

Permabond®

Engineering Adhesives

SAFETY DATA SHEET

Permabond TA4204A

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

1.1. Product identifier

Product name Permabond TA4204A

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 GmbH
Niederkasseler Lohweg 18
40547 Düsseldorf
Germany
info.europe@permabond.com

Manufacturer Permabond Engineering Adhesives Ltd.
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Colden Common
Winchester
Hampshire SO21 1WP
United Kingdom
Tel: +44 (0)1962 711 661
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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 Flam. Liq. 2 - H225

Health hazards Skin Corr. 1A - H314 Eye Dam. 1 - H318 Skin Sens. 1 - H317 STOT SE 3 - H335

Environmental hazards Aquatic Chronic 3 - H412

2.2. Label elements

Hazard pictograms



Signal word

Danger

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Hazard statements	H225 Highly flammable liquid and vapour. H314 Causes severe skin burns and eye damage. H317 May cause an allergic skin reaction. H335 May cause respiratory irritation. H412 Harmful to aquatic life with long lasting effects.
Precautionary statements	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. 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	METHYL METHACRYLATE, 2-HYDROXYETHYL METHACRYLATE, 2-ETHYLHEXYL METHACRYLATE, METHACRYLIC ACID
Supplementary precautionary statements	P243 Take action to prevent static discharges. P261 Avoid breathing vapour/ spray. P264 Wash contaminated skin thoroughly after handling. P271 Use only outdoors or in a well-ventilated area. 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. P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish. P403+P235 Store in a well-ventilated place. Keep cool. 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. This substance is not classified as PBT or vPvB according to current EU criteria.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

METHYL METHACRYLATE		30-60%
CAS number: 80-62-6	EC number: 201-297-1	REACH registration number: 01-2119452498-28-XXXX
Classification		
Flam. Liq. 2 - H225		
Skin Irrit. 2 - H315		
Skin Sens. 1 - H317		
STOT SE 3 - H335		

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2-HYDROXYETHYL METHACRYLATE	10-30%
CAS number: 868-77-9	EC number: 212-782-2
	REACH registration number: 01-2119490169-29-XXXX
Classification	
Skin Irrit. 2 - H315	
Eye Irrit. 2 - H319	
Skin Sens. 1 - H317	
2-ETHYLHEXYL METHACRYLATE	5-10%
CAS number: 688-84-6	EC number: 211-708-6
	REACH registration number: 01-2119490166-35-XXXX
Classification	
Skin Irrit. 2 - H315	
Eye Irrit. 2 - H319	
Skin Sens. 1 - H317	
STOT SE 3 - H335	
Aquatic Chronic 3 - H412	
METHACRYLIC ACID	5-10%
CAS number: 79-41-4	EC number: 201-204-4
	REACH registration number: 01-2119463884-26-XXXX
Classification	
Acute Tox. 4 - H302	
Acute Tox. 3 - H311	
Acute Tox. 4 - H332	
Skin Corr. 1A - H314	
Eye Dam. 1 - H318	
STOT SE 3 - H335	
TRIMETHYLOLPROPANE TRIMETHACRYLATE	1-5%
CAS number: 3290-92-4	EC number: 221-950-4
	REACH registration number: 01-2119542176-41-XXXX
Classification	
Aquatic Chronic 2 - H411	

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CUMENE HYDROPEROXIDE			<1%
CAS number: 80-15-9	EC number: 201-254-7	REACH registration number: 01-2119475796-19-XXXX	

Classification

Org. Perox. E - H242
 Acute Tox. 4 - H302
 Acute Tox. 4 - H312
 Acute Tox. 3 - H331
 Skin Corr. 1B - H314
 Eye Dam. 1 - H318
 STOT SE 3 - H335
 STOT RE 2 - H373
 Aquatic Chronic 2 - H411

2,6-DI-TERT-BUTYL-P-CRESOL			<1%
CAS number: 128-37-0	EC number: 204-881-4		
M factor (Acute) = 1	M factor (Chronic) = 1		
REACH registration exemption – < 1 tonne			

Classification

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	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. 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

Inhalation	Irritating to respiratory system.
Skin contact	Chemical burns. Mild dermatitis, allergic skin rash.
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

5.1. Extinguishing media

Suitable extinguishing media	Extinguish with foam, carbon dioxide, dry powder or water fog.
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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 Flammable liquid and vapour. Vapours are heavier than air and may travel along the floor and accumulate in the bottom of containers. Vapours may be ignited by a spark, a hot surface or an ember.

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 Eliminate all sources of ignition. Ensure adequate ventilation of the working area. Do not breathe vapour. Wear protective clothing as described in Section 8 of this safety data sheet.

6.2. Environmental precautions

Environmental precautions Avoid the spillage or runoff entering drains, sewers or watercourses.

