

Permabond HM162

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 HM162**

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

 Intended use **Adhesive**

| Identified Uses | Industrial | Professional | Consumer |
|-----------------|------------|--------------|----------|
| Use | ✓ | ✓ | - |

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. |

SECTION 2. Hazards identification ... / >>

2.2. Label elements

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

Hazard pictograms:



Signal words: 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:

- P273** Avoid release to the environment.
- 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
2-HYDROXYETHYL METHACRYLATE
MALEIC ACID

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) |
|------------------------------------|-----------------------|--|
| 2-HYDROXYETHYL METHACRYLATE | | |
| INDEX | 607-124-00-X | $10 \leq x < 30$ |
| EC | 212-782-2 | |
| CAS | 868-77-9 | |
| REACH Reg. | 01-2119490169-29-XXXX | |
| Acrylic acid | | |
| INDEX | 607-061-00-8 | $2,5 \leq x < 3$ |
| EC | 201-177-9 | |
| CAS | 79-10-7 | |
| REACH Reg. | 01-2119452449-31 | |
| | | Eye Irrit. 2 H319, Skin Irrit. 2 H315, Skin Sens. 1 H317 |
| | | 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 |
| | | STOT SE 3 H335: \geq 1% |
| | | LD50 Oral: 1500 mg/kg, ATE Dermal: 1100 mg/kg, ATE Inhalation vapours: 11 mg/l |

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

MALEIC ACID

INDEX 0,1 ≤ x < 1

Acute Tox. 4 H302, Eye Irrit. 2 H319, Skin Irrit. 2 H315, STOT SE 3 H335, Skin Sens. 1 H317

ATE Oral: 500 mg/kg

EC 203-742-5

CAS 110-16-7

REACH Reg. 01-2119488705-25-XXXX

CUMYL HYDROPEROXIDE

INDEX 617-002-00-8 0,1 ≤ x < 1

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

EC 201-254-7

CAS 80-15-9

REACH Reg. 01-2119475796-19-XXXX

ETHANEDIOL

INDEX 603-027-00-1 0,1 ≤ x < 1

Acute Tox. 4 H302, STOT RE 2 H373

ATE Oral: 500 mg/kg

EC 203-473-3

CAS 107-21-1

REACH Reg. 01-2119456816-28-XXXX

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

CUMYL 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 (NO_x).

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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 tööohutuse |

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

| | | |
|-----|----------------|--|
| FRA | France | nöuded ning töökesskonna keemiliste ohutegurite piinormid 2024 Valeurs limites d'exposition professionnelle aux agents chimiques en France Décret 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 μεταλλαξιογόνους 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 védelmére |
| HRV | Hrvatska | PRAVILNIK O IZMJENAMA I DOPUNAMA PRAVILNIKA O ZAŠTITI RADNIKA OD IZLOŽENOSTI OPASNIM KEMIKALIJAMA NA RADU, GRANIČNIM VRIJEDNOSTIMA IZLOŽENOSTI I BIOLOŠKIM GRANIČNIM VRIJEDNOSTIMA |
| ITA | Italia | Decreto Legislativo 9 Aprile 2008, n.81 |
| LTU | Lietuva | Jsakymas dėl lietuvių 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" Oficiālā lapa publikācijas 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 mei 2024, nr. 2024-0000092805, tot wijziging van de Arbeidsomstandighedenregeling in verband met de implementatie van Richtlijn 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 Maddelerin 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. |

MALEIC ACID

Predicted no-effect concentration - PNEC

| | | |
|---|------|-------|
| Normal value in fresh water | 1 | mg/l |
| Normal value in marine water | 1 | mg/l |
| Normal value for fresh water sediment | 334 | mg/kg |
| Normal value for marine water sediment | 334 | mg/kg |
| Normal value for marine water, intermittent release | 4281 | mg/l |
| Normal value of STP microorganisms | 44,6 | mg/l |
| Normal value for the terrestrial compartment | 42 | 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 | | | | | 3 mg/m3 | 3 mg/m3 | 3 mg/m3 | 3 mg/m3 |

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

ETHANEDIOL

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 |

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 | | | 7 mg/m3 | | | | 35 mg/m3 | |
| Skin | | | | 53 mg/kg bw/d | | | 106 mg/kg bw/d | |

2-HYDROXYETHYL METHACRYLATE

Threshold Limit Value

| Type | Country | TWA/8h | | STEL/15min | | Remarks / Observations |
|------|---------|--------|-----|------------|-----|------------------------|
| | | mg/m3 | ppm | mg/m3 | ppm | |
| TLV | NOR | 11 | 2 | 11 | 2 | |

Predicted no-effect concentration - PNEC

| | | |
|--|--------|-------|
| Normal value in fresh water | 0,482 | mg/l |
| Normal value in marine water | 0,0482 | mg/l |
| Normal value for fresh water sediment | 3,79 | mg/kg |
| Normal value for marine water sediment | 3,79 | mg/kg |
| Normal value for fresh water, intermittent release | 1 | mg/l |
| Normal value of STP microorganisms | 10 | mg/l |
| Normal value for the terrestrial compartment | 0,476 | 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 |
| Oral | | | | 0.83 mg/kg/d | | | 0.83 mg/kg/d | |
| Inhalation | | | | 2.9 mg/m3 | | | 4.9 mg/m3 | |
| Skin | | | | 0.83 mg/kg/d | | | 1.3 mg/kg/d | |

