

Safety Data Sheet

According to Annex II to REACH - Regulation (EU) 2020/878

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

1.1. Product identifier

Product name **Permabond A1046**

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

Intended use **Adhesive**

1.3. Details of the supplier of the safety data sheet

Name **Permabond Engineering Adhesives**
Full address **Niederkasseler Lohweg 18**
District and Country **40547 Düsseldorf Germany**
Tel. **+44 (0)1962 711 661**

e-mail address of the competent person responsible for the Safety Data Sheet **info.europe@permabond.com**

Supplier: **Permabond Engineering Adhesives Ltd**
Wessex Way, Colden Common,
Winchester, Hampshire SO21 1WP, UK
tel: **+44 (0)1962 711 661**
mail: **info.europe@permabond.com**

1.4. Emergency telephone number

For urgent inquiries refer to **+44 (0)1962 711 661 (8.00 am-5.00 pm Mon-Fri)**

CHEMTREC UK: +(44)-870-8200418
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

The product is classified as hazardous pursuant to the provisions set forth in (EC) Regulation 1272/2008 (CLP) (and subsequent amendments and supplements). The product thus requires a safety datasheet that complies with the provisions of (EU) Regulation 2020/878.

Any additional information concerning the risks for health and/or the environment are given in sections 11 and 12 of this sheet.

Hazard classification and indication:

Eye irritation, category 2	H319	Causes serious eye irritation.
Skin irritation, category 2	H315	Causes skin irritation.
Specific target organ toxicity - single exposure, category 3	H335	May cause respiratory irritation.
Skin sensitization, category 1	H317	May cause an allergic skin reaction.
Hazardous to the aquatic environment, chronic toxicity, category 3	H412	Harmful to aquatic life with long lasting effects.

2.2. Label elements

Hazard labelling pursuant to EC Regulation 1272/2008 (CLP) and subsequent amendments and supplements.

Hazard pictograms:



SECTION 2. Hazards identification ... / >>

Signal word: Warning

Hazard statements:

H319 Causes serious eye irritation.
H315 Causes skin irritation.
H335 May cause respiratory irritation.
H317 May cause an allergic skin reaction.
H412 Harmful to aquatic life with long lasting effects.

Precautionary statements:

P280 Wear protective gloves/ protective clothing / eye protection / face protection.
P302+P352 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:

Acrylic acid
Benzyl methacrylate
BISPHENOL A DIGLYCIDYL ETHER ACRYLATE
Hydroxypropyl methacrylate
tert-Amyl hydroperoxide

2.3. Other hazards

On the basis of available data, the product does not contain any PBT or vPvB in percentage $\geq$ than 0,1%.

The product does not contain substances with endocrine disrupting properties in concentration $\geq$ 0.1%.

SECTION 3. Composition/information on ingredients

3.2. Mixtures

Contains:

Identification	x = Conc. %	Classification (EC) 1272/2008 (CLP)
Hydroxypropyl methacrylate		
INDEX	$10 \leq x < 30$	Eye Irrit. 2 H319, Skin Sens. 1 H317
EC 248-666-3		
CAS 27813-02-1		
REACH Reg. 01-2119490226-37-XXXX		
Benzyl methacrylate		
INDEX	$10 \leq x < 30$	Eye Irrit. 2 H319, Skin Irrit. 2 H315, STOT SE 3 H335, Skin Sens. 1 H317
EC 219-674-4		STOT SE 3 H335: $\geq 10\%$
CAS 2495-37-6		
REACH Reg. 01-2119960155-39-XXXX		
BISPHENOL A DIGLYCIDYL ETHER ACRYLATE		
INDEX	$10 \leq x < 25$	Skin Sens. 1 H317, Aquatic Chronic 2 H411
EC 604-044-00-7		
EC 500-130-2		
CAS 55818-57-0		
REACH Reg. 01-2119490020-53-XXXX		
Methacrylate-Terminated Butadiene-Acrylonitrile Copolymer		
INDEX	$10 \leq x < 25$	Aquatic Chronic 3 H412
EC		
CAS 118578-03-3		
Acrylic acid		
INDEX	$2,5 \leq x < 3$	Flam. Liq. 3 H226, Acute Tox. 4 H302, Acute Tox. 4 H312, Acute Tox. 4 H332, Skin Corr. 1A H314, Eye Dam. 1 H318, STOT SE 3 H335, Aquatic Acute 1 H400 M=1, Aquatic Chronic 2 H411, Classification note according to Annex VI to the CLP Regulation: D
EC 201-177-9		STOT SE 3 H335: $\geq 1\%$
CAS 79-10-7		LD50 Oral: 1500 mg/kg, ATE Dermal: 1100 mg/kg, ATE Inhalation vapours: 11 mg/l
REACH Reg. 01-2119452449-31-XXXX		

SECTION 3. Composition/information on ingredients ... / >>

Cumene hydroperoxide

INDEX 617-002-00-8 0,1 ≤ x < 1

EC 201-254-7

CAS 80-15-9

REACH Reg. 01-2119475796-19-XXXX

Ethylene glycol

INDEX 603-027-00-1 0,1 ≤ x < 1

EC 203-473-3

CAS 107-21-1

REACH Reg. 01-2119456816-28-XXXX

tert-Amyl hydroperoxide

INDEX 0,1 ≤ x < 1

EC 222-321-7

CAS 3425-61-4

REACH Reg. 01-2119964027-36-0000

Org. Perox E H242, Acute Tox. 3 H331, Acute Tox. 4 H302, Acute Tox. 4 H312, STOT RE 2 H373, Skin Corr. 1B H314, Eye Dam. 1 H318, STOT SE 3 H335, Aquatic Chronic 2 H411
Skin Corr. 1B H314: ≥ 10%, Skin Irrit. 2 H315: ≥ 3% - < 10%, Eye Dam. 1 H318: ≥ 3% - < 10%, Eye Irrit. 2 H319: ≥ 1% - < 3%, STOT SE 3 H335: ≥ 1%
LD50 Oral: 382 mg/kg, LD50 Dermal: 1400 mg/kg, ATE Inhalation mists/powders: 0,501 mg/l

