865-8

Classification	Classification (67/548/EEC or 1999/45/EC)
Ox. Sol. 2 - H272 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 STOT SE 3 - H335	Xi;R36/37/38. O;R8.

2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL **5-10%**

CAS number: 90-72-2 EC number: 202-013-9

Classification	Classification (67/548/EEC or 1999/45/EC)
Skin Corr. 1A - H314 Skin Sens. 1 - H317 Aquatic Chronic 3 - H412	Xn;R22 Xi;R36/38

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BIS[(DIMETHYLAMINO)METHYL]PHENOL		1-5%
CAS number: 71074-89-0	EC number: 275-162-0	

Classification	Classification (67/548/EEC or 1999/45/EC)
Skin Corr. 1B - H314 Eye Dam. 1 - H318	C;R34.

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. Rinse mouth thoroughly with water. Give plenty of water to drink. DO NOT induce vomiting. Get medical attention immediately.

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. Show this Safety Data Sheet to the medical personnel.

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

Inhalation Irritation of nose, throat and airway.

Ingestion May cause chemical burns in mouth and throat.

Skin contact Chemical burns. 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

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.

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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.

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

Ingredient comments No exposure limits known for ingredient(s).

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 hands 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 No specific recommendations. Respiratory protection may be required if excessive airborne contamination occurs.

SECTION 9: Physical and Chemical Properties

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9.1. Information on basic physical and chemical properties

Appearance	Paste.
Colour	Cream. or 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	1.1
Solubility(ies)	Slightly soluble in water. Soluble in the following materials: Organic solvents.
Auto-ignition temperature	Not determined.
Decomposition Temperature	Not determined.
Viscosity	≈1100000 mPa s @ 23°C Thixotropic
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.

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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 Causes burns. May cause chemical burns in mouth and throat. May cause stomach pain or vomiting.

Skin contact This product is strongly irritating. Prolonged contact may cause burns.

Eye contact Causes serious eye damage.

Toxicological information on ingredients.

3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	3,160.0
Species	Rat
ATE oral (mg/kg)	3,160.0

Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg)	2,150.0
Species	Rat
ATE dermal (mg/kg)	2,150.0

CALCIUM NITRATE TETRAHYDRATE

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	3,900.0
Species	Rat
ATE oral (mg/kg)	3,900.0

2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	1,200.0

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Species	Rat

Acute toxicity - dermal

Acute toxicity dermal (LD_{50} mg/kg)	1,280.0
Species	Rat

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.

Ecological information on ingredients.

3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)

Acute toxicity - fish	LC_{50}, 96 hours: > 215 - < 464 mg/l, Leuciscus idus (Golden orfe)
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 218 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC_{50}, 72 hours: > 500 mg/l, Scenedesmus subspicatus
Acute toxicity - microorganisms	EC_{50}, 17 hours: 221.9 mg/l, Pseudomonas putida

2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL

Acute toxicity - fish	LC_{80}, 96 hours: > 180 - < 240 mg/l, Onchorhynchus mykiss (Rainbow trout)
Acute toxicity - aquatic invertebrates	LC_{50}, 96 hours: 718 mg/l, Palaemonetes vulgaris
Acute toxicity - aquatic plants	EC_{50}, 72 hours: 84 mg/l, Desmodesmus subspicatus
Acute toxicity - microorganisms	NOEC, 28 days: 2 mg/l, Activated sludge

12.2. Persistence and degradability

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

Ecological information on ingredients.

3,3'-OXYBIS(ETHYLENEOXY)BIS(PROPYLAMINE)

Biodegradation	Water - Degradation 10%: < 60 days

2,4,6-TRIS(DIMETHYLAMINOMETHYL)PHENOL

Biodegradation	Water - 4%: 28 days

12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

12.4. Mobility in soil

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Mobility No data 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.

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 3,3'-Oxybis(ethyleneoxy)bis(propylamine))

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

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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).

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 09/06/2015

Revision 2

Supersedes date 24/12/2012

Risk phrases in full

R22 Harmful if swallowed.
R34 Causes burns.
R36/37/38 Irritating to eyes, respiratory system and skin.
R36/38 Irritating to eyes and skin.
R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R8 Contact with combustible material may cause fire.

Hazard statements in full

H272 May intensify fire; oxidiser.
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.