

## Safety Data Sheet

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

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

#### 1.1. Product identifier

Product name **Permabond F201HV**

#### 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:

|                                                                    |       |                                                    |
|--------------------------------------------------------------------|-------|----------------------------------------------------|
| Reproductive toxicity, category 1B                                 | H360D | May damage the unborn child.                       |
| Serious eye damage, category 1                                     | H318  | Causes serious eye damage.                         |
| 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:

Danger

Hazard statements:

|              |                                                    |
|--------------|----------------------------------------------------|
| <b>H360D</b> | May damage the unborn child.                       |
| <b>H318</b>  | Causes serious eye damage.                         |
| <b>H315</b>  | Causes skin irritation.                            |
| <b>H335</b>  | May cause respiratory irritation.                  |
| <b>H317</b>  | May cause an allergic skin reaction.               |
| <b>H412</b>  | Harmful to aquatic life with long lasting effects. |
|              | Restricted to professional users.                  |

Precautionary statements:

|                       |                                                                                                                                  |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>P280</b>           | Wear protective gloves/ protective clothing / eye protection / face protection.                                                  |
| <b>P302+P352</b>      | In case of contact with the skin: wash abundantly with soap and water.                                                           |
| <b>P305+P351+P338</b> | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| <b>P308+P313</b>      | IF exposed or concerned: Get medical advice / attention.                                                                         |

Contains:

TETRAHYDROFURFURYL METHACRYLATE  
CUMYL HYDROPEROXIDE  
METHACRYLIC ACID  
HYDROXYPROPYL METHACRYLATE

### 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)                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------------------------------------------------|
| <b>TETRAHYDROFURFURYL METHACRYLATE</b>                                                                                                                                                                                    |                       |                                                                  |
| INDEX                                                                                                                                                                                                                     | $30 \leq x < 60$      | <b>Repr. 1B H360D, Skin Sens. 1 H317, Aquatic Chronic 3 H412</b> |
| EC                                                                                                                                                                                                                        | 219-529-5             |                                                                  |
| CAS                                                                                                                                                                                                                       | 2455-24-5             |                                                                  |
| REACH Reg.                                                                                                                                                                                                                | 1-2120748481-53-XXXX  |                                                                  |
| <b>HYDROXYPROPYL METHACRYLATE</b>                                                                                                                                                                                         |                       |                                                                  |
| INDEX                                                                                                                                                                                                                     | $10 \leq x < 30$      | <b>Eye Irrit. 2 H319, Skin Sens. 1 H317</b>                      |
| EC                                                                                                                                                                                                                        | 248-666-3             |                                                                  |
| CAS                                                                                                                                                                                                                       | 27813-02-1            |                                                                  |
| REACH Reg.                                                                                                                                                                                                                | 01-2119490226-37-XXXX |                                                                  |
| <b>2-PROPENOIC ACID, 2-METHYL-, 2-HYDROXY-3-[(1-OXO-2-PROPENYL)OXY]PROPYL ESTER, POLYMER WITH 1,3-BUTADIENE AND 2-PROPENENITRILE, 1-CYANO-4-[2-HYDROXY-3-[(2-METHYL-1-OXO-2-PROPENYL)OXY]PROPOXY]-1-METHYL-4-OXOBUTYL</b> |                       |                                                                  |

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

#### TERMINATED

INDEX 25 ≤ x < 30

Aquatic Chronic 3 H412

EC

CAS 118578-03-3

#### METHACRYLIC ACID

INDEX 607-088-00-5 1 ≤ x < 3

Acute Tox. 3 H311, Acute Tox. 4 H302, Acute Tox. 4 H332, Skin Corr. 1A H314, Eye Dam. 1 H318, STOT SE 3 H335, Classification note according to Annex VI to the CLP Regulation: D