Acute Tox. 4 H302, STOT RE 2 H373
ATE Oral: 500 mg/kg

Flam. Liq. 3 H226, Org. Perox E H242, Acute Tox. 3 H311, Acute Tox. 3 H331, Acute Tox. 4 H302, Skin Corr. 1B H314, Eye Dam. 1 H318, Skin Sens. 1 H317, Aquatic Chronic 2 H411
LD50 Oral: 500 mg/kg, LD50 Dermal: 446 mg/kg, ATE Inhalation vapours: 3 mg/l

The full wording of hazard (H) phrases is given in section 16 of the sheet.

Cumene hydroperoxide
Specific Conc. Limits H335: C<10%

SECTION 4. First aid measures

4.1. Description of first aid measures

SKIN: Wash skin thoroughly with soap and water. If symptoms occur, seek medical attention. EYES: Be sure to remove any contact lenses before rinsing eyes. Promptly rinse eyes thoroughly with water while holding eyelids open. Continue rinsing for at least 15 minutes. Seek medical attention if discomfort persists. INGESTION: Rinse mouth thoroughly with water. Give plenty of water to drink. Do not induce vomiting. Seek medical attention. INHALING: Move exposed person to fresh air. Seek medical attention if symptoms are severe or persistent.

Rescuer protection

Information not available

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

Contact with the skin: skin irritation. Mild dermatitis, allergic rash.
Contact with eyes: irritating and can cause redness and pain.

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

Note for the doctor no specific recommendation. Symptomatic treatment.

Means to have available in the workplace for specific and immediate treatment

Information not available

SECTION 5. Firefighting measures

5.1. Extinguishing media

SUITABLE EXTINGUISHING EQUIPMENT

The extinguishing equipment should be of the conventional kind: carbon dioxide, foam, powder and water spray.

UNSUITABLE EXTINGUISHING EQUIPMENT

None in particular.

5.2. Special hazards arising from the substance or mixture

HAZARDS DUE TO EXPOSURE IN THE EVENT OF FIRE

Avoid breathing combustion products, carbon monoxide (CO), carbon dioxide (CO2), and nitric oxides (NOx).

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		Permabond A1046		
SECTION 5. Firefighting measures ... / >>				
5.3. Advice for firefighters				
GENERAL INFORMATION Use jets of water to cool the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water to prevent it from draining into the sewer system. Dispose of contaminated water used for extinction and the remains of the fire according to applicable regulations. SPECIAL PROTECTIVE EQUIPMENT FOR FIRE-FIGHTERS Normal fire fighting clothing i.e. fire kit (BS EN 469), gloves (BS EN 659) and boots (HO specification A29 and A30) in combination with self-contained open circuit positive pressure compressed air breathing apparatus (BS EN 137).				
SECTION 6. Accidental release measures				
6.1. Personal precautions, protective equipment and emergency procedures				
Block the leakage if there is no hazard. Wear suitable protective equipment (including personal protective equipment referred to under Section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications apply for both processing staff and those involved in emergency procedures.				
6.2. Environmental precautions				
The product must not penetrate into the sewer system or come into contact with surface water or ground water.				
6.3. Methods and material for containment and cleaning up				
Collect the leaked product into a suitable container. Evaluate the compatibility of the container to be used, by checking section 10. Absorb the remainder with inert absorbent material. Make sure the leakage site is well aired. Contaminated material should be disposed of in compliance with the provisions set forth in point 13.				
6.4. Reference to other sections				
Any information on personal protection and disposal is given in sections 8 and 13.				
SECTION 7. Handling and storage				
7.1. Precautions for safe handling				
Ensure that there is an adequate earthing system for the equipment and personnel. Avoid contact with eyes and skin. Do not breathe powders, vapours or mists. Do not eat, drink or smoke during use. Wash hands after use. Avoid leakage of the product into the environment.				
7.2. Conditions for safe storage, including any incompatibilities				
Store only in the original container. Store in a ventilated and dry place, far away from sources of ignition. Keep containers well sealed. Keep the product in clearly labelled containers. Avoid overheating. Avoid violent blows. Keep containers away from any incompatible materials, see section 10 for details.				
7.3. Specific end use(s)				
Adhesive				
SECTION 8. Exposure controls/personal protection				
8.1. Control parameters				
Regulatory references:				
BGR	България	НАРЕДБА № 13 ОТ 30 ДЕКЕМВРИ 2003 Г. ЗА ЗАЩИТА НА РАБОТЕЩИТЕ ОТ РИСКОВЕ, СВЪРЗАНИ С ЕКСПОЗИЦИЯ НА ХИМИЧНИ АГЕНТИ ПРИ РАБОТА (изм. ДВ. бр.28 от 2 Април 2024г.)		
CZE	Česká Republika	NAŘÍZENÍ VLÁDY ze dne 18. října 2023, kterým se mění nařízení vlády č. 361/2007 Sb., kterým se stanoví podmínky ochrany zdraví při práci, ve znění pozdějších předpisů		
DEU	Deutschland	WirkungDosisNOAELMAK-und BAT-Werte-Liste 2024 Ständige Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe		
DNK	Danmark	BEK nr 291 af 19/03/2024 (Historisk) Bekendtgørelse om grænseværdier for stoffer og materialer (kemiske agenser) i arbejdsmiljøet		
ESP	España	Límites de exposición profesional para agentes químicos en España 2024		
EST	Eesti	Ohtlike kemikaalide ja neid sisaldavate materjalide kasutamise töötavishoiu ja tööhutuse		
EPY 12.1.0 - SDS 1004.14				

