

## 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

Code: 32C  
Product name: NORPHEN 200 HCR (A)

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

Intended use: SOLVENT-FREE EPOXY ENAMEL WITH HIGH CHEMICAL RESISTANCE

#### 1.3. Details of the supplier of the safety data sheet

Name: NORD RESINE S.p.A.  
Full address: Via Fornace Vecchia, 79  
District and Country: 31058 Susegana (TV)  
Italia  
Tel.: +39 0438-437511  
Fax: +39 0438-435155

e-mail address of the competent person responsible for the Safety Data Sheet: annabreda@nordresine.com

Supplier: NORD RESINE S.p.A.

#### 1.4. Emergency telephone number

For urgent inquiries refer to:

**Ireland**  
National Poisons Information Centre  
+353 018092166  
+353 018092566

**Malta**  
Malta Competition and Consumer Affairs Authority (MCCAA)  
+356 2395 2000

**Belgium**  
Centre Antipoisons: +32 022649636

**Germany**  
BfR Bundesinstitut für Risikobewertung: +49 30184120

**Netherlands**  
National Poisons Information Center / University Medical Center Utrecht  
+31 88 75 585 61

**Croatia**  
Croatian Institute of Public Health, Division for Toxicology: +38514686910

**Sveden**  
Swedish Poisons Information Centre: +46104566750

### 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:

Germ cell mutagenicity, category 2

H341

Suspected of causing genetic defects.

### SECTION 2. Hazards identification ... / >>

|                                                                    |       |                                                  |
|--------------------------------------------------------------------|-------|--------------------------------------------------|
| Reproductive toxicity, category 1B                                 | H360F | May damage fertility.                            |
| Skin corrosion, category 1C                                        | H314  | Causes severe skin burns and eye damage.         |
| Serious eye damage, category 1                                     | H318  | Causes serious eye damage.                       |
| Skin sensitization, category 1A                                    | H317  | May cause an allergic skin reaction.             |
| Hazardous to the aquatic environment, chronic toxicity, category 2 | H411  | Toxic to aquatic life with long lasting effects. |

#### 2.2. Label elements

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

Hazard pictograms:



Signal words: Danger

Hazard statements:

|               |                                                                |
|---------------|----------------------------------------------------------------|
| <b>H341</b>   | Suspected of causing genetic defects.                          |
| <b>H360F</b>  | May damage fertility.                                          |
| <b>H314</b>   | Causes severe skin burns and eye damage.                       |
| <b>H317</b>   | May cause an allergic skin reaction.                           |
| <b>H411</b>   | Toxic to aquatic life with long lasting effects.               |
| <b>EUH205</b> | Contains epoxy constituents. May produce an allergic reaction. |
|               | Restricted to professional users.                              |

Precautionary statements:

|                       |                                                                                                                                  |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <b>P260</b>           | Do not breathe dust / fume / gas / mist / vapours / spray.                                                                       |
| <b>P201</b>           | Obtain special instructions before use.                                                                                          |
| <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>P303+P361+P353</b> | IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].                         |
| <b>P280</b>           | Wear protective gloves/ protective clothing / eye protection / face protection.                                                  |
| <b>P310</b>           | Immediately call a POISON CENTER / doctor.                                                                                       |

**Contains:**

2,3-epoxypropyl o-tolyl ether  
Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and  
1-(2,3-epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane  
bis-[4-(2,3-epoxypropoxy)phenyl]propane  
Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and  
[2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and  
[2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane  
MALEIC ANHYDRIDE

VOC (Directive 2004/42/EC) :

Two-pack reactive performance coatings for specific end use such as floors.

VOC given in g/litre of product in a ready-to-use condition :

Limit value:

- Catalysed with :

52,63 %

177,35

500,00

NORPHEN 200 HCR (B)

#### 2.3. Other hazards

vPvB substances contained:  
DIISOPROPYLNAPHTHALENE

PBT substances contained:  
DIISOPROPYLNAPHTHALENE

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>Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and 1-(2,3-epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane</b>                                          |                                 |                                                                                                                                                 |
| INDEX                                                                                                                                                                                                        | $25 \leq x < 35$                | Muta. 2 H341, Repr. 1B H360F, Skin Corr. 1C H314, Eye Dam. 1 H318, Skin Sens. 1B H317, Aquatic Chronic 2 H411                                   |
| EC                                                                                                                                                                                                           | 701-135-4                       |                                                                                                                                                 |
| CAS                                                                                                                                                                                                          |                                 |                                                                                                                                                 |
| REACH Reg.                                                                                                                                                                                                   | 01-2120078341-60                |                                                                                                                                                 |
| <b>bis-[4-(2,3-epoxypropoxy)phenyl]propane</b>                                                                                                                                                               |                                 |                                                                                                                                                 |
| INDEX                                                                                                                                                                                                        | 603-073-00-2 $25 \leq x < 35$   | Eye Irrit. 2 H319, Skin Irrit. 2 H315, Skin Sens. 1 H317, Aquatic Chronic 2 H411                                                                |
| EC                                                                                                                                                                                                           | 216-823-5                       | Skin Irrit. 2 H315: $\geq 5\%$ , Eye Irrit. 2 H319: $\geq 5\%$                                                                                  |
| CAS                                                                                                                                                                                                          | 1675-54-3                       |                                                                                                                                                 |
| REACH Reg.                                                                                                                                                                                                   | 01-2119456619-26                |                                                                                                                                                 |
| <b>Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-([2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl]oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane</b> |                                 |                                                                                                                                                 |
| INDEX                                                                                                                                                                                                        | $20 \leq x < 25$                | Skin Irrit. 2 H315, Skin Sens. 1A H317, Aquatic Chronic 2 H411                                                                                  |
| EC                                                                                                                                                                                                           | 701-263-0                       |                                                                                                                                                 |
| CAS                                                                                                                                                                                                          | 9003-36-5                       |                                                                                                                                                 |
| REACH Reg.                                                                                                                                                                                                   | 01-2119454392-40                |                                                                                                                                                 |
| <b>TITANIUM DIOXIDE</b>                                                                                                                                                                                      |                                 |                                                                                                                                                 |
| INDEX                                                                                                                                                                                                        | $7 \leq x < 11$                 | EUH212                                                                                                                                          |
| EC                                                                                                                                                                                                           | 236-675-5                       |                                                                                                                                                 |
| CAS                                                                                                                                                                                                          | 13463-67-7                      |                                                                                                                                                 |
| REACH Reg.                                                                                                                                                                                                   | 01-2119489379-17                |                                                                                                                                                 |
| <b>2,3-epoxypropyl o-tolyl ether</b>                                                                                                                                                                         |                                 |                                                                                                                                                 |
| INDEX                                                                                                                                                                                                        | 603-056-00-X $1 \leq x < 2,5$   | Muta. 2 H341, Skin Irrit. 2 H315, Skin Sens. 1 H317, Aquatic Chronic 2 H411, Classification note according to Annex VI to the CLP Regulation: C |
| EC                                                                                                                                                                                                           | 218-645-3                       |                                                                                                                                                 |
| CAS                                                                                                                                                                                                          | 2210-79-9                       |                                                                                                                                                 |
| REACH Reg.                                                                                                                                                                                                   | 01-2119966907-18                |                                                                                                                                                 |
| <b>2-METHOXY-1-METHYLETHYL ACETATE</b>                                                                                                                                                                       |                                 |                                                                                                                                                 |
| INDEX                                                                                                                                                                                                        | 607-195-00-7 $1 \leq x < 3$     | Flam. Liq. 3 H226, STOT SE 3 H336                                                                                                               |
| EC                                                                                                                                                                                                           | 203-603-9                       |                                                                                                                                                 |
| CAS                                                                                                                                                                                                          | 108-65-6                        |                                                                                                                                                 |
| REACH Reg.                                                                                                                                                                                                   | 01-2119475791-29                |                                                                                                                                                 |
| <b>DIISOPROPYLNAPHTHALENE</b>                                                                                                                                                                                |                                 |                                                                                                                                                 |
| INDEX                                                                                                                                                                                                        | $0,5 \leq x < 1$                | Asp. Tox. 1 H304, Aquatic Chronic 1 H410 M=1                                                                                                    |
| EC                                                                                                                                                                                                           | 254-052-6                       |                                                                                                                                                 |
| CAS                                                                                                                                                                                                          | 38640-62-9                      |                                                                                                                                                 |
| REACH Reg.                                                                                                                                                                                                   | 01-2119565150-48                |                                                                                                                                                 |
| <b>Hydrocarbons, C10-C12, isoalkanes, &lt;2% aromatics</b>                                                                                                                                                   |                                 |                                                                                                                                                 |
| INDEX                                                                                                                                                                                                        | $0,1 \leq x < 0,5$              | Flam. Liq. 3 H226, Asp. Tox. 1 H304, Aquatic Chronic 2 H411, EUH066                                                                             |
| EC                                                                                                                                                                                                           | 923-037-2                       | EUH066: $\geq 0\%$                                                                                                                              |
| CAS                                                                                                                                                                                                          |                                 |                                                                                                                                                 |
| REACH Reg.                                                                                                                                                                                                   | 01-2119471991-29                |                                                                                                                                                 |
| <b>4-HYDROXY-4-METHYLPENTAN-2-ONE</b>                                                                                                                                                                        |                                 |                                                                                                                                                 |
| INDEX                                                                                                                                                                                                        | 603-016-00-1 $0,1 \leq x < 0,5$ | Repr. 2 H361d, Eye Irrit. 2 H319, STOT SE 3 H335                                                                                                |
| EC                                                                                                                                                                                                           | 204-626-7                       |                                                                                                                                                 |
| CAS                                                                                                                                                                                                          | 123-42-2                        |                                                                                                                                                 |
| REACH Reg.                                                                                                                                                                                                   | 01-2119473975-21                |                                                                                                                                                 |
| <b>N-BUTYL ACETATE</b>                                                                                                                                                                                       |                                 |                                                                                                                                                 |
| INDEX                                                                                                                                                                                                        | 607-025-00-1 $0,1 \leq x < 0,5$ | Flam. Liq. 3 H226, STOT SE 3 H336, EUH066                                                                                                       |
| EC                                                                                                                                                                                                           | 204-658-1                       |                                                                                                                                                 |
| CAS                                                                                                                                                                                                          | 123-86-4                        |                                                                                                                                                 |
| REACH Reg.                                                                                                                                                                                                   | 01-2119485493-29                |                                                                                                                                                 |

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

#### XYLENE (MIXTURE OF ISOMERS)

INDEX 601-022-00-9 0 &lt; x &lt; 0,1

**Flam. Liq. 3 H226, Acute Tox. 4 H312, Acute Tox. 4 H332, Asp. Tox. 1 H304, STOT RE 2 H373, Eye Irrit. 2 H319, Skin Irrit. 2 H315, STOT SE 3 H335, Classification note according to Annex VI to the CLP Regulation: C ATE Dermal: 1100 mg/kg, ATE Inhalation vapours: 11 mg/l**