EC 201-204-4

CAS 79-41-4

STOT SE 3 H335: ≥ 1%

LD50 Oral: 1320 mg/kg, LD50 Dermal: 750 mg/kg, ATE Inhalation vapours: 11 mg/l

REACH Reg. 01-2120741502-64-XXXX

#### CUMYL HYDROPEROXIDE

INDEX 617-002-00-8 1 ≤ x < 2,5

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

EC 201-254-7

CAS 80-15-9

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

REACH Reg. 01-2119475796-19-XXXX

#### CUMENE

INDEX 601-024-00-X 0 < x < 0,1

Flam. Liq. 3 H226, Carc. 1B H350, Asp. Tox. 1 H304, STOT SE 3 H335, Aquatic Chronic 2 H411

EC 202-704-5

CAS 98-82-8

REACH Reg. 01-2119473983-24-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

In case of doubt or in the presence of symptoms contact a doctor and show him this document.

In case of more severe symptoms, ask for immediate medical aid.

EYES: Remove, if present, contact lenses if the situation allows you to do so easily. Wash immediately with plenty of water for at least 15 minutes, opening the eyelids fully. Get medical advice/attention.

SKIN: Take off immediately all contaminated clothing. Wash immediately and thoroughly with running water (and soap if possible). Get medical advice/attention. Avoid further contact with contaminated clothing.

INGESTION: Do not induce vomiting unless explicitly authorised by a doctor. Do not give anything by mouth to an unconscious person. Get medical advice/attention.

INHALATION: Remove victim to fresh air, away from the accident scene. In the event of respiratory symptoms (coughing, wheezing, breathing difficulty, asthma) keep the victim in a comfortable position for breathing. If necessary administer oxygen. If the subject stops breathing, administer artificial respiration. Get medical advice/attention.

#### Rescuer protection

It is good practice for rescuers lending support to a person who has been exposed to a chemical substance or to a mixture to wear personal protective equipment. The nature of such protection depends on the hazard level of the substance or mixture, on the type of exposure and on the extent of the contamination. In the absence of other more specific indications, use of disposable gloves in the event of possible contact with body fluids is recommended. For the type of PPE suitable for the characteristics of the substance or mixture, see section 8.

#### 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

If symptoms occur, whether acute or delayed, consult a doctor.

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

Running water for skin and eye wash.

## 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 (CO<sub>2</sub>), and nitric oxides (NO<sub>x</sub>).

### 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.

Storage class TRGS 510 (Germany):