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SECTION 8. Exposure controls/personal protection ... / >>				
		nõuded ning töökeskkonna keemiliste ohutegurite piirnormid 2024		
FRA	France	Valeurs limites d'exposition professionnelle aux agents chimiques en FranceDécret n° 2021-1849 du 28 décembre 2021		
FIN	Suomi	HTP-VÄRDEN 2020. Koncentrationer som befunnits skadliga. SOCIAL - OCH HÄLSOVÄRDSMINISTERIETS PUBLIKATIONER 2020:25		
GRC	Ελλάδα	Π.Δ. 26/2020 (ΦΕΚ 50/Α` 6.3.2020) Εναρμόνιση της ελληνικής νομοθεσίας προς τις διατάξεις των οδηγιών 2017/2398/ΕΕ, 2019/130/ΕΕ και 2019/983/ΕΕ «για την τροποποίηση της οδηγίας 2004/37/ΕΚ "σχετικά με την προστασία των εργαζομένων από τους κινδύνους που συνδέονται με την έκθεση σε καρκινογόνους ή μεταλλαξιγόνους παράγοντες κατά την εργασία"»		
HUN	Magyarország	Az innovációért és technológiáért felelős miniszter 5/2020. (II. 6.) ITM rendelete a kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről		
HRV	Hrvatska	PRAVILNIK O IZMJENAMA I DOPUNAMA PRAVILNIKA O ZAŠTITI RADNIKA OD IZLOŽENOSTI OPASNIM KEMIČALIJAMA NA RADU, GRANIČNIM VRIJEDNOSTIMA IZLOŽENOSTI I BIOLOŠKIM GRANIČNIM VRIJEDNOSTIMA		
ITA	Italia	Decreto Legislativo 9 Aprile 2008, n.81		
LTU	Lietuva	Jsakymas dėl lietuvos higienos normos hn 23:2011 „cheminių medžiagų profesinio poveikio ribiniai dydžiai. Matavimo ir poveikio vertinimo bendrieji reikalavimai“ patvirtinimo		
LVA	Latvija	Grozījumi Ministru kabineta 2007. gada 15. maija noteikumos Nr. 325 "Darba aizsardzības prasības saskarē ar ķīmiskajām vielām darba vietās" Oficiālāāas publikāācijas Nr.: 2024/65.2		
NOR	Norge	Forskrift om endring i forskrift om tiltaksverdier og grenseverdier for fysiske og kjemiske faktorer i arbeidsmiljøet samt smitterisikogrupper for biologiske faktorer (forskrift om tiltaks- og grenseverdier), 21. 10. april 2024 kl. 13.55		
NLD	Nederland	Regeling van de Minister van Sociale Zaken en Werkgelegenheid van 13 mei2024, nr. 2024-0000092805, tot wijziging van deArbeidsomstandighedenregeling in verband met de implementatie vanRichtlijn 2022/431		
PRT	Portugal	Decreto-Lei n.º 102/2024, de 4 de dezembro. Sumário: Transpõe para a ordem jurídica interna a Diretiva (UE) 2022/431, relativa à proteção dos trabalhadores contra riscos ligados à exposição a agentes cancerígenos ou mutagénicos e procede à quarta alteração		
POL	Polska	ROZPORZĄDZENIE MINISTRA RODZINY, PRACY I POLITYKI SPOŁECZNEJ z dnia 24 czerwca 2024 r. zmieniające rozporządzenie w sprawie najwyższych dopuszczalnych stężeń i natężeń czynników szkodliwych dla zdrowia w środowisku pracy		
ROU	România	HOTĂRÂRE nr. 179 din 28 februarie 2024 pentru modificarea și completarea Hotărârii Guvernului nr. 1.093/2006 privind stabilirea cerințelor minime de securitate și sănătate pentru protecția lucrătorilor împotriva riscurilor legate de expunerea la agenți ca		
RUS	Россия	ПОСТАНОВЛЕНИЕ от 13 февраля 2018 г. N 25 ОБ УТВЕРЖДЕНИИ ГИГИЕНИЧЕСКИХ НОРМАТИВОВ ГН 2.2.5.3532-18 "ПРЕДЕЛЬНО ДОПУСТИМЫЕ КОНЦЕНТРАЦИИ (ПДК) ВРЕДНЫХ ВЕЩЕСТВ В ВОЗДУХЕ РАБОЧЕЙ ЗОНЫ"		
SWE	Sverige	Arbetsmiljöverkets föreskrifter och allmänna råd (AFS 2023:14) om gränsvärden för luftvägsexponering i arbetsmiljön		
SVK	Slovensko	121_2024 Z. z. Nariadenie vlády o ochrane zdravia zamestnancov pred rizikami súvisiacimi s expozíciou karcinogénym, mutagénym alebo reprodukčne toxickým faktorom pri práci		
SVN	Slovenija	Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti rakotvornim, mutagenim ali reprotoksičnim snovem pri delu. Ljubljana, četrtek 4. 4. 2024		
TUR	Türkiye	Kimyasal Maddelerle Çalışmalarda Sağlık ve Güvenlik Önlemleri Hakkında Yönetmelik 12.08.2013 / 28733; 20.10.2023 / 32345.		
GBR	United Kingdom	EH40/2005 Workplace exposure limits (Fourth Edition 2020)		
EU	OEL EU	Directive (EU) 2022/431; Directive (EU) 2019/1831; Directive (EU) 2019/130; Directive (EU) 2019/983; Directive (EU) 2017/2398; Directive (EU) 2017/164; Directive 2009/161/EU; Directive 2006/15/EC; Directive 2004/37/EC; Directive 2000/39/EC; Directive 98/24/EC; Directive 91/322/EEC.		
	ACGIH	ACGIH 2025		