EC 215-535-7

CAS 1330-20-7

REACH Reg. 01-2119488216-32

#### DIPROPYLENE GLYCOL MONOMETHYL ETHER

INDEX 0 &lt; x &lt; 0,1

EC 252-104-2

CAS 34590-94-8

REACH Reg. 01-2119450011-60

#### ETHYLBENZENE

INDEX 601-023-00-4 0 &lt; x &lt; 0,1

EC 202-849-4

CAS 100-41-4

REACH Reg. 01-2119489370-35

#### MIXED XYLENES, ETHYLBENZENE

INDEX 601-022-00-9 0 &lt; x &lt; 0,01

**Flam. Liq. 2 H225, Acute Tox. 4 H332, Asp. Tox. 1 H304, STOT RE 2 H373 LC50 Inhalation vapours: 17,2 mg/l/4h**

EC 215-535-7

CAS 1330-20-7

REACH Reg. 01-2119488216-32

#### 1-METHOXY-2-PROPANOL

INDEX 603-064-00-3 0 &lt; x &lt; 0,01

EC 203-539-1

CAS 107-98-2

REACH Reg. 01-2119457435-35

#### ETHYLBENZENE

INDEX 601-023-00-4 0 &lt; x &lt; 0,01

EC 202-849-4

CAS 100-41-4

REACH Reg. 01-2119489370-35

#### MALEIC ANHYDRIDE

INDEX 607-096-00-9 0 &lt; x &lt; 0,001

**Flam. Liq. 3 H226, Acute Tox. 4 H312, Acute Tox. 4 H332, Asp. Tox. 1 H304, STOT RE 2 H373, Eye Irrit. 2 H319, Skin Irrit. 2 H315, STOT SE 3 H335, Aquatic Chronic 3 H412, Classification note according to Annex VI to the CLP Regulation: C ATE Dermal: 1100 mg/kg, ATE Inhalation vapours: 11 mg/l**

EC 203-571-6

CAS 108-31-6

REACH Reg. 01-2119472428-31

#### Quartz

INDEX 0 &lt; x &lt; 0,01

EC 238-878-4

CAS 14808-60-7

#### ETHYL METHYL KETONE

INDEX 606-002-00-3 0 &lt; x &lt; 0,01

EC 201-159-0

CAS 78-93-3

REACH Reg. 01-2119457290-43

**Flam. Liq. 3 H226, STOT SE 3 H336**

**Flam. Liq. 2 H225, Acute Tox. 4 H332, Asp. Tox. 1 H304, STOT RE 2 H373, Aquatic Chronic 3 H412 LC50 Inhalation vapours: 17,2 mg/l/4h**

**Acute Tox. 4 H302, STOT RE 1 H372, Skin Corr. 1B H314, Eye Dam. 1 H318, Resp. Sens. 1 H334, Skin Sens. 1A H317, EUH071 Skin Sens. 1A H317: ≥ 0,001% LD50 Oral: 1090 mg/kg**

**STOT RE 1 H372**

**Flam. Liq. 2 H225, Eye Irrit. 2 H319, STOT SE 3 H336, EUH066**

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

### 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. Rinse your mouth with running water. 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

**SECTION 4. First aid measures ... / >>**

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**

Specific information on symptoms and effects caused by the product are unknown.

DELAYED EFFECTS: Based on the information currently available, there are no known cases of delayed effects following exposure to this product.

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

Immediately call a POISON CENTER / doctor.

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible).

Treatment: see section 4.1

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 CAUSED BY EXPOSURE IN THE EVENT OF FIRE**

Do not breathe combustion products.

**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

### SECTION 6. Accidental release measures ... / >>

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

Keep away from heat, sparks and naked flames; do not smoke or use matches or lighters. Without adequate ventilation, vapours may accumulate at ground level and, if ignited, catch fire even at a distance, with the danger of backfire. Avoid bunching of electrostatic charges. Do not eat, drink or smoke during use. Remove any contaminated clothes and personal protective equipment before entering places in which people eat. 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 cool and well ventilated place, keep far away from sources of heat, naked flames and sparks and other sources of ignition. Keep containers away from any incompatible materials, see section 10 for details.

2-METHOXY-1-METHYLETHYL ACETATE

Store in an inert atmosphere, sheltered from moisture because it hydrolyses easily.

#### 7.3. Specific end use(s)

Information not available

### SECTION 8. Exposure controls/personal protection

#### 8.1. Control parameters

Regulatory references:

|     |                 |                                                                                                                                                                                                                                                                                                                                                        |
|-----|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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                                                                                                                                                                                                          |
| ESP | España          | Límites de exposición profesional para agentes químicos en España 2023                                                                                                                                                                                                                                                                                 |
| FRA | France          | Valeurs limites d'exposition professionnelle aux agents chimiques en France Décret n° 2021-1849 du 28 décembre 2021                                                                                                                                                                                                                                    |
| 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 rendlete a kémiai kóroki tényezők hatásának kitett munkavállalók egészségének és biztonságának védelméről                                                                                                                                                                     |
| HRV | Hrvatska        | Pravilnik o izmjenama i dopunama Pravilnika o zaštiti radnika od izloženosti opasnim kemikalijama na radu, graničnim vrijednostima izloženosti i biološkim graničnim vrijednostima (NN 1/2021)                                                                                                                                                         |
| ITA | Italia          | Decreto Legislativo 9 Aprile 2008, n.81                                                                                                                                                                                                                                                                                                                |
| 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                                                                                                                                                                                          |
| 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"                                                                                                                                                                     |
| 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)                                                                                                                                                                |
| 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.                                                             |

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

TLV-ACGIH

ACGIH 2023

#### 2,3-epoxypropyl o-tolyl ether

##### Predicted no-effect concentration - PNEC

|                                              |         |         |
|----------------------------------------------|---------|---------|
| Normal value in fresh water                  | 0,0028  | mg/l    |
| Normal value in marine water                 | 0,00028 | mg/l    |
| Normal value for fresh water sediment        | 0,039   | mg/kg/d |
| Normal value for marine water sediment       | 0,0039  | mg/kg/d |
| Normal value of STP microorganisms           | 10      | mg/l    |
| Normal value for the terrestrial compartment | 0,012   | mg/kg   |

##### 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              |                      |                   |                  | 0,14<br>mg/kg bw/d  |                    |                   |                  |                        |
| Inhalation        |                      |                   |                  |                     | 40<br>mg/m3        | 40<br>mg/m3       | 0,46<br>mg/m3    | 0,46<br>mg/m3          |
| Skin              |                      |                   |                  |                     |                    |                   |                  | 0,139<br>mg/kg<br>bw/d |

#### DIPROPYLENE GLYCOL MONOMETHYL ETHER

##### Threshold Limit Value

| Type      | Country | TWA/8h<br>mg/m3 | ppm   | STEL/15min<br>mg/m3 | ppm  | Remarks / Observations            |
|-----------|---------|-----------------|-------|---------------------|------|-----------------------------------|
| TLV       | CZE     | 270             | 43,74 | 550                 | 89,1 | SKIN                              |
| AGW       | DEU     | 310             | 50    | 310                 | 50   | 11                                |
| MAK       | DEU     | 310             | 50    | 310                 | 50   |                                   |
| VLA       | ESP     | 308             | 50    |                     |      | SKIN                              |
| VLEP      | FRA     | 308             | 50    |                     |      | SKIN                              |
| TLV       | GRC     | 600             | 100   | 900                 | 150  |                                   |
| AK        | HUN     | 308             | 50    |                     |      |                                   |
| GVI/KGVI  | HRV     | 308             | 50    |                     |      | SKIN                              |
| VLEP      | ITA     | 308             | 50    |                     |      | SKIN Allegato XXXVIII D.Lgs 81/08 |
| TGG       | NLD     | 300             |       |                     |      |                                   |
| VLE       | PRT     | 308             | 50    |                     |      | SKIN                              |
| NDS/NDSch | POL     | 240             |       | 480                 |      | SKIN                              |
| TLV       | ROU     | 308             | 50    |                     |      | SKIN                              |
| MV        | SVN     | 308             | 50    |                     |      | SKIN                              |
| WEL       | GBR     | 308             | 50    |                     |      | SKIN                              |
| OEL       | EU      | 308             | 50    |                     |      | SKIN                              |
| TLV-ACGIH |         |                 | 50    |                     |      |                                   |

##### Predicted no-effect concentration - PNEC

|                                              |      |       |
|----------------------------------------------|------|-------|
| Normal value in fresh water                  | 19   | mg/l  |
| Normal value in marine water                 | 1,9  | mg/l  |
| Normal value for fresh water sediment        | 70,2 | mg/kg |
| Normal value for marine water sediment       | 7,02 | mg/kg |
| Normal value for water, intermittent release | 190  | mg/l  |
| Normal value of STP microorganisms           | 4168 | mg/l  |
| Normal value for the terrestrial compartment | 2,74 | mg/kg |

##### 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              |                      |                   |                  | 1,67<br>mg/kg/d     |                    |                   |                  |                     |
| Inhalation        |                      |                   |                  | 37,2<br>mg/m3       |                    |                   |                  | 310<br>mg/m3        |
| Skin              |                      |                   |                  | 15<br>mg/kg/d       |                    |                   |                  | 65<br>mg/kg/d       |



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

#### TITANIUM DIOXIDE

##### Threshold Limit Value

| Type      | Country | TWA/8h<br>mg/m3 | ppm | STEL/15min<br>mg/m3 | ppm | Remarks / Observations |
|-----------|---------|-----------------|-----|---------------------|-----|------------------------|
| MAK       | DEU     | 0,3             |     | 2,4                 |     | RESP Hinweis           |
| VLA       | ESP     | 10              |     |                     |     |                        |
| VLEP      | FRA     | 10              |     |                     |     |                        |
| TLV       | GRC     |                 | 10  |                     |     |                        |
| GVI/KGVI  | HRV     | 10              |     |                     |     | INHAL                  |
| GVI/KGVI  | HRV     | 4               |     |                     |     | RESP                   |
| NDS/NDSch | POL     | 10              |     |                     |     | INHAL                  |
| TLV       | ROU     | 10              |     | 15                  |     |                        |
| ПДК       | RUS     | 10              |     |                     |     | a, Φ                   |
| WEL       | GBR     | 10              |     |                     |     | INHAL                  |
| WEL       | GBR     | 4               |     |                     |     | RESP                   |
| TLV-ACGIH |         | 0,2             |     |                     |     | RESP                   |

