

Permabond®

Engineering Adhesives

SAFETY DATA SHEET

Permabond MS359 Clear

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

1.1. Product identifier

Product name Permabond MS359 Clear

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 Eye Dam. 1 - H318

Environmental hazards Not Classified

2.2. Label elements

Pictogram



Signal word Danger

Hazard statements H318 Causes serious eye damage.

Precautionary statements P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P280 Wear protective gloves, eye and face protection.
P308+P313 IF exposed or concerned: Get medical advice/ attention.

Contains 3-(TRIMETHOXYSILYL)PROPYLAMINE, [3-(2,3-EPOXYPROPOXY)PROPYL]TRIMETHOXYSILANE

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2.3. Other hazards

None under normal conditions.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

3-(TRIMETHOXYSILYL)PROPYLAMINE	1-5%
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CAS number: 13822-56-5	EC number: 237-511-5
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Classification

Skin Irrit. 2 - H315
Eye Dam. 1 - H318

[3-(2,3-EPOXYPROPOXY)PROPYL]TRIMETHOXYSILANE	1-5%
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CAS number: 2530-83-8	EC number: 219-784-2	REACH registration number: 01-2119513212-58-XXXX
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Classification

Eye Dam. 1 - H318

PENTAMETHYL PIPERIDYL SEBACATE	<1%
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CAS number: —	EC number: 915-687-0
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M factor (Acute) = 1	M factor (Chronic) = 1
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Classification

Skin Sens. 1 - H317
Aquatic Acute 1 - H400
Aquatic Chronic 1 - H410

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	Give a few small glasses of water or milk to drink. Never give anything by mouth to an unconscious person. Get medical attention.
Skin contact	Remove contaminated clothing. Wash skin thoroughly with soap and water. If symptoms develop, obtain medical attention
Eye contact	Remove any contact lenses and open eyelids wide apart. Rinse immediately with plenty of water for 15 minutes holding the eyelids open. Get medical attention.

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

Skin contact	Prolonged contact may cause redness, irritation and dry skin.
Eye contact	Causes serious eye damage.

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

Notes for the doctor	No specific recommendations. Treat symptomatically.
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SECTION 5: Firefighting measures

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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 Thermal decomposition could produce carbon monoxide, carbon dioxide, and unidentified organic compounds. Burning produces irritating, toxic and obnoxious fumes.

5.3. Advice for firefighters

Special protective equipment for firefighters Wear self contained breathing apparatus and 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 Avoid 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

Storage precautions Store in tightly-closed, original container in a dry and cool place.

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 ventilation. 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

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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	Uniforms, coveralls, or a lab coat should be worn
Hygiene measures	Wash at the end of each work shift and before eating, smoking and using the toilet. 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	Transparent paste.
Colour	Colourless.
Odour	Characteristic.
Odour threshold	Not available.
pH	Not determined.
Melting point	Not determined.
Initial boiling point and range	Not determined.
Flash point	>100°C
Evaporation rate	Not determined.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	1.1
Partition coefficient	Not determined.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not determined.
Viscosity	Not determined. Thixotropic
Explosive properties	Not applicable.
Oxidising properties	Not applicable.

9.2. Other information

Other information	Not relevant.
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SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	There are no known reactivity hazards associated with this product.
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10.2. Chemical stability

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Stability Stable at normal ambient temperatures and when used as recommended.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions No specific material or group of materials is likely to react with the product to produce a hazardous situation.

10.4. Conditions to avoid

Conditions to avoid Avoid heat, flames and other sources of ignition.

10.5. Incompatible materials

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

Aspiration hazard

Aspiration hazard Not applicable.

Inhalation

Unlikely to be hazardous by inhalation because of the low vapour pressure of the product at ambient temperature.

Ingestion

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

Skin contact

Prolonged and frequent contact may cause redness and irritation.

Eye contact

Causes serious eye damage.

Toxicological information on ingredients.

3-(TRIMETHOXYSILYL)PROPYLAMINE

Skin corrosion/irritation

Animal data Irritating.

Serious eye damage/irritation

Serious eye damage/irritation Risk of serious damage to eyes.

Skin sensitisation

Skin sensitisation Guinea pig maximization test (GPMT) - Guinea pig: Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro Chromosome aberration: Negative.