SECTION 8. Exposure controls/personal protection ... / >>

Ethylene glycol

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV	BGR	52	20	104	40	SKIN
TLV	CZE	50	19,4	100	38,8	SKIN
AGW	DEU	26	10	52	20	SKIN
MAK	DEU	26	10	52	20	SKIN
TLV	DNK	26	10			SKIN E
VLA	ESP	52	20	104	40	SKIN
TLV	EST	52	20	104	40	SKIN
VLEP	FRA	52	20	104	40	SKIN
HTP	FIN	50	20	100	40	SKIN
TLV	GRC	125	50	125	50	
AK	HUN	52		104		SKIN
GVI/KGVI	HRV	52	20	104	40	SKIN
VLEP	ITA	52	20	104	40	SKIN
RD	LTU	25	10	50	20	SKIN
RV	LVA	52	20	104	40	SKIN
TLV	NOR	52	20			SKIN
TGG	NLD	52		104		SKIN damp
VLE	PRT	52	20	104	40	SKIN
NDS/NDSch	POL	15		50		SKIN
TLV	ROU	52	20	104	40	SKIN
ПДК	RUS	5		10		n + a
NGV/KGV	SWE	25	10	104	40	SKIN
NPEL	SVK	52	20	104	40	SKIN
MV	SVN	52	20	104	40	SKIN
ESD	TUR	52	20	104	40	SKIN
WEL	GBR	52	20	104	40	SKIN
OEL	EU	52	20	104	40	SKIN
ACGIH			25		50	
ACGIH				10		INHAL

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers		Chronic		Effects on workers		Chronic	Chronic
	Acute	Acute			Acute	Acute		
	local	systemic	local	systemic	local	systemic	local	systemic
Inhalation			7				35	
			mg/m3				mg/m3	
Skin				53			106	106
				mg/kg bw/d				mg/kg bw/d

BISPHENOL A DIGLYCIDYL ETHER ACRYLATE

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,025	mg/l
Normal value in marine water	0,003	mg/l
Normal value for fresh water sediment	8,96	mg/kg/d
Normal value for marine water sediment	0,896	mg/kg/d
Normal value of STP microorganisms	10	mg/l
Normal value for the terrestrial compartment	1,78	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers		Chronic		Effects on workers		Chronic	Chronic
	Acute	Acute			Acute	Acute		
	local	systemic	local	systemic	local	systemic	local	systemic
Inhalation								1.17
								mg/m3
Skin								33
								mg/kg/d

SECTION 8. Exposure controls/personal protection ... / >>

Hydroxypropyl methacrylate

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,904	mg/l
Normal value in marine water	0,09	mg/l
Normal value for fresh water sediment	6,28	mg/kg/d
Normal value for marine water sediment	6,28	mg/kg/d
Normal value of STP microorganisms	10	mg/l
Normal value for the terrestrial compartment	0,727	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers		Chronic local	Chronic systemic	Effects on workers			
	Acute local	Acute systemic			Acute local	Acute systemic	Chronic local	Chronic systemic
Oral								14.7 mg/kg/d
Skin								4.2 mg/kg bw/d

Acrylic acid

Threshold Limit Value

Type	Country	TWA/8h		STEL/15min		Remarks / Observations
		mg/m3	ppm	mg/m3	ppm	
TLV	BGR	29	10	59	20	STEL: 1'
TLV	CZE	29	9,686	59	19,706	NPK-P= 1 min
AGW	DEU	30	10	30 (C)	10 (C)	
MAK	DEU	30	10	30	10	
TLV	DNK			5,9	2	SKIN E
TLV	EST	29	10	45	15	
VLEP	FRA	29	10	59	20	
HTP	FIN	6	2	45 (C)	15 (C)	
TLV	GRC	29	10	59	20	STEL: 1'
AK	HUN	29		59		CK: 1 min
GVI/KGVI	HRV	29	10	59	20	KGVI: 1 min
VLEP	ITA	29	10	59	20	SKIN STEL: 1 min
RD	LTU	29	10	59 (C)	20 (C)	
RV	LVA	5	1,7	59	20	STEL: 1min
TLV	NOR	29	10	59	20	
TGG	NLD	29		59		TGG: 1 min
VLE	PRT	29	10	59	20	STEL: 1 min
NDS/NDSch	POL	10		29,5		SKIN
TLV	ROU	29	10	59	20	STEL: 1'
ПДК	RUS	5		15		n
NPEL	SVK	29	10	59	20	NPEL: 1'
WEL	GBR	29	10	59	20	STEL: 1-minute
OEL	EU	29	10	59	20	STEL: 1'
ACGIH		6	2			SKIN

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,003	mg/l
Normal value in marine water	0,0003	mg/l
Normal value for fresh water sediment	0,0236	mg/kg
Normal value for marine water sediment	0,00236	mg/kg
Normal value of STP microorganisms	0,9	mg/l
Normal value for the terrestrial compartment	1	mg/kg

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers		Chronic local	Chronic systemic	Effects on workers			
	Acute local	Acute systemic			Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation					30 mg/m3		30 mg/m3	
Skin					1 mg/cm2		1 mg/cm2	