#### 2-METHOXY-1-METHYLETHYL ACETATE

##### Threshold Limit Value

| Type      | Country | TWA/8h<br>mg/m3 | ppm   | STEL/15min<br>mg/m3 | ppm   | Remarks / Observations             |
|-----------|---------|-----------------|-------|---------------------|-------|------------------------------------|
| TLV       | CZE     | 270             | 49,14 | 550                 | 100,1 | SKIN                               |
| AGW       | DEU     | 270             | 50    | 270                 | 50    |                                    |
| MAK       | DEU     | 270             | 50    | 270                 | 50    |                                    |
| VLA       | ESP     | 275             | 50    | 550                 | 100   | SKIN                               |
| VLEP      | FRA     | 275             | 50    | 550                 | 100   | SKIN                               |
| TLV       | GRC     | 275             | 50    | 550                 | 100   |                                    |
| AK        | HUN     | 275             | 50    | 550                 | 100   |                                    |
| GVI/KGVI  | HRV     | 275             | 50    | 550                 | 100   | SKIN                               |
| VLEP      | ITA     | 275             | 50    | 550                 | 100   | SKIN Allegato XXXVIII D.Lgs. 81/08 |
| TGG       | NLD     | 550             |       |                     |       |                                    |
| VLE       | PRT     | 275             | 50    | 550                 | 100   | SKIN                               |
| NDS/NDSch | POL     | 260             |       | 520                 |       | SKIN                               |
| TLV       | ROU     | 275             | 50    | 550                 | 100   | SKIN                               |
| ПДК       | RUS     |                 |       | 10                  |       | n                                  |
| MV        | SVN     | 275             | 50    | 550                 | 100   | SKIN                               |
| WEL       | GBR     | 274             | 50    | 548                 | 100   | SKIN                               |
| OEL       | EU      | 275             | 50    | 550                 | 100   | SKIN                               |

##### Predicted no-effect concentration - PNEC

|                                              |        |       |
|----------------------------------------------|--------|-------|
| Normal value in fresh water                  | 0,635  | mg/l  |
| Normal value in marine water                 | 0,0635 | mg/l  |
| Normal value for fresh water sediment        | 3,29   | mg/kg |
| Normal value for marine water sediment       | 0,329  | mg/kg |
| Normal value for water, intermittent release | 6,35   | mg/l  |
| Normal value of STP microorganisms           | 100    | mg/l  |
| Normal value for the terrestrial compartment | 0,29   | 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              |                      |                |               | 36 mg/kg/d       |                    |                |               |                  |
| Inhalation        |                      |                |               | 33 mg/m3         |                    |                | NPI           | 275 mg/m3        |
| Skin              |                      |                | NPI           | 320 mg/kg/d      |                    |                | NPI           | 796 mg/kg/d      |



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

| Quartz                |         |        |      |            |     |                                     |
|-----------------------|---------|--------|------|------------|-----|-------------------------------------|
| Threshold Limit Value |         |        |      |            |     |                                     |
| Type                  | Country | TWA/8h |      | STEL/15min |     | Remarks / Observations              |
|                       |         | mg/m3  | ppm  | mg/m3      | ppm |                                     |
| VLA                   | ESP     |        | 0,05 |            |     | RESP                                |
| VLEP                  | FRA     | 0,1    |      |            |     | RESP                                |
| GVI/KGVI              | HRV     | 0,1    |      |            |     |                                     |
| VLEP                  | ITA     | 0,1    |      |            |     | RESP Allegato XXXVIII D. Lgs. 81/08 |
| TGG                   | NLD     | 0,075  |      |            |     | RESP                                |
| VLE                   | PRT     | 0,025  |      |            |     | RESP                                |
| NDS/NDSch             | POL     | 0,1    |      |            |     | RESP                                |
| TLV                   | ROU     | 0,1    |      |            |     | RESP                                |
| MV                    | SVN     | 0,15   |      |            |     | RESP                                |
| OEL                   | EU      | 0,1    |      |            |     | RESP                                |
| TLV-ACGIH             |         | 0,025  |      |            |     | RESP                                |

| ETHYLBENZENE          |         |        |      |            |       |                                    |
|-----------------------|---------|--------|------|------------|-------|------------------------------------|
| Threshold Limit Value |         |        |      |            |       |                                    |
| Type                  | Country | TWA/8h |      | STEL/15min |       | Remarks / Observations             |
|                       |         | mg/m3  | ppm  | mg/m3      | ppm   |                                    |
| TLV                   | CZE     | 200    | 45,4 | 500        | 113,5 | SKIN                               |
| AGW                   | DEU     | 88     | 20   | 176        | 40    | SKIN                               |
| MAK                   | DEU     | 88     | 20   | 176        | 40    | SKIN                               |
| VLA                   | ESP     | 441    | 100  | 884        | 200   | SKIN                               |
| VLEP                  | FRA     | 88,4   | 20   | 442        | 100   | SKIN                               |
| TLV                   | GRC     | 435    | 100  | 545        | 125   |                                    |
| AK                    | HUN     | 442    | 100  | 884        | 200   | SKIN                               |
| GVI/KGVI              | HRV     | 442    | 100  | 884        | 200   | SKIN                               |
| VLEP                  | ITA     | 442    | 100  | 884        | 200   | SKIN Allegato XXXVIII D.Lgs. 81/08 |
| TGG                   | NLD     | 215    |      | 430        |       | SKIN                               |
| VLE                   | PRT     | 442    | 100  | 884        | 200   | SKIN                               |
| NDS/NDSch             | POL     | 200    |      | 400        |       | SKIN                               |
| TLV                   | ROU     | 442    | 100  | 884        | 200   | SKIN                               |
| ПДК                   | RUS     | 50     |      | 150        |       | n                                  |
| MV                    | SVN     | 442    | 100  | 884        | 200   | SKIN                               |
| WEL                   | GBR     | 441    | 100  | 552        | 125   | SKIN                               |
| OEL                   | EU      | 442    | 100  | 884        | 200   | SKIN                               |
| TLV-ACGIH             |         | 87     | 20   |            |       |                                    |

#### Predicted no-effect concentration - PNEC

|                                                       |      |         |
|-------------------------------------------------------|------|---------|
| Normal value in fresh water                           | 0,1  | mg/l    |
| Normal value in marine water                          | 0,01 | mg/l    |
| Normal value for fresh water sediment                 | 13,7 | mg/kg/d |
| Normal value for marine water sediment                | 1,37 | mg/kg/d |
| Normal value for marine water, intermittent release   | 0,1  | mg/l    |
| Normal value of STP microorganisms                    | 9,6  | mg/l    |
| Normal value for the food chain (secondary poisoning) | 20   | mg/kg   |
| Normal value for the terrestrial compartment          | 2,68 | 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              |                      | NPI            |               | 1,6 mg/kg bw/d   |                    |                |               |                  |
| Inhalation        | LOW                  | LOW            | LOW           | 15 mg/m3         | 293 mg/m3          | LOW            | 442 mg/m3     | 77 mg/m3         |
| Skin              | NPI                  | NPI            | NPI           | NPI              | NPI                | NPI            | NPI           | 180 mg/kg bw/d   |

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

#### 1-METHOXY-2-PROPANOL

##### Threshold Limit Value

| Type      | Country | TWA/8h |       | STEL/15min |        | Remarks / Observations             |
|-----------|---------|--------|-------|------------|--------|------------------------------------|
|           |         | mg/m3  | ppm   | mg/m3      | ppm    |                                    |
| TLV       | CZE     | 270    | 72,09 | 550        | 146,85 | SKIN                               |
| AGW       | DEU     | 370    | 100   | 740        | 200    |                                    |
| MAK       | DEU     | 370    | 100   | 740        | 200    |                                    |
| VLA       | ESP     | 375    | 100   | 568        | 150    | SKIN                               |
| VLEP      | FRA     | 188    | 50    | 375        | 100    | SKIN                               |
| TLV       | GRC     | 360    | 100   | 1080       | 300    |                                    |
| AK        | HUN     | 375    | 100   | 568        | 150    | SKIN                               |
| GVI/KGVI  | HRV     | 375    | 100   | 568        | 150    |                                    |
| VLEP      | ITA     | 375    | 100   | 568        | 150    | SKIN Allegato XXXVIII D.Lgs. 81/08 |
| TGG       | NLD     | 375    |       | 563        |        | SKIN                               |
| VLE       | PRT     | 375    | 100   | 568        | 150    |                                    |
| NDS/NDSch | POL     | 180    |       | 360        |        | SKIN                               |
| TLV       | ROU     | 375    | 100   | 568        | 150    | SKIN                               |
| MV        | SVN     | 375    | 100   | 568        | 150    | SKIN                               |
| WEL       | GBR     | 375    | 100   | 560        | 150    | SKIN                               |
| OEL       | EU      | 375    | 100   | 568        | 150    | SKIN                               |
| TLV-ACGIH |         | 184    | 50    | 368        | 100    |                                    |

##### Predicted no-effect concentration - PNEC

|                                              |      |       |
|----------------------------------------------|------|-------|
| Normal value in fresh water                  | 10   | mg/l  |
| Normal value in marine water                 | 1    | mg/l  |
| Normal value for fresh water sediment        | 52,3 | mg/kg |
| Normal value for marine water sediment       | 5,2  | mg/kg |
| Normal value for water, intermittent release | 100  | mg/l  |
| Normal value of STP microorganisms           | 100  | mg/l  |
| Normal value for the terrestrial compartment | 4,59 | 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              |                      | NPI            |               | 33<br>mg/kg bw/d   |                |                |               |                      |
| Inhalation        |                      | NPI            | NPI           | 43,9<br>mg/m3      | 553,5<br>mg/m3 | 553,5<br>mg/m3 | NPI           | 369<br>mg/m3         |
| Skin              |                      | NPI            | NPI           | 78<br>mg/kg bw/d   | NPI            | NPI            | NPI           | 183<br>mg/kg<br>bw/d |

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

#### ETHYL METHYL KETONE

##### Threshold Limit Value

| Type      | Country | TWA/8h |       | STEL/15min |       | Remarks / Observations        |
|-----------|---------|--------|-------|------------|-------|-------------------------------|
|           |         | mg/m3  | ppm   | mg/m3      | ppm   |                               |
| TLV       | CZE     | 600    | 200,4 | 900        | 300,6 |                               |
| AGW       | DEU     | 600    | 200   | 600        | 200   | SKIN                          |
| MAK       | DEU     | 600    | 200   | 600        | 200   | SKIN                          |
| VLA       | ESP     | 600    | 200   | 900        | 300   |                               |
| VLEP      | FRA     | 600    | 200   | 900        | 300   | SKIN                          |
| TLV       | GRC     | 600    | 200   | 900        | 300   |                               |
| AK        | HUN     | 600    | 200   | 900        | 300   | SKIN                          |
| GVI/KGVI  | HRV     | 600    | 200   | 900        | 300   |                               |
| VLEP      | ITA     | 600    | 200   | 900        | 300   | Allegato XXXVIII D.Lgs. 81/08 |
| TGG       | NLD     | 590    |       | 500        |       | SKIN                          |
| VLE       | PRT     | 600    | 200   | 900        | 300   |                               |
| NDS/NDSch | POL     | 450    |       | 900        |       | SKIN                          |
| TLV       | ROU     | 600    | 200   | 900        | 300   |                               |
| ПДК       | RUS     | 200    |       | 400        |       | n                             |
| MV        | SVN     | 600    | 200   | 900        | 300   | SKIN                          |
| WEL       | GBR     | 600    | 200   | 899        | 300   | SKIN                          |
| OEL       | EU      | 600    | 200   | 900        | 300   |                               |
| TLV-ACGIH |         | 590    | 200   | 885        | 300   |                               |