6.1C

### 7.3. Specific end use(s)

Adhesive

## Permabond F201HV

### 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.5 от 17 Януари 2020г.)                                                                                                                                                                                        |
| CZE | Česká Republika | NAŘÍZENÍ VLÁDY ze dne 10. května 2021, kterým se mění nařízení vlády č. 361/2007 Sb., kterým se stanoví podmínky ochrany zdraví při práci                                                                                                                                                                                                             |
| DEU | Deutschland     | Forschungsgemeinschaft MAK- und BAT-Werte-Liste 2022 Ständige Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe Mitteilung 58                                                                                                                                                                                                         |
| DNK | Danmark         | Bekendtgørelse om grænseværdier for stoffer og materialer - BEK nr 1458 af 13/12/2019                                                                                                                                                                                                                                                                 |
| ESP | España          | Límites de exposición profesional para agentes químicos en España 2023                                                                                                                                                                                                                                                                                |
| EST | Eesti           | Ohtlike kemikaalide ja neid sisaldavate materjalide kasutamise töötervishoiu ja tööohutuse nõuded ning töökeskonna keemiliste ohutegurite piirnormid [RT I, 21.12.2022, 14]                                                                                                                                                                           |
| 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 μεταλλαζιγόνους 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 opasnimkemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)                                                                                                                                                         |
| ITA | Italia          | Decreto Legislativo 9 Aprile 2008, n.81                                                                                                                                                                                                                                                                                                               |
| LTU | Lietuva         | Jsakymas dėl lietuvis 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" (prot. Nr. 32 18. §; prot. Nr. 1 22. §)                                                                                                                                                                   |
| NOR | Norge           | Forskrift om ending i forskrift om tiltaksverdier og grenseverdier for fysiske og kjemiske faktorer i arbeidsmiljøet samt smitterisikogrupper for biologiske faktorer (forskrift om tiltaks- og grenseverdier), 21. august 2018 nr. 1255                                                                                                              |
| NLD | Nederland       | Arbeidsomstandighedenregeling. Lijst van wettelijke grenswaarden op grond van de artikelen 4.3, eerste lid, en 4.16, eerste lid, van het Arbeidsomstandighedenbesluit                                                                                                                                                                                 |
| PRT | Portugal        | Decreto-Lei n.º 1/2021 de 6 de janeiro, valores-limite de exposição profissional indicativos para os agentes químicos. Decreto-Lei n.º 35/2020 de 13 de julho, proteção dos trabalhadores contra os riscos ligados à exposição durante o trabalho a agentes cancerígenos ou mutagénicos                                                               |
| POL | Polska          | Rozporządzenie ministra rozwoju, pracy i technologii z dnia 18 lutego 2021 r. Zmieniające rozporządzenie w sprawie najwyższych dopuszczalnych stężeń i natężeń czynników szkodliwych dla zdrowia w środowisku pracy                                                                                                                                   |
| ROU | România         | Hotărârea nr. 53/2021 pentru modificarea hotărârii guvernului nr. 1.218/2006, precum și pentru modificarea și completarea hotărârii guvernului nr. 1.093/2006                                                                                                                                                                                         |
| SWE | Sverige         | Hygieniska gränsvärden, Arbetsmiljöverkets föreskrifter och allmänna råd om hygieniska gränsvärden (AFS 2018:1)                                                                                                                                                                                                                                       |
| SVK | Slovensko       | NARIADENIE VLÁDY Slovenskej republiky z 12. augusta 2020, ktorým sa mení a dopĺňa nariadenie vlády Slovenskej republiky č. 356/2006 Z. z. o ochrane zdravia zamestnancov pred rizikami súvisiacimi s expozíciou karcinogénnym a mutagénnym faktorom pri práci v znení neskorších predpisov                                                            |
| SVN | Slovenija       | Pravilnik o varovanju delavcev pred tveganji zaradi izpostavljenosti kemičnim snovem pri delu (Uradni list RS, št. 100/01, 39/05, 53/07, 102/10, 43/11 – ZVZD-1, 38/15, 78/18 in 78/19)                                                                                                                                                               |
| 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.                                                            |
|     | TLV-ACGIH       | ACGIH 2023                                                                                                                                                                                                                                                                                                                                            |

**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<br>local | Chronic<br>systemic | Effects on workers |                   |                  |                      |
|-------------------|----------------------|-------------------|------------------|---------------------|--------------------|-------------------|------------------|----------------------|
|                   | Acute<br>local       | Acute<br>systemic |                  |                     | Acute<br>local     | Acute<br>systemic | Chronic<br>local | Chronic<br>systemic  |
| Oral              |                      |                   |                  |                     |                    |                   |                  | 14.7<br>mg/kg/d      |
| Skin              |                      |                   |                  |                     |                    |                   |                  | 4.2<br>mg/kg<br>bw/d |

**METHACRYLIC ACID**

**Threshold Limit Value**

| Type    | Country | TWA/8h |     | STEL/15min |     | Remarks / Observations |
|---------|---------|--------|-----|------------|-----|------------------------|
|         |         | mg/m3  | ppm | mg/m3      | ppm |                        |
| AGW     | DEU     | 180    | 50  | 360        | 100 |                        |
| TLV     | DNK     | 70     | 20  |            |     |                        |
| VLA     | ESP     | 72     | 20  |            |     |                        |
| VLEP    | FRA     | 70     | 20  |            |     |                        |
| HTP     | FIN     | 71     | 20  |            |     |                        |
| RV      | LVA     | 10     |     |            |     |                        |
| TLV     | NOR     | 70     | 20  |            |     |                        |
| TLV     | ROU     | 30     | 8,5 |            |     |                        |
| NGV/KGV | SWE     | 70     | 20  | 100        | 30  |                        |
| WEL     | GBR     | 72     | 20  | 143        | 40  |                        |