SECTION 8. Exposure controls/personal protection ... / >>

Benzyl methacrylate

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,01	mg/l
Normal value in marine water	0,001	mg/l
Normal value for fresh water sediment	0,423	mg/kg/d
Normal value for marine water sediment	0,042	mg/kg/d
Normal value of STP microorganisms	1,33	mg/l
Normal value for the terrestrial compartment	0,079	mg/kg/d

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers		Chronic local	Chronic systemic	Effects on workers		Chronic local	Chronic systemic
	Acute local	Acute systemic			Acute local	Acute systemic		
Oral		LOW		4,17 mg/kg bw/d				
Inhalation				7,2 mg/m3				24,2 mg/m3
Skin	MED	LOW		4,17 mg/kg bw/d	MED	LOW		6,94 mg/kg bw/d

Methacrylate-Terminated Butadiene-Acrylonitrile Copolymer

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,002	mg/l
Normal value in marine water	0,0002	mg/l
Normal value for marine water, intermittent release	0,707	mg/l
Normal value of STP microorganisms	42	mg/l
Normal value for the terrestrial compartment	1	mg/kg

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers		Chronic local	Chronic systemic	Effects on workers		Chronic local	Chronic systemic
	Acute local	Acute systemic			Acute local	Acute systemic		
Oral				0.39 mg/kg bw/d				
Inhalation				0.68 mg/m3				2.75 mg/m3
Skin				0.39 mg/kg bw/d				0.78 mg/kg/d

Cumene hydroperoxide

Threshold Limit Value

Type	Country	TWA/8h	STEL/15min	Remarks / Observations
		mg/m3	mg/m3	
RV	LVA	1		

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,0031	mg/l
Normal value in marine water	0,00031	mg/l
Normal value for fresh water sediment	0,023	mg/kg
Normal value for marine water sediment	0,0023	mg/kg
Normal value for water, intermittent release	0,031	mg/l
Normal value of STP microorganisms	0,35	mg/l
Normal value for the terrestrial compartment	0,0029	mg/kg

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers		Chronic local	Chronic systemic	Effects on workers		Chronic local	Chronic systemic
	Acute local	Acute systemic			Acute local	Acute systemic		
Inhalation								6 mg/m3

SECTION 8. Exposure controls/personal protection ... / >>

tert-Amyl hydroperoxide

Predicted no-effect concentration - PNEC

Normal value in fresh water	0,012	mg/l
Normal value in marine water	0,0012	mg/l
Normal value for fresh water sediment	0,4374	mg/kg
Normal value for marine water sediment	0,04374	mg/kg
Normal value for water, intermittent release	0,012	mg/l
Normal value of STP microorganisms	3,3	mg/l
Normal value for the terrestrial compartment	0,0804	mg/kg

Health - Derived no-effect level - DNEL / DMEL

Route of exposure	Effects on consumers				Effects on workers			
	Acute local	Acute systemic	Chronic local	Chronic systemic	Acute local	Acute systemic	Chronic local	Chronic systemic
Inhalation								0,78 mg/m3
Skin								0,44 mg/kg/d

Legend:

(C) = CEILING ; INHAL = Inhalable Fraction ; RESP = Respirable Fraction ; THORA = Thoracic Fraction.
VND = hazard identified but no DNEL/PNEC available ; NEA = no exposure expected ; NPI = no hazard identified ; LOW = low hazard ; MED = medium hazard ; HIGH = high hazard.

8.2. Exposure controls

As the use of adequate technical equipment must always take priority over personal protective equipment, make sure that the workplace is well aired through effective local aspiration.

When choosing personal protective equipment, ask your chemical substance supplier for advice.

Personal protective equipment must be CE marked, showing that it complies with applicable standards.

Provide an emergency shower with face and eye wash station.

HAND PROTECTION

Protect hands with category III work gloves.

The following should be considered when choosing work glove material (see standard EN 374): compatibility, degradation, permeability time.

The work gloves' resistance to chemical agents should be checked before use, as it can be unpredictable. The gloves' wear time depends on the duration and type of use.

SKIN PROTECTION

Wear category II professional long-sleeved overalls and safety footwear (see Regulation 2016/425 and standard EN ISO 20344). Wash body with soap and water after removing protective clothing.

EYE PROTECTION

Wear airtight protective goggles (see standard EN ISO 16321).

RESPIRATORY PROTECTION

Respiratory protection devices must be used if the technical measures adopted are not suitable for restricting the worker's exposure to the threshold values considered. Use a mask with a type A filter whose class (1, 2 or 3) must be chosen according to the limit of use concentration. (see standard EN 14387).

If the substance considered is odourless or its olfactory threshold is higher than the corresponding TLV-TWA and in the case of an emergency, wear open-circuit compressed air breathing apparatus (in compliance with standard EN 137) or external air-intake breathing apparatus (in compliance with standard EN 138). For a correct choice of respiratory protection device, see standard EN 529.

ENVIRONMENTAL EXPOSURE CONTROLS

The emissions generated by manufacturing processes, including those generated by ventilation equipment, should be checked to ensure compliance with environmental standards.

Product residues must not be indiscriminately disposed of with waste water or by dumping in waterways.

SECTION 9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

Properties	Value	Information
Appearance	liquid	
Colour	green	
Odour	characteristic	
Melting point / freezing point	not available	
Initial boiling point	not available	
Flammability	not available	
Lower explosive limit	not available	
Upper explosive limit	not available	
Flash point	> 100 °C	

SECTION 9. Physical and chemical properties ... / >>

Auto-ignition temperature	not available	
Decomposition temperature	not available	
pH	not available	Reason for missing data: substance/mixture is non-soluble (in water)
Kinematic viscosity	not available	
Dynamic viscosity	~9000 mPa.s Thixo	Temperature: 23 °C
Solubility	not available	
Partition coefficient: n-octanol/water	not available	
Vapour pressure	not available	
Density and/or relative density	1,1	
Relative vapour density	not available	
Particle characteristics	not applicable	

9.2. Other information

9.2.1. Information with regard to physical hazard classes

Information not available

9.2.2. Other safety characteristics

Information not available

SECTION 10. Stability and reactivity

10.1. Reactivity

There are no particular risks of reaction with other substances in normal conditions of use.