##### Predicted no-effect concentration - PNEC

|                                                       |        |       |
|-------------------------------------------------------|--------|-------|
| Normal value in fresh water                           | 55,8   | mg/l  |
| Normal value in marine water                          | 55,8   | mg/l  |
| Normal value for fresh water sediment                 | 284,74 | mg/kg |
| Normal value of STP microorganisms                    | 709    | mg/l  |
| Normal value for the food chain (secondary poisoning) | 100    | mg/kg |
| Normal value for the terrestrial compartment          | 22,5   | 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              |                      |                |               | 31<br>mg/kg bw/d   |             |                |               |                       |
| Inhalation        |                      |                |               | 106<br>mg/m3       |             |                |               | 600<br>mg/m3          |
| Skin              |                      |                |               | 412<br>mg/kg bw/d  |             |                |               | 1161<br>mg/kg<br>bw/d |

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

#### N-BUTYL ACETATE

##### Threshold Limit Value

| Type      | Country | TWA/8h |     | STEL/15min |     | Remarks / Observations        |
|-----------|---------|--------|-----|------------|-----|-------------------------------|
|           |         | mg/m3  | ppm | mg/m3      | ppm |                               |
| TLV       | CZE     | 241    |     | 723        |     |                               |
| AGW       | DEU     | 300    | 62  | 600        | 124 |                               |
| MAK       | DEU     | 480    | 100 | 960        | 200 |                               |
| VLA       | ESP     | 241    | 50  | 723        | 150 |                               |
| VLEP      | FRA     | 241    | 50  | 723        | 150 |                               |
| TLV       | GRC     | 710    | 150 | 950        | 200 |                               |
| AK        | HUN     | 241    | 50  | 723        | 150 |                               |
| GVI/KGVI  | HRV     | 241    | 50  | 723        | 150 |                               |
| VLEP      | ITA     | 241    | 50  | 723        | 150 | Allegato XXXVIII D.Lgs. 81/08 |
| TGG       | NLD     | 150    |     |            |     |                               |
| VLE       | PRT     | 241    | 50  | 723        | 150 |                               |
| NDS/NDSch | POL     | 240    |     | 720        |     |                               |
| TLV       | ROU     | 241    | 50  | 723        | 150 |                               |
| ПДК       | RUS     |        |     | 0,1        |     | n                             |
| MV        | SVN     | 300    | 62  | 600        | 124 |                               |
| WEL       | GBR     | 724    | 150 | 966        | 200 |                               |
| OEL       | EU      | 241    | 50  | 723        | 150 |                               |
| TLV-ACGIH |         |        | 50  |            | 150 |                               |

##### Predicted no-effect concentration - PNEC

|                                              |        |         |
|----------------------------------------------|--------|---------|
| Normal value in fresh water                  | 0,18   | mg/l    |
| Normal value in marine water                 | 0,018  | mg/l    |
| Normal value for fresh water sediment        | 0,981  | mg/kg/d |
| Normal value for marine water sediment       | 0,0981 | mg/kg/d |
| Normal value for water, intermittent release | 0,36   | mg/l    |
| Normal value of STP microorganisms           | 35,6   | mg/l    |
| Normal value for the terrestrial compartment | 0,0903 | mg/kg   |

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

| Route of exposure | Effects on consumers |          |         |          | Effects on workers |          |         |          |
|-------------------|----------------------|----------|---------|----------|--------------------|----------|---------|----------|
|                   | Acute                | Acute    | Chronic | Chronic  | Acute              | Acute    | Chronic | Chronic  |
|                   | local                | systemic | local   | systemic | local              | systemic | local   | systemic |
| Oral              |                      | 2        |         | 2        |                    |          |         |          |
|                   |                      | mg/kg/d  |         | mg/kg/d  |                    |          |         |          |
| Inhalation        | 300                  | 300      | 35,7    | 35,7     | 600                | 600      | 300     | 300      |
|                   | mg/m3                | mg/m3    | mg/m3   | mg/m3    | mg/m3              | mg/m3    | mg/m3   | mg/m3    |
| Skin              |                      | 6        |         | 6        |                    | 11       |         | 11       |
|                   |                      | mg/kg/d  |         | mg/kg/d  |                    | mg/kg    |         | mg/kg    |
|                   |                      |          |         |          |                    | bw/d     |         | bw/d     |

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

#### MALEIC ANHYDRIDE

##### Threshold Limit Value

| Type      | Country | TWA/8h |        | STEL/15min |          | Remarks / Observations |
|-----------|---------|--------|--------|------------|----------|------------------------|
|           |         | mg/m3  | ppm    | mg/m3      | ppm      |                        |
| TLV       | CZE     | 1      | 0,245  | 2          | 0,49     |                        |
| AGW       | DEU     | 0,081  | 0,02   | 0,081      | 0,02     | 11                     |
| MAK       | DEU     | 0,081  | 0,02   | 0,081 (C)  | 0,02 (C) | C = 0,20 mg/m3         |
| VLA       | ESP     | 0,4    | 0,1    |            |          |                        |
| VLEP      | FRA     |        |        | 1          |          |                        |
| TLV       | GRC     | 1      |        |            |          |                        |
| AK        | HUN     | 0,08   | 0,2    | 0,08       | 0,2      |                        |
| GVI/KGVI  | HRV     | 0,41   | 0,1    | 0,8        | 0,2      | INHAL                  |
| GVI/KGVI  | HRV     | 0,41   | 0,1    | 0,8        | 0,2      | SKIN                   |
| NDS/NDSch | POL     | 0,5    |        | 1          |          | SKIN                   |
| TLV       | ROU     | 1      | 0,25   | 3          | 0,75     |                        |
| ПДК       | RUS     |        |        | 1          |          | n + a, A               |
| MV        | SVN     | 0,41   | 0,1    | 0,41       | 0,1      |                        |
| WEL       | GBR     | 1      |        | 3          |          |                        |
| TLV-ACGIH |         | 0,01   | 0,0025 |            |          | INHAL                  |

##### Predicted no-effect concentration - PNEC

|                                              |       |         |
|----------------------------------------------|-------|---------|
| Normal value in fresh water                  | 0,038 | mg/l    |
| Normal value in marine water                 | 0,004 | mg/l    |
| Normal value for fresh water sediment        | 0,296 | mg/kg/d |
| Normal value for marine water sediment       | 0,03  | mg/kg/d |
| Normal value of STP microorganisms           | 44,6  | mg/l    |
| Normal value for the terrestrial compartment | 0,037 | 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 |
| Inhalation        |                      |                |               |                  | 0,2<br>mg/m3       | 0,2<br>mg/m3   | 0,081<br>mg/m3 | 0,081<br>mg/m3   |

#### DIISOPROPYLNAPHTHALENE

##### Predicted no-effect concentration - PNEC

|                                                       |         |       |
|-------------------------------------------------------|---------|-------|
| Normal value in fresh water                           | 0,00023 | mg/l  |
|                                                       | 6       |       |
| Normal value in marine water                          | 0,00002 | mg/l  |
|                                                       | 36      |       |
| Normal value for fresh water sediment                 | 0,853   | mg/kg |
| Normal value for marine water sediment                | 0,085   | mg/kg |
| Normal value of STP microorganisms                    | 0,15    | mg/l  |
| Normal value for the food chain (secondary poisoning) | 25      | mg/kg |
| Normal value for the terrestrial compartment          | 0,171   | 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              |                      |                | VND           | 2,1<br>mg/kg/d   |                    |                |               |                  |
| Inhalation        |                      |                | VND           | 7,4<br>mg/m3     |                    |                | VND           | 30<br>mg/m3      |
| Skin              |                      |                | VND           | 2,1<br>mg/kg/d   |                    |                | VND           | 4,3<br>mg/kg/d   |

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

#### Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and 1-(2,3-epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane

##### Predicted no-effect concentration - PNEC

|                                                     |      |       |
|-----------------------------------------------------|------|-------|
| Normal value in fresh water                         | 3,7  | µg/L  |
| Normal value in marine water                        | 37   | µg/L  |
| Normal value for fresh water sediment               | 19,9 | µg/kg |
| Normal value for marine water sediment              | 1,99 | µg/kg |
| Normal value for marine water, intermittent release | 370  | ng/L  |
| Normal value of STP microorganisms                  | 16,8 | mg/l  |
| Normal value for the terrestrial compartment        | 1,81 | µg/kg |
| Normal value for the atmosphere                     | NPI  |       |

##### 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              |                      | NPI            |               | NPI              |                    |                |               |                  |
| Inhalation        |                      | NPI            | NPI           | NPI              | MED                | NPI            | MED           | 1,17 mg/m³       |
| Skin              |                      | NPI            | NPI           | NPI              | MED                | NPI            | MED           | 670,0 µg/kg      |

#### MIXED XYLENES, ETHYLBENZENE

##### Threshold Limit Value

| Type      | Country | TWA/8h<br>mg/m3 | ppm | STEL/15min<br>mg/m3 | ppm | Remarks / Observations             |
|-----------|---------|-----------------|-----|---------------------|-----|------------------------------------|
| TLV       | CZE     | 200             |     | 400                 |     | SKIN                               |
| AGW       | DEU     | 440             | 100 | 880                 | 200 | SKIN                               |
| MAK       | DEU     | 440             | 100 | 880                 | 200 | SKIN                               |
| VLA       | ESP     | 221             | 50  | 442                 | 100 | SKIN                               |
| VLEP      | FRA     | 221             | 50  | 442                 | 100 | SKIN                               |
| TLV       | GRC     | 435             | 100 | 650                 | 150 |                                    |
| AK        | HUN     | 221             |     | 442                 |     | SKIN                               |
| GVI/KGVI  | HRV     | 221             | 50  | 442                 | 100 | SKIN                               |
| VLEP      | ITA     | 221             | 50  | 442                 | 100 | SKIN Allegato XXXVIII D.Lgs. 81/08 |
| TGG       | NLD     | 210             |     | 442                 |     | SKIN                               |
| VLE       | PRT     | 221             | 50  | 442                 | 100 | SKIN                               |
| NDS/NDSch | POL     | 100             |     |                     |     |                                    |
| MV        | SVN     | 221             | 50  |                     |     | SKIN                               |
| WEL       | GBR     | 220             | 50  | 441                 | 100 |                                    |
| OEL       | EU      | 221             | 50  | 442                 | 100 | SKIN                               |
| TLV-ACGIH |         | 434             | 100 | 651                 | 150 |                                    |

##### Predicted no-effect concentration - PNEC

|                                              |       |         |
|----------------------------------------------|-------|---------|
| Normal value in fresh water                  | 0,327 | mg/l    |
| Normal value in marine water                 | 0,327 | mg/l    |
| Normal value for fresh water sediment        | 12,46 | mg/kg/d |
| Normal value for marine water sediment       | 12,46 | mg/kg/d |
| Normal value of STP microorganisms           | 6,58  | mg/l    |
| Normal value for the terrestrial compartment | 2,31  | 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              |                      | NPI            |               | 5 mg/kg bw/d     |                    |                |               |                  |
| Inhalation        | 260 mg/m3            | 260 mg/m3      | 65,3 mg/m3    | 65,3 mg/m3       | 442 mg/m3          | 442 mg/m3      | 221 mg/m3     | 221 mg/m3        |
| Skin              | LOW                  | LOW            | NPI           | 125 mg/kg bw/d   | LOW                | LOW            |               | 212 mg/kg bw/d   |