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. Use in a well ventilated area. Do not ingest or inhale. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharges.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Keep container tightly closed, in a cool, well ventilated place. Keep container dry. Store in closed original container at temperatures between 2°C and 7°C.

7.3. Specific end use(s)

Specific end use(s) Adhesive.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

METHYL METHACRYLATE

Long-term exposure limit (8-hour TWA): WEL 50 ppm 208 mg/m³

Short-term exposure limit (15-minute): WEL 100 ppm 416 mg/m³

METHACRYLIC ACID

Long-term exposure limit (8-hour TWA): WEL 20 ppm 72 mg/m³

Short-term exposure limit (15-minute): WEL 40 ppm 143 mg/m³

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2,6-DI-TERT-BUTYL-P-CRESOL

Long-term exposure limit (8-hour TWA): WEL 10 mg/m³

WEL = Workplace Exposure Limit.

METHYL METHACRYLATE (CAS: 80-62-6)

DNEL	Workers, Industry/Professional - Inhalation; Long term : 208 mg/m ³ Workers, Industry/Professional - Dermal; Long term : 13.67 mg/kg/day Workers, Industry/Professional - Inhalation; Short term : 416 mg/m ³
PNEC	Workers, Industry/Professional - Water; Long term <0.94 mg/l

2-HYDROXYETHYL METHACRYLATE (CAS: 868-77-9)

DNEL	Workers, Industry - Inhalation; Long term systemic effects: 4.9 mg/m ³ Workers, Industry - Dermal; Long term systemic effects: 1.3 mg/kg/day
PNEC	Workers, Industry - Water; Long term 0.482 mg/l Workers, Industry - Soil; Long term 0.476 mg/kg Workers, Industry - STP; Long term 10 mg/l Workers, Industry - Fresh water; 3.79 mg/kg

2-ETHYLHEXYL METHACRYLATE (CAS: 688-84-6)

DNEL	Workers - Inhalation; Long term systemic effects: 2.5 mg/m ³ Workers, Industry/Professional - Dermal; Long term : 5 mg/kg/day
PNEC	Fresh water; 0.003 mg/l marine water; 0 mg/l STP; 10 mg/l Sediment (Freshwater); 2.24 mg/kg Sediment (Marinewater); 0.224 mg/kg Soil; 0.446 mg/kg

METHACRYLIC ACID (CAS: 79-41-4)

DNEL	Workers, Industry - Inhalation; Long term local effects: 88 mg/m ³ Workers, Industry - Dermal; Long term systemic effects: 4.25 mg/kg/day Workers, Industry - Inhalation; Long term systemic effects: 29.6 mg/m ³
PNEC	Workers, Industry - Fresh water; 0.82 mg/l Workers, Industry - marine water; 0.82 mg/l Workers, Industry - STP; 10 mg/l Workers, Industry - Soil; 1.2 mg/kg

TRIMETHYLOLPROPANE TRIMETHACRYLATE (CAS: 3290-92-4)

DNEL	Workers - Inhalation; Long term systemic effects: 14.81 mg/m ³ Workers - Dermal; Long term systemic effects: 42 mg/kg/day Workers - Dermal; Long term local effects: 9.33 mg/cm ²
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PNEC	Fresh water; 2.76 µg/l
	marine water; 0.276 µg/l
	STP; 10 mg/l
	Sediment (Freshwater); 0.495 mg/kg
	Sediment (Marinewater); 0.05 mg/kg
	Soil; 0.097 mg/kg

CUMENE HYDROPEROXIDE (CAS: 80-15-9)

DNEL	Workers - Inhalation; Long term systemic effects: 6 mg/m ³
PNEC	Workers - Fresh water; 0.0031 mg/l
	Workers - marine water; 0.00031 mg/l
	Workers - Intermittent release; 0.031 mg/l
	Workers, Industry - Soil; 1.2 mg/kg
	Workers - STP; 0.35 mg/l
	Workers - Sediment (Freshwater); 0.023 mg/kg
	Workers - Sediment (Marinewater); 0.0023 mg/kg
	Workers - Soil; 0.0029 mg/kg

2,6-DI-TERT-BUTYL-P-CRESOL (CAS: 128-37-0)

DNEL	Workers - Inhalation; Long term systemic effects: 3.5 mg/m ³
	Workers - Dermal; Long term systemic effects: 0.5 mg/kg/day
PNEC	Fresh water; 0.199 µg/l
	marine water; 0.02 µg/l
	STP; 0.17 mg/l
	Sediment (Freshwater); 99.6 µg/kg
	Sediment (Marinewater); 9.96 µg/kg
	Soil; 8.33 mg/kg

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. Avoid inhalation of vapours. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection

Eyewear complying with an approved standard should be worn if a risk assessment indicates eye contact is possible. 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: ≥ 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: ≥ 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.