**Predicted no-effect concentration - PNEC**

|                              |      |      |
|------------------------------|------|------|
| Normal value in fresh water  | 0,82 | mg/l |
| Normal value in marine water | 0,82 | mg/l |

**Health - Derived no-effect level - DNEL / DMEL**

| Route of exposure | Effects on consumers |                   | Chronic<br>local | Chronic<br>systemic | Effects on workers |                   |                  |                       |
|-------------------|----------------------|-------------------|------------------|---------------------|--------------------|-------------------|------------------|-----------------------|
|                   | Acute<br>local       | Acute<br>systemic |                  |                     | Acute<br>local     | Acute<br>systemic | Chronic<br>local | Chronic<br>systemic   |
| Inhalation        |                      |                   | 6.55<br>mg/m3    | 6.3<br>mg/m3        |                    |                   | 88<br>mg/m3      | 29.6<br>mg/m3         |
| Skin              |                      |                   |                  | 2.55<br>mg/kg bw/d  |                    |                   |                  | 4.25<br>mg/kg<br>bw/d |

**TETRAHYDROFURFURYL METHACRYLATE**

**Predicted no-effect concentration - PNEC**

|                                              |       |         |
|----------------------------------------------|-------|---------|
| Normal value in fresh water                  | 0,347 | mg/l    |
| Normal value in marine water                 | 0,035 | mg/l    |
| Normal value for fresh water sediment        | 2,12  | mg/kg/d |
| Normal value for marine water sediment       | 0,212 | mg/kg/d |
| Normal value of STP microorganisms           | 15,8  | mg/l    |
| Normal value for the terrestrial compartment | 0,221 | mg/kg/d |

**Health - Derived no-effect level - DNEL / DMEL**

| Route of exposure | Effects on consumers |                   | Chronic<br>local | Chronic<br>systemic | Effects on workers |                   |                  |                     |
|-------------------|----------------------|-------------------|------------------|---------------------|--------------------|-------------------|------------------|---------------------|
|                   | Acute<br>local       | Acute<br>systemic |                  |                     | Acute<br>local     | Acute<br>systemic | Chronic<br>local | Chronic<br>systemic |
| Oral              |                      |                   |                  | 0.5<br>mg/kg/d      |                    |                   |                  |                     |
| Inhalation        |                      |                   |                  | 0.87<br>mg/m3       |                    |                   |                  | 3.53<br>mg/m3       |
| Skin              |                      |                   |                  | 0.5<br>mg/kg/d      |                    |                   |                  | 1<br>mg/kg/d        |

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

**2-PROPENOIC ACID, 2-METHYL-, 2-HYDROXY-3-[(1-OXO-2-PROPENYL)OXY]PROPYL ESTER, POLYMER WITH 1,3-BUTADIENE AND 2-PROPENITRILE, 1-CYANO-4-[2-HYDROXY-3-[(2-METHYL-1-OXO-2-PROPENYL)OXY]PROPOXY]-1-METHYL-4-OXOBUTYL TERMINATED**

**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<br>mg/kg bw/d |                    |                |               |                  |
| Inhalation        |                      |                |               | 0.68<br>mg/m3      |                    |                |               | 2.75<br>mg/m3    |
| Skin              |                      |                |               | 0.39<br>mg/kg bw/d |                    |                |               | 0.78<br>mg/kg/d  |