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

#### 4-HYDROXY-4-METHYLPENTAN-2-ONE

##### Threshold Limit Value

| Type      | Country | TWA/8h<br>mg/m3 | ppm | STEL/15min<br>mg/m3 | ppm | Remarks / Observations |
|-----------|---------|-----------------|-----|---------------------|-----|------------------------|
| TLV       | CZE     | 200             |     | 300                 |     |                        |
| AGW       | DEU     | 96              | 20  | 192                 | 40  | SKIN                   |
| MAK       | DEU     | 96              | 20  | 192                 | 40  | SKIN                   |
| VLA       | ESP     | 241             | 50  |                     |     |                        |
| VLEP      | FRA     | 240             | 50  |                     |     |                        |
| TLV       | GRC     | 240             | 50  | 360                 | 75  |                        |
| GVI/KGVI  | HRV     | 241             | 50  | 362                 | 75  |                        |
| TGG       | NLD     | 120             |     |                     |     | SKIN                   |
| NDS/NDSch | POL     | 240             |     |                     |     |                        |
| TLV       | ROU     | 150             | 32  | 250                 | 53  |                        |
| MV        | SVN     | 240             | 50  |                     |     | SKIN                   |
| WEL       | GBR     | 241             | 50  | 362                 | 75  |                        |
| TLV-ACGIH |         | 238             | 50  |                     |     |                        |

#### XYLENE (MIXTURE OF ISOMERS)

##### Threshold Limit Value

| Type      | Country | TWA/8h<br>mg/m3 | ppm | STEL/15min<br>mg/m3 | ppm | Remarks / Observations             |
|-----------|---------|-----------------|-----|---------------------|-----|------------------------------------|
| TLV       | CZE     | 200             | 46  | 400                 | 92  | SKIN                               |
| AGW       | DEU     | 440             | 100 | 880                 | 200 | SKIN                               |
| MAK       | DEU     | 440             | 100 | 880                 | 200 | SKIN                               |
| VLA       | ESP     | 221             | 50  | 442                 | 100 | SKIN                               |
| VLEP      | FRA     | 221             | 50  | 442                 | 100 | SKIN                               |
| TLV       | GRC     | 435             | 100 | 650                 | 150 |                                    |
| GVI/KGVI  | HRV     | 221             | 50  | 442                 | 100 | SKIN                               |
| VLEP      | ITA     | 221             | 50  | 442                 | 100 | SKIN Allegato XXXVIII D.Lgs. 81/08 |
| TGG       | NLD     | 210             |     | 442                 |     | SKIN                               |
| VLE       | PRT     | 221             | 50  | 442                 | 100 | SKIN                               |
| NDS/NDSch | POL     | 100             |     | 200                 |     | SKIN                               |
| TLV       | ROU     | 221             | 50  | 442                 | 100 | SKIN                               |
| MV        | SVN     | 221             | 50  | 442                 | 100 | SKIN                               |
| WEL       | GBR     | 220             | 50  | 441                 | 100 | SKIN                               |
| OEL       | EU      | 221             | 50  | 442                 | 100 | SKIN                               |
| TLV-ACGIH |         | 434             | 100 | 651                 | 150 |                                    |

##### Predicted no-effect concentration - PNEC

|                                              |       |       |
|----------------------------------------------|-------|-------|
| Normal value in fresh water                  | 0,327 | mg/l  |
| Normal value in marine water                 | 0,327 | mg/l  |
| Normal value for fresh water sediment        | 12,46 | mg/kg |
| Normal value for marine water sediment       | 12,46 | mg/kg |
| Normal value for water, intermittent release | 0,327 | mg/l  |
| Normal value of STP microorganisms           | 6,58  | mg/l  |
| Normal value for the terrestrial compartment | 2,31  | mg/kg |

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

| Route of exposure | Effects on consumers |                   |                  |                     | Effects on workers |                   |                  |                     |
|-------------------|----------------------|-------------------|------------------|---------------------|--------------------|-------------------|------------------|---------------------|
|                   | Acute<br>local       | Acute<br>systemic | Chronic<br>local | Chronic<br>systemic | Acute<br>local     | Acute<br>systemic | Chronic<br>local | Chronic<br>systemic |
| Oral              |                      |                   |                  |                     |                    |                   |                  | 1,6<br>mg/kg/d      |
| Inhalation        |                      |                   |                  | 14,8<br>mg/m3       | 289<br>mg/m3       | 289<br>mg/m3      |                  | 77<br>mg/m3         |
| Skin              |                      |                   |                  | 108<br>mg/kg/d      |                    |                   |                  | 180<br>mg/kg/d      |



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

**Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane**

#### Predicted no-effect concentration - PNEC

|                                              |       |       |
|----------------------------------------------|-------|-------|
| Normal value in fresh water                  | 0,003 | mg/l  |
| Normal value for fresh water sediment        | 0,294 | mg/kg |
| Normal value for marine water sediment       | 0,029 | mg/kg |
| Normal value for water, intermittent release | 0,025 | mg/l  |
| Normal value of STP microorganisms           | 10    | mg/l  |
| Normal value for the terrestrial compartment | 0,237 | 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              |                      |                |               | 6,25<br>mg/kg bw/d |                  |                |               |                         |
| Inhalation        |                      |                |               | 8,7<br>mg/m3       |                  |                |               | 29,39<br>mg/m3          |
| Skin              |                      |                |               | 62,5<br>mg/kg bw/d | 0,0083<br>mg/cm2 |                |               | 104,15<br>mg/kg<br>bw/d |

#### bis-[4-(2,3-epoxipropoxy)phenyl]propane

#### Predicted no-effect concentration - PNEC

|                                        |        |       |
|----------------------------------------|--------|-------|
| Normal value in fresh water            | 0,006  | mg/l  |
| Normal value in marine water           | 0,0006 | mg/l  |
| Normal value for fresh water sediment  | 0,996  | mg/kg |
| Normal value for marine water sediment | 0,0996 | 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              |                      |                | VND           | 0,75<br>mg/kg/d    |             |                |               |                  |
| Inhalation        |                      |                |               |                    |             |                | VND           | 12,25<br>mg/m3   |
| Skin              |                      |                | VND           | 3,571<br>mg/kg/d   |             |                | VND           | 8,33<br>mg/kg    |

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

#### ETHYLBENZENE

##### Threshold Limit Value

| Type      | Country | TWA/8h |      | STEL/15min |       | Remarks / Observations |                               |
|-----------|---------|--------|------|------------|-------|------------------------|-------------------------------|
|           |         | mg/m3  | ppm  | mg/m3      | ppm   |                        |                               |
| TLV       | CZE     | 200    | 45,4 | 500        | 113,5 | SKIN                   |                               |
| AGW       | DEU     | 88     | 20   | 176        | 40    | SKIN                   |                               |
| MAK       | DEU     | 88     | 20   | 176        | 40    | SKIN                   |                               |
| VLA       | ESP     | 441    | 100  | 884        | 200   | SKIN                   |                               |
| VLEP      | FRA     | 88,4   | 20   | 442        | 100   | SKIN                   |                               |
| TLV       | GRC     | 435    | 100  | 545        | 125   |                        |                               |
| AK        | HUN     | 442    |      | 884        |       | SKIN                   |                               |
| GVI/KGVI  | HRV     | 442    | 100  | 884        | 200   | SKIN                   |                               |
| VLEP      | ITA     | 442    | 100  | 884        | 200   | SKIN                   | Allegato XXXVIII D.Lgs. 81/08 |
| TGG       | NLD     | 215    |      | 430        |       | SKIN                   |                               |
| VLE       | PRT     | 442    | 100  | 884        | 200   | SKIN                   |                               |
| NDS/NDSch | POL     | 200    |      | 400        |       | SKIN                   |                               |
| TLV       | ROU     | 442    | 100  | 884        | 200   | SKIN                   |                               |
| ПДК       | RUS     | 50     |      | 150        |       |                        | n                             |
| MV        | SVN     | 442    | 100  | 884        | 200   | SKIN                   |                               |
| WEL       | GBR     | 441    | 100  | 552        | 125   | SKIN                   |                               |
| OEL       | EU      | 442    | 100  | 884        | 200   | SKIN                   |                               |
| TLV-ACGIH |         | 87     | 20   |            |       |                        |                               |

##### Predicted no-effect concentration - PNEC

|                                                       |      |         |
|-------------------------------------------------------|------|---------|
| Normal value in fresh water                           | 0,1  | mg/l    |
| Normal value in marine water                          | 0,01 | mg/l    |
| Normal value for fresh water sediment                 | 13,7 | mg/kg/d |
| Normal value for marine water sediment                | 1,37 | mg/kg/d |
| Normal value for marine water, intermittent release   | 0,1  | mg/l    |
| Normal value of STP microorganisms                    | 9,6  | mg/l    |
| Normal value for the food chain (secondary poisoning) | 20   | mg/kg   |
| Normal value for the terrestrial compartment          | 2,68 | 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              |                      | NPI            |               | 1,6 mg/kg bw/d     |             |                |               |                  |
| Inhalation        | LOW                  | LOW            | LOW           | 15 mg/m3           | 293 mg/m3   | LOW            | 442 mg/m3     | 77 mg/m3         |
| Skin              | NPI                  | NPI            | NPI           | NPI                | NPI         | NPI            | NPI           | 180 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.

Protect your hands with gloves of the following type:

Material: Butyl rubber (IIR)

Thickness: 0,35 mm

Breakthrough time: 480 min

Material: Nitrile rubber (NBR)

Thickness: 0,38 mm

Breakthrough time: 480 min

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

#### 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                                 | various                     |                                           |
| Odour                                  | characteristic              |                                           |
| Melting point / freezing point         | not determined              | Reason for missing data: not determined   |
| Initial boiling point                  | not determined              | Reason for missing data: not determined   |
| Flammability                           | not determined              |                                           |
| Lower explosive limit                  | not determined              | Reason for missing data: not determined   |
| Upper explosive limit                  | not determined              | Reason for missing data: not determined   |
| Flash point                            | > 100 °C                    |                                           |
| Auto-ignition temperature              | not determined              | Reason for missing data: not determined   |
| Decomposition temperature              | not determined              | Reason for missing data: not determined   |
| pH                                     | not applicable              |                                           |
| Kinematic viscosity                    | not determined              | Reason for missing data: not determined   |
| Solubility                             | soluble in organic solvents |                                           |
| Partition coefficient: n-octanol/water | not applicable              |                                           |
| Vapour pressure                        | not determined              | Reason for missing data: not determined   |
| Density and/or relative density        | 1,16 kg/l                   | Method: EN ISO 1675<br>Temperature: 23 °C |
| Relative vapour density                | not determined              | Reason for missing data: not determined   |
| 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

VOC (Directive 2004/42/EC) : 2,18 % - 25,34 g/litre

### SECTION 10. Stability and reactivity

#### 10.1. Reactivity

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

##### DIPROPYLENE GLYCOL MONOMETHYL ETHER

Forms peroxides with: air.

##### 2-METHOXY-1-METHYLETHYL ACETATE

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

Stable in normal conditions of use and storage.

With the air it may slowly develop peroxides that explode with an increase in temperature.

**1-METHOXY-2-PROPANOL**

Dissolves various plastic materials. Stable in normal conditions of use and storage.

