SAFETY DATA SHEET
Permabond UV683

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

1.1. Product identifier

Product name Permabond UV683

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

Identified uses Adhesive.

1.3. Details of the supplier of the safety data sheet

Supplier

Permabond Engineering Adhesives Ltd.
Wessex Way
Colden Common
Winchester
Hampshire. SO21 1WP
United Kingdom
Tel: +44 (0)1962 711 661
Fax: +44 (0)1962 711 662
info.europe@permabond.com

1.4. Emergency telephone number

Emergency telephone 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. 1C - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317 STOT SE 3 - H335

Environmental hazards Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410

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.
H335 May cause respiratory irritation.
H410 Very toxic to aquatic life with long lasting effects.

Permabond UV683

Precautionary statements

P273 Avoid release to the environment.
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

ISOBORNYL ACRYLATE, TETRAHYDROFURFURYL ACRYLATE, HEXAMETHYLENE DIACRYLATE, 1,1,1-TRIMETHYLOLPROPANE TRI(3-MERCAPTOPROPIONATE)

Supplementary precautionary statements

P264 Wash contaminated skin thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.
P362+P364 Take off contaminated clothing and wash it before reuse.
P391 Collect spillage.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/container in accordance with existing Community, National and local regulations.

2.3. Other hazards

None under normal conditions.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

URETHANE ACRYLATE OLIGOMER **30-60%**

CAS number: 73297-29-7

Classification	Classification (67/548/EEC or 1999/45/EC)
Skin Irrit. 2 - H315 Eye Irrit. 2 - H319	Xi;R36/38.

ISOBORNYL ACRYLATE **10-30%**

CAS number: 5888-33-5	EC number: 227-561-6	REACH registration number: 01-2119957862-25-XXXX
M factor (Acute) = 1	M factor (Chronic) = 1	

Classification	Classification (67/548/EEC or 1999/45/EC)
Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Skin Sens. 1 - H317 STOT SE 3 - H335 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	Xi;R36/37/38. N;R51/53.

Permabond UV683

TETRAHYDROFURFURYL ACRYLATE		10-30%
CAS number: 2399-48-6	EC number: 219-268-7	

Classification	Classification (67/548/EEC or 1999/45/EC)
Skin Corr. 1C - H314 Eye Irrit. 2 - H319	Xi;R36/38.

HEXAMETHYLENE DIACRYLATE		10-30%
CAS number: 13048-33-4	EC number: 235-921-9	

Classification	Classification (67/548/EEC or 1999/45/EC)
Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Skin Sens. 1 - H317	R43 Xi;R36/38

1,1,1-TRIMETHYLOLPROPANE TRI(3-MERCAPTOPROPIONATE)		5-10%
CAS number: 33007-83-9	EC number: 251-336-1	
M factor (Acute) = 1	M factor (Chronic) = 1	

Classification	Classification (67/548/EEC or 1999/45/EC)
Acute Tox. 4 - H302 Skin Sens. 1 - H317 Aquatic Acute 1 - H400 Aquatic Chronic 1 - H410	Xn;R22. N;R50/53. R43.

TRIS(2-HYDROXYETHYL)ISOCYANURATE TRIACRYLATE		5-10%
CAS number: 40220-08-4	EC number: 254-843-6	

Classification	Classification (67/548/EEC or 1999/45/EC)
Eye Dam. 1 - H318	Xi;R36/38.

DIPHENYL(2,4,6-TRIMETHYLBENZOYL)PHOSPHINE OXIDE		1-<3%
CAS number: 75980-60-8	EC number: 278-355-8	REACH registration number: 01-2119972295-29-XXXX

Classification	Classification (67/548/EEC or 1999/45/EC)
Skin Sens. 1B - H317 Repr. 2 - H361f Aquatic Chronic 2 - H411	Repr. Cat. 3;R62. N;R51/53.

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.

Permabond UV683

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. Get medical attention promptly if symptoms occur after washing.

Eye contact Remove any contact lenses and open eyelids wide apart. Promptly wash eyes with plenty of water while lifting the eye lids. Continue to rinse for at least 15 minutes. Get medical attention.

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

Inhalation May cause respiratory irritation.

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

Hazardous combustion products Burning produces irritating, toxic and obnoxious fumes. 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.

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

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Storage precautions Store in closed original container at temperatures between 2°C and 7°C. Protect against direct sunlight. Never return unused material to storage receptacle.

7.3. Specific end use(s)

Specific end use(s) Adhesive.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

8.2. Exposure controls

Protective equipment

Appropriate engineering controls Provide adequate general and local exhaust ventilation. Avoid inhalation of vapours. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection The following protection should be worn: Chemical splash goggles or face shield. Personal eye protection should conform to EN 166

Hand protection 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. 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 Liquid.

Colour Colourless.

Odour Acrylic

Odour threshold Not available.

pH Not relevant.

Melting point Not available.

Initial boiling point and range Not applicable.

Flash point >100°C

Evaporation rate Not available.

Permabond UV683

Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	1.1
Solubility(ies)	Insoluble in water. Soluble in the following materials: Organic solvents.
Auto-ignition temperature	Not available.
Viscosity	≈1300 mPa s @ 23°C
Oxidising properties	Not available.