**CUMYL HYDROPEROXIDE**

**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<br>mg/m3       |

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

| CUMENE                |         |        |     |            |     |                        |
|-----------------------|---------|--------|-----|------------|-----|------------------------|
| Threshold Limit Value |         |        |     |            |     |                        |
| Type                  | Country | TWA/8h |     | STEL/15min |     | Remarks / Observations |
|                       |         | mg/m3  | ppm | mg/m3      | ppm |                        |
| TLV                   | BGR     | 100    | 20  | 250        | 50  | SKIN                   |
| TLV                   | CZE     | 100    | 20  | 250        | 50  | SKIN                   |
| AGW                   | DEU     | 50     | 10  | 200        | 40  | SKIN                   |
| TLV                   | DNK     | 100    | 20  |            |     | SKIN E                 |
| VLA                   | ESP     | 50     | 10  | 250        | 50  | SKIN                   |
| TLV                   | EST     | 100    | 20  | 250        | 50  | SKIN                   |
| VLEP                  | FRA     | 100    | 20  | 250        | 50  | SKIN                   |
| HTP                   | FIN     | 50     | 10  | 250        | 50  | SKIN                   |
| TLV                   | GRC     | 245    | 50  | 370        | 75  |                        |
| AK                    | HUN     | 50     |     | 250        |     | SKIN                   |
| GVI/KGVI              | HRV     | 50     | 10  | 250        | 50  | SKIN                   |
| VLEP                  | ITA     | 100    | 20  | 250        | 50  | SKIN                   |
| RD                    | LTU     | 50     | 10  | 170        | 35  | SKIN                   |
| RV                    | LVA     | 100    | 20  | 250        | 50  | SKIN                   |
| TLV                   | NOR     | 100    | 20  | 250        | 50  | SKIN                   |
| TGG                   | NLD     | 100    |     | 250        |     | SKIN                   |
| VLE                   | PRT     | 50     | 10  | 250        | 50  | INHAL                  |
| VLE                   | PRT     | 50     | 10  | 250        | 50  | SKIN                   |
| NDS/NDSch             | POL     | 50     |     | 250        |     | SKIN                   |
| TLV                   | ROU     | 50     | 10  | 250        | 50  | SKIN                   |
| NGV/KGV               | SWE     | 50     | 10  | 250        | 50  | SKIN                   |
| NPEL                  | SVK     | 50     | 10  | 250        | 50  | SKIN                   |
| MV                    | SVN     | 100    | 20  | 250        | 50  | SKIN                   |
| ESD                   | TUR     | 100    | 20  | 250        | 50  | SKIN                   |
| WEL                   | GBR     | 125    | 25  | 250        | 50  | SKIN                   |
| OEL                   | EU      | 50     | 10  | 250        | 50  | SKIN                   |
| TLV-ACGIH             |         |        | 5   |            |     |                        |

**Predicted no-effect concentration - PNEC**

|                                              |       |         |
|----------------------------------------------|-------|---------|
| Normal value in fresh water                  | 0,035 | mg/l    |
| Normal value in marine water                 | 0,004 | mg/l    |
| Normal value for fresh water sediment        | 3,22  | mg/kg/d |
| Normal value for marine water sediment       | 0,322 | mg/kg/d |
| Normal value of STP microorganisms           | 200   | mg/l    |
| Normal value for the terrestrial compartment | 0,624 | mg/kg/d |

**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              |                      |                |               | 5                |                    |                |               |                  |
|                   |                      |                |               | mg/kg bw/d       |                    |                |               |                  |
| Inhalation        |                      |                |               | 16,6             |                    |                | 250           | 100              |
|                   |                      |                |               | mg/m3            |                    |                | mg/m3         | mg/m3            |
| Skin              |                      |                |               | 1,2              |                    |                |               | 15,4             |
|                   |                      |                |               | mg/kg bw/d       |                    |                |               | mg/kg bw/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**

## Permabond F201HV

### SECTION 8. Exposure controls/personal 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                                 | brown              |                                                                     |
| 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                      | ~32500 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                  |                                                                     |
| 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

Information not available

#### 10.2. Chemical stability

The product is stable if stored in original containers at temperatures lower than the self accelerated decomposition temperature (SADT).

## SECTION 10. Stability and reactivity ... / >>

### 10.3. Possibility of hazardous reactions

Information not available

### 10.4. Conditions to avoid

Avoid overheating. Avoid bunching of electrostatic charges. Avoid all sources of ignition. Avoid transferring into containers that may have been contaminated with other substances. Avoid storing close to inflammable or combustible products.