Absorbs and dissolves in water and in organic solvents. With air it may slowly form explosive peroxides.

**ETHYL METHYL KETONE**

Reacts with: light metals, strong oxidants. Attacks various types of plastic materials. Decomposes under the effect of heat.

**N-BUTYL ACETATE**

Decomposes on contact with: water.

**4-HYDROXY-4-METHYLPENTAN-2-ONE**

Decomposes at temperatures above 90°C/194°F.

**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.

**DIPROPYLENE GLYCOL MONOMETHYL ETHER**

May react violently with: strong oxidising agents.

**2-METHOXY-1-METHYLETHYL ACETATE**

May react violently with: oxidising substances, strong acids, alkaline metals.

**ETHYLBENZENE**

Reacts violently with: strong oxidants. Attacks various types of plastic materials. May form explosive mixtures with: air.

**1-METHOXY-2-PROPANOL**

May react dangerously with: strong oxidising agents, strong acids.

**ETHYL METHYL KETONE**

May form peroxides with: air, light, strong oxidising agents. Risk of explosion on contact with: hydrogen peroxide, nitric acid, sulphuric acid. May react dangerously with: oxidising agents, trichloromethane, alkalis. Forms explosive mixtures with: air.

**N-BUTYL ACETATE**

Risk of explosion on contact with: strong oxidising agents. May react dangerously with: alkaline hydroxides, potassium tert-butoxide. Forms explosive mixtures with: air.

**MIXED XYLENES, ETHYLBENZENE**

Stable in normal conditions of use and storage. Reacts violently with: strong oxidants, strong acids, nitric acid, perchlorates. May form explosive mixtures with: air.

**4-HYDROXY-4-METHYLPENTAN-2-ONE**

Risk of explosion on contact with: air, sources of heat. May react dangerously with: alkaline metals, amines, oxidising agents, acids.

**XYLENE (MIXTURE OF ISOMERS)**

Stable in normal conditions of use and storage. Reacts violently with: strong oxidants, strong acids, nitric acid, perchlorates. May form explosive mixtures with: air.

**ETHYLBENZENE**

Reacts violently with: strong oxidants. Attacks various types of plastic materials. May form explosive mixtures with: air.

**10.4. Conditions to avoid**

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

**DIPROPYLENE GLYCOL MONOMETHYL ETHER**

Avoid exposure to: sources of heat. Possibility of explosion.

**1-METHOXY-2-PROPANOL**

Avoid exposure to: air.

**ETHYL METHYL KETONE**

Avoid exposure to: sources of heat.

**N-BUTYL ACETATE**

Avoid exposure to: moisture, sources of heat, naked flames.

**4-HYDROXY-4-METHYLPENTAN-2-ONE**

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

**10.5. Incompatible materials****2-METHOXY-1-METHYLETHYL ACETATE**

Incompatible with: oxidising substances, strong acids, alkaline metals.

**1-METHOXY-2-PROPANOL**

Incompatible with: oxidising substances, strong acids, alkaline metals.

**ETHYL METHYL KETONE**

Incompatible with: strong oxidants, inorganic acids, ammonia, copper, chloroform.

**N-BUTYL ACETATE**

Incompatible with: water, nitrates, strong oxidants, acids, alkalis, zinc.

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

**ETHYLBENZENE**

May develop: methane, styrene, hydrogen, ethane.

**ETHYLBENZENE**

May develop: methane, styrene, hydrogen, ethane.

**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****MIXED XYLENES, ETHYLBENZENE**

Has a toxic effect on the CNS (encephalopathies). Irritating to the skin, conjunctivae, cornea and respiratory apparatus.

Metabolism, toxicokinetics, mechanism of action and other information**2-METHOXY-1-METHYLETHYL ACETATE**

The main route of entry is the skin, whereas the respiratory route is less important due to the low vapour pressure of the product.

Information on likely routes of exposure**2-METHOXY-1-METHYLETHYL ACETATE**

WORKERS: inhalation; contact with the skin.

**ETHYLBENZENE**

WORKERS: inhalation; contact with the skin.

POPULATION: ingestion of contaminated food or water; contact with the skin of products containing the substance.

**1-METHOXY-2-PROPANOL**

WORKERS: inhalation; contact with the skin.

POPULATION: ingestion of contaminated food or water; inhalation of ambient air; contact with the skin of products containing the substance.

**N-BUTYL ACETATE**

WORKERS: inhalation; contact with the skin.

**4-HYDROXY-4-METHYLPENTAN-2-ONE**

WORKERS: inhalation; contact with the skin.

**XYLENE (MIXTURE OF ISOMERS)**

WORKERS: inhalation; contact with the skin.

POPULATION: ingestion of contaminated food or water; inhalation of environmental air.

**ETHYLBENZENE**

WORKERS: inhalation; contact with the skin.

POPULATION: ingestion of contaminated food or water; contact with the skin of products containing the substance.

Delayed and immediate effects as well as chronic effects from short and long-term exposure**2-METHOXY-1-METHYLETHYL ACETATE**

Above 100 ppm causes irritation of the eye, nose and oropharynx mucous membranes. At 1000 ppm, disturbance of equilibrium and severe eye irritation can be noticed. Clinical and biological examinations carried out on exposed volunteers revealed no anomalies. Acetate produces greater skin and eye irritation with direct contact. No chronic effects on humans have been reported (INCR, 2010).

**ETHYLBENZENE**

As the counterparts of benzene, may have an acute effect on the central nervous system, with depression, narcosis, often preceded by dizziness and associated with headache (Ispesl). Is irritating for skin, conjunctiva and respiratory tract.

**1-METHOXY-2-PROPANOL**

The main route of entry is the skin, whereas the respiratory route is less important due to the low vapour pressure of the product.

Above 100 ppm causes irritation of the eye, nose and oropharynx mucous membranes. At 1000 ppm, disturbance of equilibrium and severe eye irritation can be noticed. Clinical and biological examinations carried out on exposed volunteers revealed no anomalies.

Acetate produces greater skin and eye irritation with direct contact. No chronic effects on humans have been reported.

**SECTION 11. Toxicological information ... / >>****N-BUTYL ACETATE**

In humans, the substance's vapours cause irritation of the eyes and nose. In the event of repeated exposure, skin irritation, dermatitis (dryness and cracking of the skin) and keratitis appear.

**4-HYDROXY-4-METHYLPENTAN-2-ONE**

Acute toxicity causes irritation of the eyes, nose and throat in humans at 100 ppm (476 mg/kg) and pulmonary disorders at 400 ppm. No chronic effects on humans have been reported. The substance may have a depressive effect on the respiratory centres and cause death from respiratory failure.

**XYLENE (MIXTURE OF ISOMERS)**

Toxic effect on the central nervous system (encephalopathy); irritating for the skin, conjunctiva, cornea and respiratory apparatus.

**ETHYLBENZENE**

As the counterparts of benzene, may have an acute effect on the central nervous system, with depression, narcosis, often preceded by dizziness and associated with headache (Ispesl). Is irritating for skin, conjunctiva and respiratory tract.

Interactive effects**N-BUTYL ACETATE**

A case of acute intoxication been reported involving a 33 year old worker while cleaning a tank with a preparation containing xylenes, butyl acetate and ethylene glycol acetate. The person had irritation of the conjunctiva and upper respiratory tract, drowsiness and motor coordination disorders, which disappeared within 5 hours. The symptoms are attributed to poisoning by mixed xylenes and butyl acetate, with a possible synergistic effect responsible for the neurological effects. Cases of vacuolar keratitis are reported in workers exposed to a mixture of butyl acetate and isobutanol vapours, but with uncertainty concerning the responsibility of a particular solvent (INRC, 2011).

**XYLENE (MIXTURE OF ISOMERS)**

Intake of alcohol interferes with the metabolism of the substance, inhibiting it. Ethanol consumption (0.8 g/kg) before a 4-hour exposure to xylene vapours (145 and 280 ppm) causes a 50% reduction in the excretion of methyl hippuric acid, whereas the concentration of xylenes in the blood increases approx. 1.5-2 times. At the same time there is an increase in the secondary side effects of the ethanol. The metabolism of the xylenes is increased by phenobarbital and 3-methyl-colantrene type enzyme inducers. Aspirin and xylenes mutually inhibit their conjugation with the glycine, which results in a decrease in urinary excretion of methyl hippuric acid. Other industrial products can interfere with the metabolism of xylenes.

ACUTE TOXICITY

|                                  |                                           |
|----------------------------------|-------------------------------------------|
| ATE (Inhalation) of the mixture: | Not classified (no significant component) |
| ATE (Oral) of the mixture:       | Not classified (no significant component) |
| ATE (Dermal) of the mixture:     | Not classified (no significant component) |

**2,3-epoxypropyl o-tolyl ether**

|                            |                   |
|----------------------------|-------------------|
| LD50 (Dermal):             | 2000 mg/kg Rabbit |
| LC50 (Inhalation vapours): | 1220 mg/l         |

**TITANIUM DIOXIDE**

|              |                   |
|--------------|-------------------|
| LD50 (Oral): | > 10000 mg/kg Rat |
|--------------|-------------------|

**2-METHOXY-1-METHYLETHYL ACETATE**

|                |                |
|----------------|----------------|
| LD50 (Dermal): | 2000 mg/kg Rat |
| LD50 (Oral):   | 6190 mg/kg Rat |

**ETHYLBENZENE**

|                            |                    |
|----------------------------|--------------------|
| LD50 (Dermal):             | 15400 mg/kg Rabbit |
| LD50 (Oral):               | 3500 mg/kg Rat     |
| LC50 (Inhalation vapours): | 17,2 mg/l/4h Rat   |

**1-METHOXY-2-PROPANOL**

|                |                |
|----------------|----------------|
| LD50 (Dermal): | 2000 mg/kg Rat |
| LD50 (Oral):   | 4016 mg/kg Rat |

**ETHYL METHYL KETONE**

|                            |                   |
|----------------------------|-------------------|
| LD50 (Dermal):             | 6480 mg/kg Rabbit |
| LD50 (Oral):               | 2737 mg/kg Rat    |
| LC50 (Inhalation vapours): | 23,5 mg/l/8h Rat  |

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

#### N-BUTYL ACETATE

LD50 (Dermal): > 14112 mg/kg Rabbit  
LD50 (Oral): 10760 mg/kg Rat  
LC50 (Inhalation vapours): 21,1 mg/l/4h Rat

#### MALEIC ANHYDRIDE

LD50 (Dermal): 2620 mg/kg Rabbit  
LD50 (Oral): 1090 mg/kg Rat

#### Hydrocarbons, C10-C12, isoalkanes, <2% aromatics

LD50 (Dermal): > 5000 mg/kg Rabbit  
LD50 (Oral): > 5000 mg/kg Rat  
LC50 (Inhalation vapours): > 4951 mg/l/4h Rat

#### DIISOPROPYLNAPHTHALENE

LD50 (Dermal): > 4000 mg/kg Rat  
LD50 (Oral): > 4000 mg/kg Rat

#### Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and 1-(2,3-epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane

LD50 (Dermal): 3170 mg/kg (rat)  
LD50 (Oral): 3398 mg/kg (rat)

#### MIXED XYLENES, ETHYLBENZENE

LD50 (Dermal): 4350 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): 3523 mg/kg Rat  
LC50 (Inhalation vapours): 26 mg/l/4h Rat

#### 4-HYDROXY-4-METHYLPENTAN-2-ONE

LD50 (Oral): 4000 mg/kg Rat

#### XYLENE (MIXTURE OF ISOMERS)

LD50 (Dermal): 4350 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): 3523 mg/kg Rat  
LC50 (Inhalation vapours): 26 mg/l/4h Rat

#### Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-([2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl]oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane

LD50 (Dermal): > 2000 mg/kg Rat  
LD50 (Oral): > 5000 mg/kg Rat

#### ETHYLBENZENE

LD50 (Dermal): 15400 mg/kg Rabbit  
LD50 (Oral): 3500 mg/kg Rat  
LC50 (Inhalation vapours): 17,2 mg/l/4h Rat

### SKIN CORROSION / IRRITATION

#### Corrosive for the skin

#### 2-METHOXY-1-METHYLETHYL ACETATE

Species: rabbit  
Result: non-irritating  
Method: OECD 404

#### N-BUTYL ACETATE

Species: rabbit  
Result: non-irritating  
Method: OECD 404

#### Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and 1-(2,3-epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane

Species: Rabbit  
Result: Corrosive, category 1C when reactions occur from exposures between 1 hour and 4 hours and observation times up to 14 days.