Ethylene glycol

In the air absorbs moisture. Decomposes at temperatures above 200°C/392°F.

Acrylic acid

Keep away from: oxidising agents. Maintaining a temperature of less than 13°C/55°F. May polymerise if exposed to: heat.

10.2. Chemical stability

The product is stable in normal conditions of use and storage.

10.3. Possibility of hazardous reactions

The vapours may also form explosive mixtures with the air.

Ethylene glycol

Risk of explosion on contact with: perchloric acid. May react dangerously with: chlorosulphuric acid, sodium hydroxide, sulphuric acid, phosphorus pentasulphide, chromium (III) oxide, chromyl chloride, potassium perchlorate, potassium dichromate, sodium peroxide, aluminium. Forms explosive mixtures with: air.

Acrylic acid

Risk of explosion on contact with: oxidising agents, oxygen, peroxides. May polymerise on contact with: alkaline hydroxides, amines, ammonia, sulphuric acid. Forms explosive mixtures with: hot air.

10.4. Conditions to avoid

Avoid overheating. Avoid bunching of electrostatic charges. Avoid all sources of ignition.

Ethylene glycol

Avoid exposure to: sources of heat, naked flames.

Acrylic acid

Avoid exposure to: light, sources of heat, naked flames. Avoid contact with: oxygen.

10.5. Incompatible materials

Acrylic acid

Incompatible with: peroxides, oxidising substances, strong acids, strong bases, amines, iron salts, oleum, chlorosulphuric acid.

10.6. Hazardous decomposition products

In the event of thermal decomposition or fire, gases and vapours that are potentially dangerous to health may be released.

Ethylene glycol

May develop: hydroxyacetaldehyde, glyoxal, acetaldehyde, methane, carbon monoxide, hydrogen.

SECTION 11. Toxicological information

In the absence of experimental data for the product itself, health hazards are evaluated according to the properties of the substances it contains, using the criteria specified in the applicable regulation for classification.
It is therefore necessary to take into account the concentration of the individual hazardous substances indicated in section 3, to evaluate the toxicological effects of exposure to the product.

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Metabolism, toxicokinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Ethylene glycol

WORKERS: inhalation; contact with the skin.

POPULATION: inhalation of ambient air; contact with the skin of products containing the substance.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Ethylene glycol

Ingestion initially stimulates the central nervous system; later replaced by a phase of depression. There may be kidney damage, with anuria and uremia. Over-exposure symptoms are: vomiting, drowsiness, difficulty in breathing, convulsions. The lethal dose for humans is approx. 1.4 ml/kg.

Interactive effects

Information not available

ACUTE TOXICITY

ATE (Inhalation - mists / powders) of the mixture:	> 5 mg/l
ATE (Inhalation - vapours) of the mixture:	> 20 mg/l
ATE (Oral) of the mixture:	>2000 mg/kg
ATE (Dermal) of the mixture:	>2000 mg/kg

Hydroxypropyl methacrylate

LD50 (Dermal): > 5000 mg/kg

LD50 (Oral): > 5000 mg/kg

Benzyl methacrylate

LD50 (Dermal): > 2000 mg/kg

LD50 (Oral): 3980 mg/kg

Methacrylate-Terminated Butadiene-Acrylonitrile Copolymer

LD50 (Dermal): > 2000 mg/kg

LD50 (Oral): > 5000 mg/kg

LC50 (Inhalation mists/powders): > 2 mg/l/1h

Acrylic acid

LD50 (Dermal): > 2000 mg/kg Rabbit

ATE (Dermal): 1100 mg/kg estimate from table 3.1.2 of Annex I of the CLP
(figure used for calculation of the acute toxicity estimate of the mixture)

LD50 (Oral): 1500 mg/kg Rat

LC50 (Inhalation vapours): > 5,1 mg/l/4h Rat

ATE (Inhalation vapours): 11 mg/l estimate from table 3.1.2 of Annex I of the CLP
(figure used for calculation of the acute toxicity estimate of the mixture)

Cumene hydroperoxide

LD50 (Dermal): 1400 mg/kg

LD50 (Oral): 382 mg/kg

LC50 (Inhalation mists/powders): 1,37 mg/l/4h

ATE (Inhalation mists/powders): 0,501 mg/l estimate from table 3.1.2 of Annex I of the CLP
(figure used for calculation of the acute toxicity estimate of the mixture)

SECTION 11. Toxicological information ... / >>

Ethylene glycol	
LD50 (Dermal):	9530 mg/kg Rabbit
LD50 (Oral):	> 2000 mg/kg Rat
tert-Amyl hydroperoxide	
LD50 (Dermal):	446 mg/kg
LD50 (Oral):	500 mg/kg
LC50 (Inhalation vapours):	2425 mg/l/4h
ATE (Inhalation vapours):	3 mg/l estimate from table 3.1.2 of Annex I of the CLP (figure used for calculation of the acute toxicity estimate of the mixture)

SKIN CORROSION / IRRITATION

Causes skin irritation

SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye irritation

RESPIRATORY OR SKIN SENSITISATION

Sensitising for the skin

GERM CELL MUTAGENICITY

Does not meet the classification criteria for this hazard class

CARCINOGENICITY

Does not meet the classification criteria for this hazard class

Ethylene glycol
Available studies have shown no carcinogenic potential. In a carcinogenicity study lasting two years, carried out by the US National Toxicology Program (NTP), in which ethylene glycol was administered in the feed, "no evidence of carcinogenic activity" in male and female B6C3F1 mice was observed (NTP, 1993).