### 10.5. Incompatible materials

Strong reducing or oxidising agents, strong acids or alkalis, hot material.

### 10.6. Hazardous decomposition products

Thermal decomposition can lead to the formation of explosive peroxides or other potentially hazardous substances.

## 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

Information not available

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

Information not available

#### 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 |

#### METHACRYLIC ACID

|                            |                                                                                                                                        |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| LD50 (Dermal):             | 750 mg/kg                                                                                                                              |
| LD50 (Oral):               | 1320 mg/kg                                                                                                                             |
| LC50 (Inhalation vapours): | 7,1 mg/l/4h                                                                                                                            |
| ATE (Inhalation vapours):  | 11 mg/l estimate from table 3.1.2 of Annex I of the CLP<br>(figure used for calculation of the acute toxicity estimate of the mixture) |

#### TETRAHYDROFURFURYL METHACRYLATE

|              |            |
|--------------|------------|
| LD50 (Oral): | 3945 mg/kg |
|--------------|------------|

2-PROPENOIC ACID, 2-METHYL-, 2-HYDROXY-3-[(1-OXO-2-PROPENYL)OXY]PROPYL ESTER, POLYMER WITH 1,3-BUTADIENE AND 2-PROPENENITRILE, 1-CYANO-4-[2-HYDROXY-3-[(2-METHYL-1-OXO-2-PROPENYL)OXY]PROPOXY]-1-METHYL-4-OXOBUTYL TERMINATED

|                                  |              |
|----------------------------------|--------------|
| LD50 (Dermal):                   | > 2000 mg/kg |
| LD50 (Oral):                     | > 5000 mg/kg |
| LC50 (Inhalation mists/powders): | > 2 mg/l/1h  |

### SECTION 11. Toxicological information ... / >>

#### 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<br>(figure used for calculation of the acute toxicity estimate of the mixture) |

#### CUMENE

|                            |                     |
|----------------------------|---------------------|
| LD50 (Dermal):             | > 3160 mg/kg Rabbit |
| LD50 (Oral):               | 1400 mg/kg Rat      |
| LC50 (Inhalation vapours): | > 17,6 mg/l/6h Rat  |

#### SKIN CORROSION / IRRITATION

Causes skin irritation

#### SERIOUS EYE DAMAGE / IRRITATION

Causes serious eye damage

#### 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

#### REPRODUCTIVE TOXICITY

May damage the unborn child

#### 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

##### METHACRYLIC ACID

|                                   |                |
|-----------------------------------|----------------|
| LC50 - for Fish                   | 85 mg/l/96h    |
| EC50 - for Crustacea              | > 130 mg/l/48h |
| EC50 - for Algae / Aquatic Plants | 45 mg/l/72h    |

##### TETRAHYDROFURFURYL METHACRYLATE

|                                   |                |
|-----------------------------------|----------------|
| LC50 - for Fish                   | 34,7 mg/l/96h  |
| EC50 - for Crustacea              | 69 mg/l/48h    |
| EC50 - for Algae / Aquatic Plants | > 100 mg/l/72h |

## SECTION 12. Ecological information ... / >>

|                                         |                |
|-----------------------------------------|----------------|
| Chronic NOEC for Fish                   | 9,4 mg/l       |
| Chronic NOEC for Crustacea              | 37,2 mg/l      |
| 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

METHACRYLIC ACID  
Rapidly degradable

TETRAHYDROFURFURYL METHACRYLATE  
NOT rapidly degradable

2-PROPENOIC ACID, 2-METHYL-, 2-HYDROXY-3-[(1-OXO-2-PROPENYL)OXY]PROPYL ESTER, POLYMER WITH 1,3-BUTADIENE AND 2-PROPENITRILE, 1-CYANO-4-[2-HYDROXY-3-[(2-METHYL-1-OXO-2-PROPENYL)OXY]PROPOXY]-1-METHYL-4-OXOBUTYL TERMINATED  
NOT rapidly degradable