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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. 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	Gel.
Colour	Colourless.
Odour	Pungent. Acrylic
Odour threshold	Not available.
pH	Not relevant.
Melting point	Not available.
Initial boiling point and range	~100°C
Flash point	11°C
Evaporation rate	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	1.0
Partition coefficient	Not available.
Auto-ignition temperature	Not available.
Viscosity	≈500000 mPa s @ 23°C Thixotropic
Oxidising properties	Not available.

9.2. Other information

Other information	Not relevant.
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SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	The following materials may react with the product: Strong oxidising agents. Strong acids. Strong alkalis.
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10.2. Chemical stability

Stability	Stable at normal ambient temperatures.
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10.3. Possibility of hazardous reactions

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Possibility of hazardous reactions There are no known reactivity hazards associated with this product. Reactions with the following materials may generate heat: Amines. Organic peroxides/hydroperoxides.

10.4. Conditions to avoid

Conditions to avoid Take precautionary measures against static discharges. Avoid heat, flames and other sources of ignition.

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

May cause respiratory system irritation.

Skin contact

Causes burns.

Eye contact

Causes serious eye damage.

Toxicological information on ingredients.

METHYL METHACRYLATE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 5,000.0

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 5,000.0

Species Rat

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ vapours mg/l) 29.8

Species Rat

Skin corrosion/irritation

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Skin corrosion/irritation Not irritating. Prolonged skin contact may cause temporary irritation.

Serious eye damage/irritation

Serious eye damage/irritation Not irritating.

Respiratory sensitisation

Respiratory sensitisation Mouse: Sensitising.

Skin sensitisation

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

Germ cell mutagenicity

Genotoxicity - in vitro Inconclusive.

Genotoxicity - in vivo This substance has no evidence of mutagenic properties.

Carcinogenicity

Carcinogenicity CMR: no

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

Reproductive toxicity

Reproductive toxicity - fertility No evidence of reproductive toxicity in animal studies.

Reproductive toxicity - development No evidence of reproductive toxicity in animal studies. non-teratogenic, not embryotoxic

Specific target organ toxicity - single exposure

Target organs Respiratory tract Irritation.

Specific target organ toxicity - repeated exposure

Target organs No specific target organs known.

Aspiration hazard

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

2-HYDROXYETHYL METHACRYLATE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 5,000.0

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 5,000.0

Species Rabbit

Acute toxicity - inhalation

Notes (inhalation LC₅₀) No information available.

Skin corrosion/irritation

Animal data Erythema/eschar score: Very slight erythema - barely perceptible (1). Not irritating.

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Serious eye damage/irritation

Serious eye damage/irritation Moderately irritating.

Respiratory sensitisation

Respiratory sensitisation No information available.

Skin sensitisation

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

Germ cell mutagenicity

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

Genotoxicity - in vivo Chromosome aberration: Negative.

Carcinogenicity

Carcinogenicity No specific test data are available.

Reproductive toxicity

Reproductive toxicity - fertility Screening - NOAEL \geq 1000 mg/kg/day, Oral, Rat F1

Reproductive toxicity - development Developmental toxicity: - NOAEL: \geq 1000 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 No specific test data are available.

Aspiration hazard

Aspiration hazard Not applicable.

2-ETHYLHEXYL METHACRYLATE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 2,000.1

Species Rat

Acute toxicity - dermal

Notes (dermal LD₅₀) No information available.

Acute toxicity - inhalation

Notes (inhalation LC₅₀) No information available.

Skin corrosion/irritation

Human skin model test Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation Not irritating.

Skin sensitisation

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Skin sensitisation	Local Lymph Node Assay (LLNA) - Mouse: Not sensitising.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	Chromosome aberration: Negative.
<u>Carcinogenicity</u>	
Carcinogenicity	NOAEC \geq 2.05 mg/l, Inhalation, Rat
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	Screening - NOAEL 300 mg/kg/day, Oral, Rat F1
Reproductive toxicity - development	Developmental toxicity: - LOAEL: 1000 mg/kg/day, Oral, Rat
<u>Specific target organ toxicity - single exposure</u>	
STOT - single exposure	Not available.
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	Not available.
<u>Aspiration hazard</u>	
Aspiration hazard	Not available.

METHACRYLIC ACID

<u>Acute toxicity - oral</u>	
Acute toxicity oral (LD₅₀ mg/kg)	1,320.0
Species	Rat
<u>Acute toxicity - dermal</u>	
Acute toxicity dermal (LD₅₀ mg/kg)	1,000.0
Species	Rabbit
<u>Acute toxicity - inhalation</u>	
Acute toxicity inhalation (LC₅₀ vapours mg/l)	7.1
Species	Rat
<u>Skin corrosion/irritation</u>	
Animal data	Dose: Method: OECD 404, 3 minutes, Rabbit Corrosive.
<u>Serious eye damage/irritation</u>	
Serious eye damage/irritation	Method: OECD 405, Rabbit Corrosive.
<u>Respiratory sensitisation</u>	
Respiratory sensitisation	Guinea pig: Not sensitising. Method: various test systems
<u>Skin sensitisation</u>	
Skin sensitisation	Guinea pig maximization test (GPMT) - Guinea pig: Not sensitising.