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

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' |

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 | | | | Effects on workers | | | |
|-------------------|----------------------|----------------|---------------|------------------|--------------------|----------------|---------------|------------------|
| | Acute local | Acute systemic | Chronic local | Chronic systemic | Acute local | Acute systemic | Chronic local | Chronic systemic |
| Inhalation | | | | | 30 | | 30 | |
| | | | | | mg/m3 | | mg/m3 | |
| Skin | | | | | 1 | | 1 | |
| | | | | | mg/cm2 | | mg/cm2 | |

CUMYL HYDROPEROXIDE

Threshold Limit Value

| Type | Country | TWA/8h | | STEL/15min | | Remarks / Observations |
|------|---------|--------|-----|------------|-----|------------------------|
| | | mg/m3 | ppm | mg/m3 | ppm | |
| 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 | | | | Effects on workers | | | |
|-------------------|----------------------|----------------|---------------|------------------|--------------------|----------------|---------------|------------------|
| | Acute local | Acute systemic | Chronic local | Chronic systemic | Acute local | Acute systemic | Chronic local | Chronic systemic |
| Inhalation | | | | | | | | 6 |
| | | | | | | | | mg/m3 |

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.

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

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 | |
| 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 | ~1000 mPa.s | 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

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

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.

ETHANEDIOL

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.

ETHANEDIOL

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.

ETHANEDIOL

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.

ETHANEDIOL

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

ETHANEDIOL

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

SECTION 11. Toxicological information ... / >>

ETHANEDIOL

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

2-HYDROXYETHYL METHACRYLATE

LD50 (Dermal): > 5000 mg/kg
LD50 (Oral): > 5000 mg/kg

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)

MALEIC ACID

LD50 (Dermal): > 400 mg/kg
LD50 (Oral): 2870 mg/kg
LC50 (Inhalation mists/powders): > 0,72 mg/l/1h

CUMYL 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)

ETHANEDIOL

LD50 (Dermal): 9530 mg/kg Rabbit
LD50 (Oral): > 2000 mg/kg Rat

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

ETHANEDIOL

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

SECTION 11. Toxicological information ... / >>

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

2-HYDROXYETHYL METHACRYLATE

| | |
|-----------------------------------|----------------|
| LC50 - for Fish | > 100 mg/l/96h |
| EC50 - for Crustacea | 380 mg/l/48h |
| EC50 - for Algae / Aquatic Plants | 836 mg/l/72h |

Acrylic acid

| | |
|-----------------------------------|--|
| LC50 - for Fish | 315 mg/l/96h <i>Leuciscus idus melanotus</i> |
| EC50 - for Crustacea | 765 mg/l/48h <i>Daphnia magna</i> |
| EC50 - for Algae / Aquatic Plants | 118 mg/l/72h <i>Chlorococcales</i> |

MALEIC ACID

| | |
|-----------------------------------|----------------|
| LC50 - for Fish | 75 mg/l/96h |
| EC50 - for Crustacea | 42,81 mg/l/48h |
| EC50 - for Algae / Aquatic Plants | 74,32 mg/l/72h |

CUMYL 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

2-HYDROXYETHYL METHACRYLATE

Rapidly degradable

Acrylic acid

| | |
|---------------------|--------------|
| Solubility in water | 1000000 mg/l |
| Rapidly degradable | |

CUMYL HYDROPEROXIDE

NOT rapidly degradable

ETHANEDIOL

| | |
|---------------------|-------------------|
| Solubility in water | 1000 - 10000 mg/l |
| Rapidly degradable | |

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SECTION 12. Ecological information ... / >>

12.3. Bioaccumulative potential

| | |
|--|-------|
| Acrylic acid | |
| Partition coefficient: n-octanol/water | 0,46 |
| BCF | 0,491 |

| | |
|--|-------|
| ETHANEDIOL | |
| 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.

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

SECTION 14. Transport information ... / >>

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 | |
| 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 1: Low 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 |

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SECTION 16. Other information ... / >>

| | |
|--------------------------|--|
| 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. |
| 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. |

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

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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)
13. Regulation (EU) 2017/776 (X Atp. CLP)
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)
21. Delegated Regulation (UE) 2021/849 (XVII Atp. CLP)
22. Delegated Regulation (UE) 2022/692 (XVIII Atp. CLP)
23. Delegated Regulation (UE) 2023/707
24. Delegated Regulation (UE) 2023/1434 (XIX Atp. CLP)
25. Delegated Regulation (UE) 2023/1435 (XX Atp. CLP)
26. Delegated Regulation (UE) 2024/197 (XXI Atp. CLP)
27. Delegated Regulation (UE) 2024/2564 (XXII Atp. CLP)

- The Merck Index. - 10th Edition
- Handling Chemical Safety
- INRS - Fiche Toxicologique (toxicological sheet)
- Patty - Industrial Hygiene and Toxicology
- 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:

02 / 03 / 08.