CUMYL HYDROPEROXIDE  
NOT rapidly degradable

CUMENE  
Solubility in water  
Rapidly degradable

0,1 - 100 mg/l

### 12.3. Bioaccumulative potential

TETRAHYDROFURFURYL METHACRYLATE  
Partition coefficient: n-octanol/water

1,38 Log Kow

CUMENE  
Partition coefficient: n-octanol/water  
BCF

3,55  
94,69

### 12.4. Mobility in soil

Information not available

### 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.

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

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

## Permabond F201HV

### SECTION 15. Regulatory information ... / >>

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:

|                          |                                                                    |
|--------------------------|--------------------------------------------------------------------|
| <b>Flam. Liq. 3</b>      | Flammable liquid, category 3                                       |
| <b>Org. Perox E</b>      | Organic peroxide, type E                                           |
| <b>Carc. 1B</b>          | Carcinogenicity, category 1B                                       |
| <b>Repr. 1B</b>          | Reproductive toxicity, category 1B                                 |
| <b>Acute Tox. 3</b>      | Acute toxicity, category 3                                         |
| <b>Acute Tox. 4</b>      | Acute toxicity, category 4                                         |
| <b>Asp. Tox. 1</b>       | Aspiration hazard, category 1                                      |
| <b>STOT RE 2</b>         | Specific target organ toxicity - repeated exposure, category 2     |
| <b>Skin Corr. 1A</b>     | Skin corrosion, category 1A                                        |
| <b>Skin Corr. 1B</b>     | Skin corrosion, category 1B                                        |
| <b>Skin Corr. 1C</b>     | Skin corrosion, category 1C                                        |
| <b>Skin Corr. 1</b>      | Skin corrosion, category 1                                         |
| <b>Eye Dam. 1</b>        | Serious eye damage, category 1                                     |
| <b>Eye Irrit. 2</b>      | Eye irritation, category 2                                         |
| <b>Skin Irrit. 2</b>     | Skin irritation, category 2                                        |
| <b>STOT SE 3</b>         | Specific target organ toxicity - single exposure, category 3       |
| <b>Skin Sens. 1</b>      | Skin sensitization, category 1                                     |
| <b>Aquatic Chronic 2</b> | Hazardous to the aquatic environment, chronic toxicity, category 2 |
| <b>Aquatic Chronic 3</b> | Hazardous to the aquatic environment, chronic toxicity, category 3 |
| <b>H226</b>              | Flammable liquid and vapour.                                       |
| <b>H242</b>              | Heating may cause a fire.                                          |
| <b>H350</b>              | May cause cancer.                                                  |
| <b>H360D</b>             | May damage the unborn child.                                       |
| <b>H311</b>              | Toxic in contact with skin.                                        |
| <b>H331</b>              | Toxic if inhaled.                                                  |
| <b>H302</b>              | Harmful if swallowed.                                              |
| <b>H312</b>              | Harmful in contact with skin.                                      |
| <b>H332</b>              | Harmful if inhaled.                                                |
| <b>H304</b>              | May be fatal if swallowed and enters airways.                      |
| <b>H373</b>              | May cause damage to organs through prolonged or repeated exposure. |
| <b>H314</b>              | Causes severe skin burns and eye damage.                           |
| <b>H318</b>              | Causes serious eye damage.                                         |
| <b>H319</b>              | Causes serious eye irritation.                                     |
| <b>H315</b>              | Causes skin irritation.                                            |
| <b>H335</b>              | May cause respiratory irritation.                                  |
| <b>H317</b>              | May cause an allergic skin reaction.                               |
| <b>H411</b>              | Toxic to aquatic life with long lasting effects.                   |
| <b>H412</b>              | 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

**SECTION 16. Other information ... / >>**

- 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)
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)
24. Delegated Regulation (UE) 2023/1435 (XX 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.

**SECTION 16. Other information** ... / >>**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 / 04 / 08 / 12 / 16.