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Germ cell mutagenicity

Genotoxicity - in vitro Based on available data the classification criteria are not met.

Carcinogenicity

Carcinogenicity CMR: no

Reproductive toxicity

Reproductive toxicity - fertility No evidence of reproductive toxicity in animal studies.

Reproductive toxicity - development Non-teratogenic, not embryotoxic

Specific target organ toxicity - single exposure

Target organs Respiratory tract Irritating.

Specific target organ toxicity - repeated exposure

Target organs No specific target organs known.

Aspiration hazard

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

TRIMETHYLOLPROPANE TRIMETHACRYLATE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 2,000.1

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 2,000.1

Species Rat

Acute toxicity - inhalation

Notes (inhalation LC₅₀) No information available.

Skin corrosion/irritation

Animal data Method: OECD 404, Rabbit Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation Method: OECD 405, Rabbit Not irritating.

Respiratory sensitisation

Respiratory sensitisation No information available.

Skin sensitisation

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

Germ cell mutagenicity

Genotoxicity - in vitro Gene mutation: Negative.

Genotoxicity - in vivo Chromosome aberration: Negative.

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Carcinogenicity

Carcinogenicity NOAEL 833 mg/kg/day, Dermal, Mouse

Reproductive toxicity

Reproductive toxicity - fertility - NOAEL > 900 mg/kg/day, Oral, Rat P, F1

Reproductive toxicity - development Developmental toxicity: - NOAEL: 300 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 Not applicable.

CUMENE HYDROPEROXIDE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 328.0

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 1,200.0

Species Rat

Acute toxicity - inhalation

Acute toxicity inhalation (LC₅₀ dust/mist mg/l) 1.37

Species Rat

Skin corrosion/irritation

Animal data Highly irritating.

Serious eye damage/irritation

Serious eye damage/irritation Irritating to eyes.

Skin sensitisation

Skin sensitisation Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro Positive.

Genotoxicity - in vivo This substance has no evidence of mutagenic properties.

Carcinogenicity

Carcinogenicity CMR: No

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Reproductive toxicity

Reproductive toxicity - fertility No specific test data are available.

Reproductive toxicity - development Developmental toxicity: - NOAEL: ≥ 100 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 Toxic: danger of serious damage to health by prolonged exposure through inhalation.

Aspiration hazard

Aspiration hazard No specific test data are available.

2,6-DI-TERT-BUTYL-P-CRESOL

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 6,000.0

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 2,000.1

Species Rat

Skin corrosion/irritation

Animal data Erythema/eschar score: No erythema (0). Not irritating.

Serious eye damage/irritation

Serious eye damage/irritation Method: OECD 405, Rabbit Not irritating.

Skin sensitisation

Skin sensitisation - Guinea pig: Not sensitising.

Germ cell mutagenicity

Genotoxicity - in vitro Gene mutation: Negative.

Genotoxicity - in vivo Chromosome aberration: Negative.

Carcinogenicity

Carcinogenicity No evidence of carcinogenicity in animal studies.

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

Reproductive toxicity

Reproductive toxicity - fertility Two-generation study - NOAEL 100 mg/kg/day, Oral, Rat F1

Reproductive toxicity - development Developmental toxicity: - LOAEL: 500 mg/kg/day, Oral, Rat

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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. No information available.

SECTION 12: Ecological information

Ecotoxicity Harmful 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.

METHYL METHACRYLATE

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: > 79 mg/l, Oncorhynchus mykiss (Rainbow trout)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 69 mg/l, Daphnia magna

Acute toxicity - aquatic plants NOEC, 72 hours: > 110 mg/l, Selenastrum capricornutum
EC₅₀, 72 hours: > 100 mg/l, Selenastrum capricornutum

Acute toxicity - microorganisms EC₂₀, 30 minutes: 150 - 200 mg/l, Activated sludge

Chronic aquatic toxicity

Chronic toxicity - fish early life stage NOEC, 35 days: 9.4 mg/l, Danio rerio (Zebrafish)

Chronic toxicity - aquatic invertebrates NOEC, 21 days: 37 mg/l, Daphnia magna

2-HYDROXYETHYL METHACRYLATE

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: > 100 mg/l, Oryzias latipes (Red killifish)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 380 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: 836 mg/l, Selenastrum capricornutum
NOEC, 72 hours: 400 mg/l, Selenastrum capricornutum