9.2. Other information

Other information	Not relevant.

SECTION 10: Stability and reactivity

10.1. Reactivity

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

10.2. Chemical stability

Stability	Stable at normal ambient temperatures.

10.3. Possibility of hazardous reactions

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

10.4. Conditions to avoid

Conditions to avoid	Protect against direct sunlight.

10.5. Incompatible materials

Materials to avoid	Strong reducing agents. Strong 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 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	May cause respiratory irritation.
Skin contact	This product is strongly irritating. Prolonged contact may cause burns.
Eye contact	Causes serious eye damage.

Permabond UV683

Toxicological information on ingredients.

ISOBORNYL ACRYLATE

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

Acute toxicity dermal (LD_{50} mg/kg)	3,000.0
Species	Rabbit
ATE dermal (mg/kg)	3,000.0

HEXAMETHYLENE DIACRYLATE

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

Acute toxicity dermal (LD_{50} mg/kg)	3,650.0
Species	Rabbit
ATE dermal (mg/kg)	3,650.0

TRIS(2-HYDROXYETHYL)ISOCYANURATE TRIACRYLATE

Acute toxicity - oral

Acute toxicity oral (LD_{50} mg/kg)	2,500.0
Species	Rat
ATE oral (mg/kg)	2,500.0

DIPHENYL(2,4,6-TRIMETHYLBENZOYL)PHOSPHINE OXIDE

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 UV683

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

SECTION 12: Ecological Information

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

12.1. Toxicity

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

Ecological information on ingredients.

ISOBORNYL ACRYLATE

Acute aquatic toxicity

$LE(C)_{50}$	0.1 < L(E)C50 ≤ 1
M factor (Acute)	1
Acute toxicity - fish	LC_{50}, 96 hours: 0.704 mg/l, Danio rerio (Zebrafish)
Acute toxicity - aquatic plants	EC_{50}, 72 hours: 1.98 mg/l, Pseudokirchneriella subcapitata NOEC, 72 hours: 0.405 mg/l, Pseudokirchneriella subcapitata

Chronic aquatic toxicity

M factor (Chronic)	1
Chronic toxicity - aquatic invertebrates	NOEC, 21 days: 0.092 mg/l, Daphnia magna

HEXAMETHYLENE DIACRYLATE

Acute toxicity - fish	LC_{50}, 96 hours: 4.6 mg/l, Leuciscus idus (Golden orfe)
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 2.6 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC_{50}, 72 hours: 1.5 mg/l, Desmodesmus subspicatus
Acute toxicity - microorganisms	EC_{20}, 30 minutes: 60 mg/l, Activated sludge

1,1,1-TRIMETHYLOLPROPANE TRI(3-MERCAPTOPROPIONATE)

Acute aquatic toxicity

$LE(C)_{50}$	0.1 < L(E)C50 ≤ 1
M factor (Acute)	1

Chronic aquatic toxicity

M factor (Chronic)	1

DIPHENYL(2,4,6-TRIMETHYLBENZOYL)PHOSPHINE OXIDE

Permabond UV683

Acute toxicity - fish	LC_{50}, 48 hours: 6.53 mg/l, Oryzias latipes (Red killifish)
Acute toxicity - aquatic invertebrates	EC_{50}, 48 hours: 3.53 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC_{50}, 72 hours: > 2.01 mg/l, Pseudokirchneriella subcapitata
Acute toxicity - microorganisms	EC_{50}, 180 minutes: > 1000 mg/l, Activated sludge

12.2. Persistence and degradability

Persistence and degradability No data available.

Ecological information on ingredients.

ISOBORNYL ACRYLATE

Biodegradation Water - Degradation 57%: 28 days

HEXAMETHYLENE DIACRYLATE

Biodegradation The substance is readily biodegradable.

DIPHENYL(2,4,6-TRIMETHYLBENZOYL)PHOSPHINE OXIDE

Biodegradation Water - Degradation < 20%: 28 days

12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

Ecological information on ingredients.

HEXAMETHYLENE DIACRYLATE

Partition coefficient log Pow: ~ 2.81

DIPHENYL(2,4,6-TRIMETHYLBENZOYL)PHOSPHINE OXIDE

Bioaccumulative potential BCF: 23 - 55, Cyprinus carpio (Common carp)

12.4. Mobility in soil

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.

Permabond UV683

Disposal methods Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority.

Waste class 08 04 09* waste adhesives and sealants containing organic solvents or other dangerous substances.

SECTION 14: Transport information

14.1. UN number

1760

14.2. UN proper shipping name

CORROSIVE LIQUID, N.O.S. (contains Tetrahydrofurfuryl acrylate)

14.3. Transport hazard class(es)

8

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-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

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

EU legislation Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).
COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

Permabond UV683

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	09/05/2017
Revision	5
Supersedes date	29/03/2016
Risk phrases in full	R22 Harmful if swallowed. R36/37/38 Irritating to eyes, respiratory system and skin. R36/38 Irritating to eyes and skin. R43 May cause sensitisation by skin contact. R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R62 Possible risk of impaired fertility.
Hazard statements in full	H302 Harmful if swallowed. 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. H361f Suspected of damaging fertility. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H411 Toxic 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.