**SECTION 11. Toxicological information ... / >>****XYLENE (MIXTURE OF ISOMERS)**

Causes irritation (redness, burning sensation), dryness and slight flaking of the skin

Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl}oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane  
The skin irritation of bisphenol F diglycidyl ether was determined to be mild to non-irritating based on the six Klimisch 1 and 2 studies conducted according to OECD guidelines.

In the experimental conditions used, only one product induced erythema and edema reactions above the significance threshold (score 2 for erythema or edema) and was classified as irritant according to EEC directive no. 83/467/1983. The other studies indicated mild irritation, but not sufficient to reach the classification threshold.

Two repeated dose cumulative irritation studies were performed and under the experimental conditions employed the test materials induced significant irritation after repeated application and a potential for cumulative skin irritation was found in albino rabbits.

Effects on skin irritation/corrosion: slightly irritating.

**SERIOUS EYE DAMAGE / IRRITATION**

Causes serious eye damage

**2-METHOXY-1-METHYLETHYL ACETATE**

Species: rabbit

Result: non-irritating

Method: OECD 405

**N-BUTYL ACETATE**

Species: rabbit

Result: non-irritating

Method: OECD 405

Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and 1-(2,3-epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane

Species: Rabbit

Result: Irreversible effects on the eyes

**XYLENE (MIXTURE OF ISOMERS)**

Irritating to eyes

Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl}oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane  
The ocular irritation of bisphenol F diglycidyl ether was determined to be non-irritating based on the four Klimisch 1 and 2 studies conducted according to OECD guidelines. In rabbit eye irritation tests, 0.1 ml of the test material caused no irritation and no initial pain response.

**RESPIRATORY OR SKIN SENSITISATION**

Sensitising for the skin

**2-METHOXY-1-METHYLETHYL ACETATE**

Species: guinea pig

Result: non-sensitizing

Method: OECD 406

**N-BUTYL ACETATE**

Species: guinea pig

Result: non-sensitizing

Method: OECD 406

**MALEIC ANHYDRIDE**

Species: rabbit

Result: skin sensitization

Method: OECD 406

Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and 1-(2,3-epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane

Route of exposure: Skin

Species: Guinea pig

Result: The product is a skin sensitizer, subcategory 1B.

**Skin sensitization**



**SECTION 11. Toxicological information ... / >>**

Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl}oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane Bisphenol F diglycidyl ether (BPFDE) tested positive for induction of skin sensitization in the mouse Local Lymph Node Assay (LLNA). Based on an EC3 value of 0.7%, BPFDE is considered a strong skin sensitizer. According to ECHA guidelines, this EC3 value was converted to an EC3 value of 175 ug/cm2 and is considered the LOAEL for the induction of skin sensitization in the LLNA mouse for BPFDE. From sensitization tests it can be concluded that BPFDE is a sensitizer.

**GERM CELL MUTAGENICITY**

Suspected of causing genetic defects

Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and 1-(2,3-epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane

Genotoxicity in vitro:

Type of test: In vitro chromosomal aberration

Test system: Chinese hamster ovary cells

Metabolic activation: with or without metabolic activation

Method: OECD Test Guideline 473

Result: positive

Test Type: Ames Test

Test system: Salmonella typhimurium

Metabolic activation: with or without metabolic activation

Method: OECD Test Guideline 471

Result: positive

Type of test: In vitro gene mutation test on mammalian cells

Test system: Chinese hamster ovary cells

Metabolic activation: with or without metabolic activation

Method: OECD Test Guideline 476

Result: positive

Genotoxicity in vivo:

Test Type: Comet Test

Species: Rat

Application method: Oral

Doses: 500, 1000, 2000

Result: positive

Germ cell mutagenicity - Assessment: In vitro assays revealed mutagenic effects

**CARCINOGENICITY**

Does not meet the classification criteria for this hazard class

ETHYLBENZENE

Classified in Group 2B (possible human carcinogen) by the International Agency for Research on Cancer (IARC) - (IARC, 2000).

Classified in Group D (not classifiable as a human carcinogen) by the US Environmental Protection Agency (EPA) - (US EPA file on-line 2014).

XYLENE (MIXTURE OF ISOMERS)

Classified in Group 3 (not classifiable as a human carcinogen) by the International Agency for Research on Cancer (IARC).

The US Environmental Protection Agency (EPA) affirms that "the data is inadequate for an assessment of the carcinogenic potential".

ETHYLBENZENE

Classified in Group 2B (possible human carcinogen) by the International Agency for Research on Cancer (IARC) - (IARC, 2000).

Classified in Group D (not classifiable as a human carcinogen) by the US Environmental Protection Agency (EPA) - (US EPA file on-line 2014).

**REPRODUCTIVE TOXICITY**

May damage fertility

Adverse effects on sexual function and fertility

**SECTION 11. Toxicological information** ... / >>

Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and 1-(2,3-epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane

Species: Rat, male and female

Application method: Oral

Doses: 0, 30, 100, 300 milligram per kilo

Treatment frequency: 7 days/week

General parental toxicity: NOAEL: 100 mg/kg body weight

Method: OECD Test Guideline 422

Adverse effects on development of the offspring

Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and 1-(2,3-epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane

Species: Rat, male and female

Application method: Oral

Doses: 0,30,100,300 milligram per kilo

Treatment frequency: 7 days/week

Developmental toxicity: NOAEL: 100 mg/kg body weight

Method: OECD Test Guideline 422

Species: Rat, male and female

Application method: Oral

Doses: 0, 30, 90, 180 milligram per kilo

Treatment frequency: 7 days/week

Developmental toxicity: NOAEL: 180 mg/kg body weight

Method: OECD Test Guideline 414

BPL: yes

Reproductive Toxicity - Assessment: Clear evidence of adverse effects on sexual function and fertility, based on animal experiments.

STOT - SINGLE EXPOSURE

Does not meet the classification criteria for this hazard class

STOT - REPEATED EXPOSURE

Does not meet the classification criteria for this hazard class

Target organs

ETHYLBENZENE

Test: STOT RE - Route: Inhalation. Auditory system, ears

XYLENE (MIXTURE OF ISOMERS)

May cause damage to organs (respiratory tract) through prolonged or repeated exposure.

ETHYLBENZENE

Test: STOT RE - Route: Inhalation. Auditory system, ears

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 is toxic for aquatic organisms. In the long term, it has negative effects on the aquatic environment.

**12.1. Toxicity**

2,3-epoxypropyl o-tolyl ether

LC50 - for Fish

EC50 - for Crustacea

EC50 - for Algae / Aquatic Plants

7,5 mg/l/96h Oncorhynchus mykiss

3,3 mg/l/48h Daphnia magna

5,1 mg/l/72h Selenastrum capricornutum

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

#### 2-METHOXY-1-METHYLETHYL ACETATE

|                            |                                    |
|----------------------------|------------------------------------|
| LC50 - for Fish            | > 100 mg/l/96h Oncorhynchus mykiss |
| EC50 - for Crustacea       | 500 mg/l/48h Daphnia magna         |
| Chronic NOEC for Crustacea | 100 mg/l Daphnia magna             |

#### 1-METHOXY-2-PROPANOL

|                      |                  |
|----------------------|------------------|
| LC50 - for Fish      | > 1000 mg/l/96h  |
| EC50 - for Crustacea | > 21100 mg/l/48h |

#### N-BUTYL ACETATE

|                            |                                 |
|----------------------------|---------------------------------|
| LC50 - for Fish            | 18 mg/l/96h Pimephales promelas |
| EC50 - for Crustacea       | 44 mg/l/48h Daphnia magna       |
| Chronic NOEC for Crustacea | 23 mg/l Daphnia magna           |

#### MALEIC ANHYDRIDE

|                                   |                                                |
|-----------------------------------|------------------------------------------------|
| LC50 - for Fish                   | 75 mg/l/96h Oncorhynchus mykiss                |
| EC50 - for Crustacea              | 42,81 mg/l/48h Daphnia magna                   |
| EC50 - for Algae / Aquatic Plants | 74,35 mg/l/72h Pseudokirchneriella subcapitata |
| Chronic NOEC for Crustacea        | 10 mg/l Daphnia magna                          |

#### DIISOPROPYLNAPHTHALENE

|                                 |               |
|---------------------------------|---------------|
| LC50 - for Fish                 | 2,44 mg/l/96h |
| EC10 for Crustacea              | 0,16 mg/l/48h |
| EC10 for Algae / Aquatic Plants | 0,15 mg/l/72h |
| Chronic NOEC for Crustacea      | 0,013 mg/l    |

#### Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and 1-(2,3-epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane

|                                         |                |
|-----------------------------------------|----------------|
| LC50 - for Fish                         | 75 mg/l/96h    |
| EC50 - for Crustacea                    | 3,7 mg/l/48h   |
| EC50 - for Algae / Aquatic Plants       | > 3,4 mg/l/72h |
| Chronic NOEC for Algae / Aquatic Plants | 2,5 mg/l       |

#### 4-HYDROXY-4-METHYLPENTAN-2-ONE

|                                   |                                                 |
|-----------------------------------|-------------------------------------------------|
| LC50 - for Fish                   | > 100 mg/l/96h Oryzia latipes                   |
| EC50 - for Crustacea              | > 1000 mg/l/48h Daphnia magna                   |
| EC50 - for Algae / Aquatic Plants | > 1000 mg/l/72h Pseudokirchneriella subcapitata |

#### Reaction mass of 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]dioxirane and

#### [2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy)methyl}oxirane and [2,2'-[methylenebis(2,1-phenyleneoxymethylene)]dioxirane

|                                   |                             |
|-----------------------------------|-----------------------------|
| LC50 - for Fish                   | 2,54 mg/l/96h               |
| EC50 - for Crustacea              | 2,55 mg/l/48h Daphnia Magna |
| EC50 - for Algae / Aquatic Plants | 1,8 mg/l/72h                |