Acute toxicity - microorganisms EC₅₀, 16 hours: > 3000 mg/l, Pseudomonas fluorescens

Chronic aquatic toxicity

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Chronic toxicity - aquatic invertebrates NOEC, 21 days: 24.1 mg/l, Daphnia magna

2-ETHYLHEXYL METHACRYLATE

Acute aquatic toxicity

Acute toxicity - fish EC₅₀, 96 hours: 2.78 mg/l, Oryzias latipes (Red killifish)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 4.56 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: 7.68 mg/l, Selenastrum capricornutum
NOEC, 72 hours: 0.28 mg/l, Selenastrum capricornutum

Acute toxicity - microorganisms NOEC, 28 days: 100 mg/l, Activated sludge

Chronic aquatic toxicity

Chronic toxicity - aquatic invertebrates NOEC, 21 days: 0.11 mg/l, Daphnia magna

METHACRYLIC ACID

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 85 mg/l, Oncorhynchus mykiss (Rainbow trout)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: > 130 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: 45 mg/l, Selenastrum capricornutum
LOEC, 72 hours: 45 mg/l, Selenastrum capricornutum

Acute toxicity - microorganisms EC₅₀, 17 hours: 270 mg/l, Pseudomonas putida

Chronic aquatic toxicity

Chronic toxicity - fish early life stage NOEC, 35 days: 10 mg/l, Danio rerio (Zebrafish)

Chronic toxicity - aquatic invertebrates NOEC, 21 days: 53 mg/l, Daphnia magna

TRIMETHYLOLPROPANE TRIMETHACRYLATE

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: 2 mg/l, Oncorhynchus mykiss (Rainbow trout)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: > 9.22 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: 3.88 mg/l, Pseudokirchneriella subcapitata
NOEC, 72 hours: 0.177 mg/l, Pseudokirchneriella subcapitata

Acute toxicity - microorganisms EC₅₀, 3 hours: > 1000 mg/l, Activated sludge

Chronic aquatic toxicity

Chronic toxicity - fish early life stage NOEC, 21 days: 0.138 mg/l, Pimephales promelas (Fat-head Minnow)

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CUMENE HYDROPEROXIDE

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hour: 3.9 mg/l, Oncorhynchus mykiss (Rainbow trout)

2,6-DI-TERT-BUTYL-P-CRESOL

Acute aquatic toxicity

LE(C)₅₀ 0.1 < L(E)C₅₀ ≤ 1

M factor (Acute) 1

Acute toxicity - fish LC₅₀, 96 hours: 0.199 mg/l, Fish

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 0.48 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 96 hours: 0.758 mg/l, Algae

Chronic aquatic toxicity

M factor (Chronic) 1

12.2. Persistence and degradability

Persistence and degradability The product is not readily biodegradable.

Ecological information on ingredients.

METHYL METHACRYLATE

Biodegradation Water - Degradation 94%: 14 days

2-HYDROXYETHYL METHACRYLATE

Biodegradation Water - Degradation 84%: 28 days

2-ETHYLHEXYL METHACRYLATE

Biodegradation Water - Degradation 88%: 28 days

METHACRYLIC ACID

Biodegradation Water - Degradation 86%: 28 days

TRIMETHYLOLPROPANE TRIMETHACRYLATE

Stability (hydrolysis) pH7 - Half-life : > 9.999 hours @ 25°C

Biodegradation Water - Degradation 53%: 28 days

CUMENE HYDROPEROXIDE

Biodegradation The substance is readily biodegradable.

12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

Partition coefficient Not available.

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Ecological information on ingredients.

2-HYDROXYETHYL METHACRYLATE

Bioaccumulative potential BCF: 1.34 - 1.54,

TRIMETHYLOLPROPANE TRIMETHACRYLATE

Partition coefficient log Kow: 2.75 - 4.2

2,6-DI-TERT-BUTYL-P-CRESOL

Partition coefficient log Pow: 5.1

12.4. Mobility in soil

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

Ecological information on ingredients.

2-HYDROXYETHYL METHACRYLATE

Adsorption/desorption coefficient Water - Koc: 42.7 @ 20°C

TRIMETHYLOLPROPANE TRIMETHACRYLATE

Surface tension 53 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	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

2924

14.2. UN proper shipping name

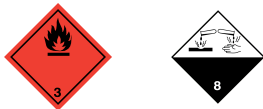
FLAMMABLE LIQUID, CORROSIVE, N.O.S. (contains Methylmethacrylate and Methacrylic Acid)

14.3. Transport hazard class(es)

3(8)

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Transport labels



14.4. Packing group

II

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

EmS F-E, S-C

Hazard Identification Number (ADR/RID) 338 Highly flammable liquid, corrosive.