Reproductive toxicity

Reproductive toxicity - development Developmental toxicity: - NOAEL: 100 mg/kg, Oral, Rat

Specific target organ toxicity - repeated exposure

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STOT - repeated exposure NOAEL 200 mg/kg, Oral, Rat LOAEL 600 mg/kg, Oral, Rat LOAEC 0.147 mg/l, Inhalation, Rat

Target organs Liver Respiratory system, lungs

[3-(2,3-EPOXYPROPOXY)PROPYL]TRIMETHOXYSILANE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 7,010.0

Species Rat

ATE oral (mg/kg) 7,010.0

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 6,800.0

Species Rabbit

ATE dermal (mg/kg) 6,800.0

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ dust/mist mg/l) 5.3

Species Rat

ATE inhalation (dusts/mists mg/l) 5.3

Reproductive toxicity

Reproductive toxicity - fertility - NOAEL 500 mg/kg/day, Oral, Rat P

Reproductive toxicity - development Maternal toxicity: - NOAEL: 200 mg/kg/day, Oral, Rabbit

PENTAMETHYL PIPERIDYL SEBACATE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 3,230.0

Species Rat

ATE oral (mg/kg) 3,230.0

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 3,170.0

Species Rat

ATE dermal (mg/kg) 3,170.0

SECTION 12: Ecological Information

Ecotoxicity

Not regarded as dangerous for the environment.

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12.1. Toxicity

Toxicity No data available.

Ecological information on ingredients.

3-(TRIMETHOXYSILYL)PROPYLAMINE

Acute toxicity - fish	LC ₅₀ , 96 hours: > 934 mg/l, Danio rerio (Zebrafish)
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: 331 mg/l, Daphnia magna
Acute toxicity - aquatic plants	IC ₅₀ , 72 hours: > 1000 mg/l, Pseudokirchneriella subcapitata
Acute toxicity - microorganisms	EC ₅₀ , 5.75 hours: 43 mg/l, Pseudomonas putida

[3-(2,3-EPOXYPROPOXY)PROPYL]TRIMETHOXYSILANE

Acute toxicity - fish	LC ₅₀ , 96 hours: 55 mg/l, Cyprinus carpio (Common carp)
Acute toxicity - aquatic invertebrates	NOEC, 48 hours: < 250 mg/l, Daphnia magna
Acute toxicity - aquatic plants	NOEC, 96 days: 130 mg/l, Pseudokirchneriella subcapitata
Acute toxicity - microorganisms	NOEC, 3 hours: > 100 mg/l, Activated sludge
Chronic toxicity - aquatic invertebrates	NOEC, 21 days: >= 100 mg/l, Daphnia magna

PENTAMETHYL PIPERIDYL SEBACATE

Acute aquatic toxicity

LE(C)₅₀	0.1 < L(E)C ₅₀ ≤ 1
M factor (Acute)	1
Acute toxicity - fish	LC ₅₀ , 96 hours: 0.9 mg/l, Danio rerio (Zebrafish)
Acute toxicity - aquatic plants	EC ₅₀ , 72 hours: 1.68 mg/l, Desmodemus subspicatus
Acute toxicity - microorganisms	IC ₂₀ , 3 hours: >= 100 mg/l, Activated sludge
Chronic aquatic toxicity	
M factor (Chronic)	1
Chronic toxicity - aquatic invertebrates	LOEC, 21 hour: 1.6 mg/l, Daphnia magna

12.2. Persistence and degradability

Persistence and degradability No data available.

Ecological information on ingredients.

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3-(TRIMETHOXYSILYL)PROPYLAMINE

Stability (hydrolysis) pH7 - Half-life : 8.5 hours @ 24.7°C

Biodegradation Water - Degradation 67%: 28 days

[3-(2,3-EPOXYPROPOXY)PROPYL]TRIMETHOXYSILANE

Biodegradation Water - 37%: 28 days

PENTAMETHYL PIPERIDYL SEBACATE

Biodegradation Water - 38%: 28 days

12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

Partition coefficient Not determined.

12.4. Mobility in soil

Mobility The product is insoluble in water.

Ecological information on ingredients.

PENTAMETHYL PIPERIDYL SEBACATE

Henry's law constant 0.000000776 Pa m³/mol @ 25°C

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

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 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

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)

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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 relevant.

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Not relevant.

**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

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) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
Guidance	Workplace Exposure Limits EH40. CHIP for everyone HSG228. Approved Classification and Labelling Guide (Sixth edition) L131. Safety Data Sheets for Substances and Preparations.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SECTION 16: Other information

Revision date	28/07/2017
Revision	3
Supersedes date	14/09/2015
Hazard statements in full	H315 Causes skin irritation. H317 May cause an allergic skin reaction. H318 Causes serious eye damage. H400 Very toxic to aquatic life. H410 Very 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.