REPRODUCTIVE TOXICITY

Does not meet the classification criteria for this hazard class

STOT - SINGLE EXPOSURE

May cause respiratory irritation

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

ASPIRATION HAZARD

Does not meet the classification criteria for this hazard class

11.2. Information on other hazards

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with human health effects under evaluation.

SECTION 12. Ecological information

This product is dangerous for the environment and the aquatic organisms. In the long term, it has negative effects on the aquatic environment.

12.1. Toxicity

Hydroxypropyl methacrylate	
LC50 - for Fish	> 100 mg/l/96h
EC50 - for Crustacea	> 1,43 mg/l/48h
EC50 - for Algae / Aquatic Plants	> 97,2 mg/l/72h
Chronic NOEC for Crustacea	45,12 mg/l Daphnia magna- 21 d

SECTION 12. Ecological information ... / >>

Chronic NOEC for Algae / Aquatic Plants	97,2 mg/l
Benzyl methacrylate	
LC50 - for Fish	4,67 mg/l/96h
EC50 - for Algae / Aquatic Plants	2,8 mg/l/72h
EC10 for Crustacea	1,03 mg/l/21d Daphnia magna
EC10 for Algae / Aquatic Plants	1,08 mg/l/72h
BISPHENOL A DIGLYCIDYL ETHER ACRYLATE	
Chronic NOEC for Fish	0,25 mg/l
Chronic NOEC for Algae / Aquatic Plants	29 mg/l
Acrylic acid	
LC50 - for Fish	315 mg/l/96h Leuciscus idus melanotus
EC50 - for Crustacea	765 mg/l/48h Daphnia magna
EC50 - for Algae / Aquatic Plants	118 mg/l/72h Chlorococcales
Cumene hydroperoxide	
LC50 - for Fish	3,9 mg/l/96h
EC50 - for Crustacea	18,84 mg/l/48h
EC50 - for Algae / Aquatic Plants	3,1 mg/l/72h
Chronic NOEC for Crustacea	9,15 mg/l
Chronic NOEC for Algae / Aquatic Plants	1 mg/l

12.2. Persistence and degradability

BISPHENOL A DIGLYCIDYL ETHER ACRYLATE	
NOT rapidly degradable	
Methacrylate-Terminated Butadiene-Acrylonitrile Copolymer	
NOT rapidly degradable	
Acrylic acid	
Solubility in water	1000000 mg/l
Rapidly degradable	
Cumene hydroperoxide	
NOT rapidly degradable	
Ethylene glycol	
Solubility in water	1000 - 10000 mg/l
Rapidly degradable	

12.3. Bioaccumulative potential

Acrylic acid	
Partition coefficient: n-octanol/water	0,46
BCF	0,491
Ethylene glycol	
Partition coefficient: n-octanol/water	-1,36

12.4. Mobility in soil

Acrylic acid	
Partition coefficient: soil/water	0,78

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain any PBT or vPvB in percentage $\geq$ than 0,1%.

12.6. Endocrine disrupting properties

Based on the available data, the product does not contain substances listed in the main European lists of potential or suspected endocrine disruptors with environmental effects under evaluation.

	Permabond Engineering Adhesives Permabond A1046	Revision nr.5 Dated 27/01/2026 Printed on 27/01/2026 Page n. 14 / 17 Replaced revision:4 (Dated 09/05/2025) EN
SECTION 12. Ecological information ... / >>		
12.7. Other adverse effects Information not available		
SECTION 13. Disposal considerations		
13.1. Waste treatment methods Reuse, when possible. Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations. Disposal must be performed through an authorised waste management firm, in compliance with national and local regulations. The management of waste arising from the use or dispersal of this product must be organised in accordance with occupational safety regulations. See section 8 for possible need for PPE. CONTAMINATED PACKAGING Contaminated packaging must be recovered or disposed of in compliance with national waste management regulations. 08 04 09* stickers and sealed sealing, containing organic solvents or other dangerous substances		
SECTION 14. Transport information		
The product is not dangerous under current provisions of the Code of International Carriage of Dangerous Goods by Road (ADR) and by Rail (RID), of the International Maritime Dangerous Goods Code (IMDG), and of the International Air Transport Association (IATA) regulations. 14.1. UN number or ID number not applicable 14.2. UN proper shipping name not applicable 14.3. Transport hazard class(es) not applicable 14.4. Packing group not applicable 14.5. Environmental hazards not applicable 14.6. Special precautions for user not applicable 14.7. Maritime transport in bulk according to IMO instruments Information not relevant		
SECTION 15. Regulatory information		
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture Seveso Category - Directive 2012/18/EU: None Restrictions relating to the product or contained substances pursuant to Annex XVII to EC Regulation 1907/2006 Product Point 3 - 40 Contained substance		
EPY 12.1.0 - SDS 1004.14		

SECTION 15. Regulatory information ... / >>

Point 75

Regulation (EU) 2019/1148 - on the marketing and use of explosives precursors
not applicable

Substances in Candidate List (Art. 59 REACH)

On the basis of available data, the product does not contain any SVHC in percentage $\geq$ than 0,1%.

Substances subject to authorisation (Annex XIV REACH)

None

Substances subject to exportation reporting pursuant to Regulation (EU) 649/2012:

None

Substances subject to the Rotterdam Convention:

None

Substances subject to the Stockholm Convention:

None

Healthcare controls

Workers exposed to this chemical agent must not undergo health checks, provided that available risk-assessment data prove that the risks related to the workers' health and safety are modest and that the 98/24/EC directive is respected.