Tunnel restriction code (D/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). EH40/2005 Workplace exposure limits. Health and Safety at Work etc. Act 1974 (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. 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	31/03/2021
Revision	7
Supersedes date	31/01/2019

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Hazard statements in full

H225 Highly flammable liquid and vapour.
H242 Heating may cause a fire.
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.
H331 Toxic if inhaled.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.
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.
H412 Harmful to aquatic life with long lasting effects.



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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 TA4204B

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

1.1. Product identifier

Product name Permabond TA4204B

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 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 Flam. Liq. 2 - H225

Health hazards Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Skin Sens. 1 - H317 STOT SE 3 - H335

Environmental hazards Aquatic Chronic 3 - H412

2.2. Label elements

Hazard pictograms



Signal word Danger

Permabond TA4204B

Hazard statements	H225 Highly flammable liquid and vapour. H315 Causes skin irritation. H319 Causes serious eye irritation. H317 May cause an allergic skin reaction. H335 May cause respiratory irritation. H412 Harmful to aquatic life with long lasting effects.
Precautionary statements	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. 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.
Contains	METHYL METHACRYLATE, ISOBORNYLMETHACRYLATE, TRIETHYLBORANE-1,3-DIAMINOPROPANE COMPLEX
Supplementary precautionary statements	P243 Take action to prevent static discharges. P261 Avoid breathing vapour/ spray. 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. P337+P313 If eye irritation persists: Get medical advice/ attention. P362+P364 Take off contaminated clothing and wash it before reuse. P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish. P403+P235 Store in a well-ventilated place. Keep cool. 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. This substance is not classified as PBT or vPvB according to current EU criteria.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

METHYL METHACRYLATE	30-60%
CAS number: 80-62-6	EC number: 201-297-1
	REACH registration number: 01-2119452498-28-XXXX
Classification	
Flam. Liq. 2 - H225	
Skin Irrit. 2 - H315	
Skin Sens. 1 - H317	
STOT SE 3 - H335	

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ISOBORNLYMETHACRYLATE	10-30%
CAS number: 7534-94-3	EC number: 231-403-1
	REACH registration number: 01-2119886505-27-XXXX
Classification	
Skin Irrit. 2 - H315	
Eye Irrit. 2 - H319	
STOT SE 3 - H335	
Aquatic Chronic 3 - H412	
TRIETHYLBORANE-1,3-DIAMINOPROPANE COMPLEX	1-5%
CAS number: 148861-07-8	
REACH registration exemption – < 1 tonne	
Classification	
Acute Tox. 4 - H312	
Skin Corr. 1A - H314	
Eye Dam. 1 - H318	
Skin Sens. 1 - H317	
2,6-DI-TERT-BUTYL-P-CRESOL	<1%
CAS number: 128-37-0	EC number: 204-881-4
M factor (Acute) = 1	M factor (Chronic) = 1
REACH registration exemption – < 1 tonne	
Classification	
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	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. 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 if any discomfort continues.

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

Skin contact	Skin irritation. Mild dermatitis, allergic skin rash.
Eye contact	Irritating and may cause redness and pain.

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

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 Flammable liquid and vapour. Vapours are heavier than air and may travel along the floor and accumulate in the bottom of containers. Vapours may be ignited by a spark, a hot surface or an ember.

Hazardous combustion products Burning produces irritating, toxic and obnoxious fumes. Carbon monoxide, carbon dioxide, and unknown hydrocarbons. Cool containers exposed to heat with water spray and remove them from the fire area if it can be done without risk.

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 Eliminate all sources of ignition. Ensure adequate ventilation of the working area. Do not breathe vapour. 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. Use in a well ventilated area. Do not ingest or inhale. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharges.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Keep container tightly closed, in a cool, well ventilated place. Keep container dry. Store in closed original container at temperatures between 2°C and 7°C.

7.3. Specific end use(s)

Specific end use(s) Adhesive.

SECTION 8: Exposure controls/Personal protection

8.1. Control parameters

Occupational exposure limits

METHYL METHACRYLATE

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Long-term exposure limit (8-hour TWA): WEL 50 ppm 208 mg/m³

Short-term exposure limit (15-minute): WEL 100 ppm 416 mg/m³

2,6-DI-TERT-BUTYL-P-CRESOL

Long-term exposure limit (8-hour TWA): WEL 10 mg/m³

WEL = Workplace Exposure Limit.

METHYL METHACRYLATE (CAS: 80-62-6)

DNEL	Workers, Industry/Professional - Inhalation; Long term : 208 mg/m ³ Workers, Industry/Professional - Dermal; Long term : 13.67 mg/kg/day Workers, Industry/Professional - Inhalation; Short term : 416 mg/m ³
PNEC	Workers, Industry/Professional - Water; Long term <0.94 mg/l

ISOBORNILMETHACRYLATE (CAS: 7534-94-3)

DNEL	Workers - Dermal; Long term systemic effects: 1.04 mg/kg/day
PNEC	Fresh water; 4.66 µg/l marine water; 0.466 µg/l STP; 2.45 mg/l Sediment (Freshwater); 0.604 mg/kg Sediment (Marinewater); 0.06 mg/kg Soil; 0.118 mg/kg

2,6-DI-TERT-BUTYL-P-CRESOL (CAS: 128-37-0)

DNEL	Workers - Inhalation; Long term systemic effects: 3.5 mg/m ³ Workers - Dermal; Long term systemic effects: 0.5 mg/kg/day
PNEC	Fresh water; 0.199 µg/l marine water; 0.02 µg/l STP; 0.17 mg/l Sediment (Freshwater); 99.6 µg/kg Sediment (Marinewater); 9.96 µg/kg Soil; 8.33 mg/kg

TRIMETHYLENEDIAMINE (CAS: 109-76-2)

DNEL	Workers - Inhalation; Long term systemic effects: 3 mg/m ³ Workers - Dermal; Long term systemic effects: 0.26 mg/kg/day
PNEC	Fresh water; 0.2 mg/l marine water; 0.02 mg/l STP; 10 mg/l Sediment (Freshwater); 96 mg/kg Sediment (Marinewater); 9.6 mg/kg Soil; 19 mg/kg

8.2. Exposure controls

Protective equipment



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Appropriate engineering controls	Provide adequate ventilation. Avoid inhalation of vapours. Observe any occupational exposure limits for the product or ingredients.
Eye/face protection	If risk of splashing, wear safety 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: ≥ 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: ≥ 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. When using do not eat, drink or smoke.
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	Liquid.
Colour	Colourless.
Odour	Ester.
Odour threshold	Not available.
pH	Not relevant.
Melting point	Not available.
Initial boiling point and range	$\sim 100^{\circ}\text{C}$
Flash point	11°C
Evaporation rate	Not available.
Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	1.0
Solubility(ies)	Insoluble in water. Soluble in the following materials: Organic solvents.
Partition coefficient	Not available.
Auto-ignition temperature	Not available.

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Viscosity ≈10000 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 acids.

10.2. Chemical stability

Stability Stable at normal ambient temperatures.

10.3. Possibility of hazardous reactions

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

10.4. Conditions to avoid

Conditions to avoid Take precautionary measures against static discharges. Avoid heat, flames and other sources of ignition.

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

May cause respiratory system irritation.

Skin contact

Irritating to skin.

Eye contact

Irritating and may cause redness and pain.

Toxicological information on ingredients.

METHYL METHACRYLATE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 5,000.0

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Species	Rat
<u>Acute toxicity - dermal</u>	
Acute toxicity dermal (LD₅₀ mg/kg)	5,000.0
Species	Rat
<u>Acute toxicity - inhalation</u>	
Acute toxicity inhalation (LC₅₀ vapours mg/l)	29.8
Species	Rat
<u>Skin corrosion/irritation</u>	
Skin corrosion/irritation	Not irritating. Prolonged skin contact may cause temporary irritation.
<u>Serious eye damage/irritation</u>	
Serious eye damage/irritation	Not irritating.
<u>Respiratory sensitisation</u>	
Respiratory sensitisation	Mouse: Sensitising.
<u>Skin sensitisation</u>	
Skin sensitisation	Local Lymph Node Assay (LLNA) - Mouse: Sensitising.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	Inconclusive.
Genotoxicity - in vivo	This substance has no evidence of mutagenic properties.
<u>Carcinogenicity</u>	
Carcinogenicity	CMR: no
IARC carcinogenicity	IARC Group 3 Not classifiable as to its carcinogenicity to humans.
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	No evidence of reproductive toxicity in animal studies.
Reproductive toxicity - development	No evidence of reproductive toxicity in animal studies. non-teratogenic, not embryotoxic
<u>Specific target organ toxicity - single exposure</u>	
Target organs	Respiratory tract Irritation.
<u>Specific target organ toxicity - repeated exposure</u>	
Target organs	No specific target organs known.
<u>Aspiration hazard</u>	
Aspiration hazard	Based on available data the classification criteria are not met.

ISOBORNLYMETHACRYLATE

Acute toxicity - oral

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Acute toxicity oral (LD₅₀ mg/kg) 2,000.1

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 3,000.0

Species Rabbit

Acute toxicity - inhalation

Notes (inhalation LC₅₀) No information available.

Skin corrosion/irritation

Animal data Erythema/eschar score: Well defined erythema (2). Fully reversible within 7 days.

Serious eye damage/irritation

Serious eye damage/irritation Rabbit Not irritating.

Skin sensitisation

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

Germ cell mutagenicity

Genotoxicity - in vitro Gene mutation: Negative.

Carcinogenicity

Carcinogenicity No specific test data are available.