German regulation on the classification of substances hazardous to water (AwSV, vom 18. April 2017)

WGK 2: Hazard to waters

15.2. Chemical safety assessment

A chemical safety assessment has not been performed for the preparation/for the substances indicated in section 3.

SECTION 16. Other information

Text of hazard (H) indications mentioned in section 2-3 of the sheet:

Flam. Liq. 3	Flammable liquid, category 3
Org. Perox E	Organic peroxide, type E
Acute Tox. 3	Acute toxicity, category 3
Acute Tox. 4	Acute toxicity, category 4
STOT RE 2	Specific target organ toxicity - repeated exposure, category 2
Skin Corr. 1A	Skin corrosion, category 1A
Skin Corr. 1B	Skin corrosion, category 1B
Skin Corr. 1C	Skin corrosion, category 1C
Skin Corr. 1	Skin corrosion, category 1
Eye Dam. 1	Serious eye damage, category 1
Eye Irrit. 2	Eye irritation, category 2
Skin Irrit. 2	Skin irritation, category 2
STOT SE 3	Specific target organ toxicity - single exposure, category 3
Skin Sens. 1	Skin sensitization, category 1
Aquatic Acute 1	Hazardous to the aquatic environment, acute toxicity, category 1
Aquatic Chronic 2	Hazardous to the aquatic environment, chronic toxicity, category 2
Aquatic Chronic 3	Hazardous to the aquatic environment, chronic toxicity, category 3
H226	Flammable liquid and vapour.
H242	Heating may cause a fire.
H311	Toxic in contact with skin.
H331	Toxic if inhaled.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H315	Causes skin irritation.
H335	May cause respiratory irritation.
H317	May cause an allergic skin reaction.
H400	Very toxic to aquatic life.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

SECTION 16. Other information ... / >>

LEGEND:

- ADR: European Agreement concerning the carriage of Dangerous goods by Road
- ATE: Acute Toxicity Estimate
- CAS: Chemical Abstract Service Number
- CE50: Effective concentration (required to induce a 50% effect)
- CE: Identifier in ESIS (European archive of existing substances)
- CLP: Regulation (EC) 1272/2008
- DNEL: Derived No Effect Level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of classification and labeling of chemicals
- IATA DGR: International Air Transport Association Dangerous Goods Regulation
- IC50: Immobilization Concentration 50%
- IMDG: International Maritime Code for dangerous goods
- IMO: International Maritime Organization
- INDEX: Identifier in Annex VI of CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent, bioaccumulative and toxic
- PEC: Predicted environmental Concentration
- PEL: Predicted exposure level
- PMT: Persistent, mobile and toxic
- PNEC: Predicted no effect concentration
- REACH: Regulation (EC) 1907/2006
- RID: Regulation concerning the international transport of dangerous goods by train
- TLV: Threshold Limit Value
- TLV CEILING: Concentration that should not be exceeded during any time of occupational exposure.
- TWA: Time-weighted average exposure limit
- TWA STEL: Short-term exposure limit
- VOC: Volatile organic Compounds
- vPvB: Very persistent and very bioaccumulative
- vPvM: Very persistent and very mobile
- WGK: Water hazard classes (German).

GENERAL BIBLIOGRAPHY

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
 2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
 3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
 4. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
 5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
 6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
 7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
 8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
 9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
 10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
 11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
 12. Regulation (EU) 2016/1179 (IX Atp. CLP)
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 14. Regulation (EU) 2018/669 (XI Atp. CLP)
 15. Regulation (EU) 2019/521 (XII Atp. CLP)
 16. Delegated Regulation (UE) 2018/1480 (XIII Atp. CLP)
 17. Regulation (EU) 2019/1148
 18. Delegated Regulation (UE) 2020/217 (XIV Atp. CLP)
 19. Delegated Regulation (UE) 2020/1182 (XV Atp. CLP)
 20. Delegated Regulation (UE) 2021/643 (XVI Atp. CLP)
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 23. Delegated Regulation (UE) 2023/707
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 27. Delegated Regulation (UE) 2024/2564 (XXII Atp. CLP)
 28. Regulation (EU) 2024/2865
- The Merck Index. - 10th Edition
 - Handling Chemical Safety
 - INRS - Fiche Toxicologique (toxicological sheet)
 - Patty - Industrial Hygiene and Toxicology

SECTION 16. Other information ... / >>

- N.I. Sax - Dangerous properties of Industrial Materials-7, 1989 Edition
- IFA GESTIS website
- ECHA website
- Database of SDS models for chemicals - Ministry of Health and ISS (Istituto Superiore di Sanità) - Italy

Note for users:

The information contained in the present sheet are based on our own knowledge on the date of the last version. Users must verify the suitability and thoroughness of provided information according to each specific use of the product.

This document must not be regarded as a guarantee on any specific product property.

The use of this product is not subject to our direct control; therefore, users must, under their own responsibility, comply with the current health and safety laws and regulations. The producer is relieved from any liability arising from improper uses.

Provide appointed staff with adequate training on how to use chemical products.

CALCULATION METHODS FOR CLASSIFICATION

Chemical and physical hazards: Product classification derives from criteria established by the CLP Regulation, Annex I, Part 2. The data for evaluation of chemical-physical properties are reported in section 9.

Health hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 3, unless determined otherwise in Section 11.

Environmental hazards: Product classification is based on calculation methods as per Annex I of CLP, Part 4, unless determined otherwise in Section 12.

Changes to previous review:

The following sections were modified:

03 / 08.