Reproductive toxicity

Reproductive toxicity - fertility Screening - NOAEL 500 mg/kg/day, Oral, Rat F1

Reproductive toxicity - development Developmental toxicity: - NOEC: >500 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 Not applicable.

2,6-DI-TERT-BUTYL-P-CRESOL

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 6,000.0

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 2,000.1

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Species	Rat
<u>Skin corrosion/irritation</u>	
Animal data	Erythema/eschar score: No erythema (0). Not irritating.
<u>Serious eye damage/irritation</u>	
Serious eye damage/irritation	Method: OECD 405, Rabbit Not irritating.
<u>Skin sensitisation</u>	
Skin sensitisation	- Guinea pig: Not sensitising.
<u>Germ cell mutagenicity</u>	
Genotoxicity - in vitro	Gene mutation: Negative.
Genotoxicity - in vivo	Chromosome aberration: Negative.
<u>Carcinogenicity</u>	
Carcinogenicity	No evidence of carcinogenicity in animal studies.
IARC carcinogenicity	IARC Group 3 Not classifiable as to its carcinogenicity to humans.
<u>Reproductive toxicity</u>	
Reproductive toxicity - fertility	Two-generation study - NOAEL 100 mg/kg/day, Oral, Rat F1
Reproductive toxicity - development	Developmental toxicity: - LOAEL: 500 mg/kg/day, Oral, Rat
<u>Specific target organ toxicity - single exposure</u>	
STOT - single exposure	No information available.
<u>Specific target organ toxicity - repeated exposure</u>	
STOT - repeated exposure	No information available.
<u>Aspiration hazard</u>	
Aspiration hazard	No information available. No information available.

SECTION 12: Ecological information

Ecotoxicity The product contains a substance which is harmful to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.

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.

METHYL METHACRYLATE

Acute aquatic toxicity

Acute toxicity - fish LC₅₀, 96 hours: > 79 mg/l, Oncorhynchus mykiss (Rainbow trout)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 69 mg/l, Daphnia magna

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Acute toxicity - aquatic plants	NOEC, 72 hours: > 110 mg/l, Selenastrum capricornutum EC ₅₀ , 72 hours: > 100 mg/l, Selenastrum capricornutum
Acute toxicity - microorganisms	EC ₂₀ , 30 minutes: 150 - 200 mg/l, Activated sludge
<u>Chronic aquatic toxicity</u>	
Chronic toxicity - fish early life stage	NOEC, 35 days: 9.4 mg/l, Danio rerio (Zebrafish)
Chronic toxicity - aquatic invertebrates	NOEC, 21 days: 37 mg/l, Daphnia magna

ISOBORNLYMETHACRYLATE

<u>Acute aquatic toxicity</u>	
Acute toxicity - fish	LC ₅₀ , 96 hours: 1.79 mg/l, Danio rerio (Zebrafish)
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: > 2.57 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC ₅₀ , 72 hours: 2.28 mg/l, Pseudokirchneriella subcapitata
<u>Chronic aquatic toxicity</u>	
Chronic toxicity - aquatic invertebrates	NOEC, 21 days: 0.233 mg/l, Daphnia magna

2,6-DI-TERT-BUTYL-P-CRESOL

<u>Acute aquatic toxicity</u>	
LE(C)₅₀	0.1 < L(E)C ₅₀ ≤ 1
M factor (Acute)	1
Acute toxicity - fish	LC ₅₀ , 96 hours: 0.199 mg/l, Fish
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: 0.48 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC ₅₀ , 96 hours: 0.758 mg/l, Algae
<u>Chronic aquatic toxicity</u>	
M factor (Chronic)	1

12.2. Persistence and degradability

Persistence and degradability The product is not readily biodegradable.

Ecological information on ingredients.

METHYL METHACRYLATE

Biodegradation Water - Degradation 94%: 14 days

ISOBORNLYMETHACRYLATE

Biodegradation Water - Degradation 70%: 28 days

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12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

Partition coefficient Not available.

Ecological information on ingredients.

2,6-DI-TERT-BUTYL-P-CRESOL

Partition coefficient log Pow: 5.1

12.4. Mobility in soil

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

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 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

1993

14.2. UN proper shipping name

FLAMMABLE LIQUID, N.O.S. (contains Methylmethacrylate)

14.3. Transport hazard class(es)

3

Transport labels



14.4. Packing group

II

14.5. Environmental hazards

14.6. Special precautions for user

EmS F-E, S-E

Permabond TA4204B

Tunnel restriction code (D/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)
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	31/03/2021
Revision	8
Supersedes date	31/01/2019
Hazard statements in full	H225 Highly flammable liquid and vapour. 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. H335 May cause respiratory irritation. H400 Very toxic to aquatic life. H410 Very toxic to aquatic life with long lasting effects. H412 Harmful to aquatic life with long lasting effects.



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