#### bis-[4-(2,3-epoxipropoxy)phenyl]propane

|                 |                   |
|-----------------|-------------------|
| LC50 - for Fish | 1,5 mg/l/96h Fish |
|-----------------|-------------------|

### 12.2. Persistence and degradability

#### DIPROPYLENE GLYCOL MONOMETHYL ETHER

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

#### TITANIUM DIOXIDE

|                                          |              |
|------------------------------------------|--------------|
| Solubility in water                      | < 0,001 mg/l |
| Degradability: information not available |              |

#### 2-METHOXY-1-METHYLETHYL ACETATE

|                     |                        |
|---------------------|------------------------|
| Solubility in water | > 10000 mg/l           |
| Rapidly degradable  | 83% (28 d, OECD 301 F) |

#### ETHYLBENZENE

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

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

|                                                                                                                                                              |                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| 1-METHOXY-2-PROPANOL                                                                                                                                         |                   |
| Solubility in water                                                                                                                                          | 1000 - 10000 mg/l |
| Rapidly degradable                                                                                                                                           |                   |
| ETHYL METHYL KETONE                                                                                                                                          |                   |
| Solubility in water                                                                                                                                          | > 10000 mg/l      |
| Rapidly degradable                                                                                                                                           |                   |
| N-BUTYL ACETATE                                                                                                                                              |                   |
| Solubility in water                                                                                                                                          | 1000 - 10000 mg/l |
| Rapidly degradable                                                                                                                                           | >90% (28 d)       |
| MALEIC ANHYDRIDE                                                                                                                                             |                   |
| Solubility in water                                                                                                                                          | > 10000 mg/l      |
| Entirely degradable                                                                                                                                          |                   |
| DIISOPROPYLNAPHTHALENE                                                                                                                                       |                   |
| Solubility in water                                                                                                                                          | 0,125 mg/l        |
| Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and 1-(2,3-epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane |                   |
| Solubility in water                                                                                                                                          | 2,73 g/l          |
| Entirely degradable                                                                                                                                          |                   |
| NOT rapidly degradable                                                                                                                                       |                   |
| MIXED XYLENES, ETHYLBENZENE                                                                                                                                  |                   |
| Degradability: information not available                                                                                                                     |                   |
| 4-HYDROXY-4-METHYLPENTAN-2-ONE                                                                                                                               |                   |
| Solubility in water                                                                                                                                          | 1000 - 10000 mg/l |
| Rapidly degradable                                                                                                                                           |                   |
| XYLENE (MIXTURE OF ISOMERS)                                                                                                                                  |                   |
| Solubility in water                                                                                                                                          | 100 - 1000 mg/l   |
| Degradability: information not available                                                                                                                     |                   |
| bis-[4-(2,3-epoxypropoxy)phenyl]propane                                                                                                                      |                   |
| Solubility in water                                                                                                                                          | 0,1 - 100 mg/l    |
| NOT rapidly degradable                                                                                                                                       |                   |
| ETHYLBENZENE                                                                                                                                                 |                   |
| Solubility in water                                                                                                                                          | 1000 - 10000 mg/l |
| Rapidly degradable                                                                                                                                           |                   |

#### 12.3. Bioaccumulative potential

|                                        |                             |
|----------------------------------------|-----------------------------|
| 2,3-epoxypropyl o-tolyl ether          |                             |
| Partition coefficient: n-octanol/water | 2,16                        |
| DIPROPYLENE GLYCOL MONOMETHYL ETHER    |                             |
| Partition coefficient: n-octanol/water | 0,0043                      |
| 2-METHOXY-1-METHYLETHYL ACETATE        |                             |
| Partition coefficient: n-octanol/water | 1,2 Log Kow 20°C - OECD 117 |
| ETHYLBENZENE                           |                             |
| Partition coefficient: n-octanol/water | 3,6                         |
| 1-METHOXY-2-PROPANOL                   |                             |
| Partition coefficient: n-octanol/water | < 1                         |
| ETHYL METHYL KETONE                    |                             |
| Partition coefficient: n-octanol/water | 0,3                         |
| N-BUTYL ACETATE                        |                             |
| Partition coefficient: n-octanol/water | 2,3 25°C - OECD 117         |
| BCF                                    | 15,3                        |

**SECTION 12. Ecological information** ... / >>**MALEIC ANHYDRIDE**

Partition coefficient: n-octanol/water -2,78

Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and  
1-(2,3epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane

Partition coefficient: n-octanol/water 0,467

**MIXED XYLENES, ETHYLBENZENE**

Partition coefficient: n-octanol/water 3,12

BCF 25,9

**4-HYDROXY-4-METHYLPENTAN-2-ONE**

Partition coefficient: n-octanol/water -0,09

**XYLENE (MIXTURE OF ISOMERS)**

Partition coefficient: n-octanol/water 3,12

BCF 25,9

**bis-[4-(2,3-epoxipropoxi)phenyl]propane**

Partition coefficient: n-octanol/water &gt; 2,918

BCF 31

**ETHYLBENZENE**

Partition coefficient: n-octanol/water 3,6

**12.4. Mobility in soil**

Information not available

**12.5. Results of PBT and vPvB assessment**

vPvB substances contained:

DIISOPROPYLNAPHTHALENE

PBT substances contained:

DIISOPROPYLNAPHTHALENE

**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.

Waste transportation may be subject to ADR restrictions.

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.

**SECTION 14. Transport information****14.1. UN number or ID number**

ADR / RID, IMDG, IATA: UN 1760

### SECTION 14. Transport information ... / >>

#### 14.2. UN proper shipping name

ADR / RID: CORROSIVE LIQUID, N.O.S. (Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and 1-(2,3epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane)

IMDG: CORROSIVE LIQUID, N.O.S. (Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and 1-(2,3epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane)

IATA: CORROSIVE LIQUID, N.O.S. (Reaction mass of 1-(2,3-epoxypropoxy)-2,2-bis ((2,3-epoxypropoxy)methyl) butane and 1-(2,3epoxypropoxy)-2-((2,3-epoxypropoxy)methyl)-2-hydroxymethyl butane)

#### 14.3. Transport hazard class(es)

ADR / RID: Class: 8 Label: 8

IMDG: Class: 8 Label: 8

IATA: Class: 8 Label: 8



#### 14.4. Packing group

ADR / RID, IMDG, IATA: III

#### 14.5. Environmental hazards

ADR / RID: Environmentally Hazardous

IMDG: Marine Pollutant

IATA: NO



For Air transport, environmentally hazardous mark is only mandatory for UN 3077 and UN 3082.

#### 14.6. Special precautions for user

|            |                                             |                                                             |                                                            |
|------------|---------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------|
| ADR / RID: | HIN - Kemler: 80<br>Special provision: 274  | Limited Quantities: 5 lt                                    | Tunnel restriction code: (E)                               |
| IMDG:      | EMS: F-A, S-B                               | Limited Quantities: 5 lt                                    |                                                            |
| IATA:      | Cargo:<br>Passengers:<br>Special provision: | Maximum quantity: 60 L<br>Maximum quantity: 5 L<br>A3, A803 | Packaging instructions: 856<br>Packaging instructions: 852 |

#### 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: E2

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

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

#### 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.

#### VOC (Directive 2004/42/EC) :

Two-pack reactive performance coatings for specific end use such as floors.

### 15.2. Chemical safety assessment

A chemical safety assessment has been performed for the following contained substances

2-METHOXY-1-METHYLETHYL ACETATE

ETHYL METHYL KETONE

N-BUTYL ACETATE

bis-[4-(2,3-epoxipropoxy)phenyl]propane

### SECTION 16. Other information

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

|                          |                                                                    |
|--------------------------|--------------------------------------------------------------------|
| <b>Flam. Liq. 2</b>      | Flammable liquid, category 2                                       |
| <b>Flam. Liq. 3</b>      | Flammable liquid, category 3                                       |
| <b>Muta. 2</b>           | Germ cell mutagenicity, category 2                                 |
| <b>Repr. 1B</b>          | Reproductive toxicity, category 1B                                 |
| <b>Repr. 2</b>           | Reproductive toxicity, category 2                                  |
| <b>Acute Tox. 4</b>      | Acute toxicity, category 4                                         |
| <b>STOT RE 1</b>         | Specific target organ toxicity - repeated exposure, category 1     |
| <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. 1B</b>     | Skin corrosion, category 1B                                        |
| <b>Skin Corr. 1C</b>     | Skin corrosion, category 1C                                        |
| <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>Resp. Sens. 1</b>     | Respiratory sensitization, category 1                              |
| <b>Skin Sens. 1</b>      | Skin sensitization, category 1                                     |
| <b>Skin Sens. 1A</b>     | Skin sensitization, category 1A                                    |
| <b>Skin Sens. 1B</b>     | Skin sensitization, category 1B                                    |
| <b>Aquatic Chronic 1</b> | Hazardous to the aquatic environment, chronic toxicity, 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>H225</b>              | Highly flammable liquid and vapour.                                |
| <b>H226</b>              | Flammable liquid and vapour.                                       |
| <b>H341</b>              | Suspected of causing genetic defects.                              |
| <b>H360F</b>             | May damage fertility.                                              |
| <b>H361d</b>             | Suspected of damaging the unborn child.                            |
| <b>H302</b>              | Harmful if swallowed.                                              |
| <b>H312</b>              | Harmful in contact with skin.                                      |
| <b>H332</b>              | Harmful if inhaled.                                                |
| <b>H372</b>              | Causes damage to organs through prolonged or repeated exposure.    |
| <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.                                     |

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

|               |                                                                                  |
|---------------|----------------------------------------------------------------------------------|
| <b>H315</b>   | Causes skin irritation.                                                          |
| <b>H335</b>   | May cause respiratory irritation.                                                |
| <b>H334</b>   | May cause allergy or asthma symptoms or breathing difficulties if inhaled.       |
| <b>H317</b>   | May cause an allergic skin reaction.                                             |
| <b>H336</b>   | May cause drowsiness or dizziness.                                               |
| <b>H410</b>   | Very toxic to aquatic life with long lasting effects.                            |
| <b>H411</b>   | Toxic to aquatic life with long lasting effects.                                 |
| <b>H412</b>   | Harmful to aquatic life with long lasting effects.                               |
| <b>EUH066</b> | Repeated exposure may cause skin dryness or cracking.                            |
| <b>EUH071</b> | Corrosive to the respiratory tract.                                              |
| <b>EUH205</b> | Contains epoxy constituents. May produce an allergic reaction.                   |
| <b>EUH212</b> | Warning! Hazardous respirable dust may be formed when used. Do not breathe dust. |

**LEGEND:**

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

**GENERAL BIBLIOGRAPHY**

1. Regulation (EC) 1907/2006 (REACH) of the European Parliament
2. Regulation (EC) 1272/2008 (CLP) of the European Parliament
3. Regulation (EU) 2020/878 (II Annex of REACH Regulation)
4. Regulation (EC) 790/2009 (I Atp. CLP) of the European Parliament
5. Regulation (EU) 286/2011 (II Atp. CLP) of the European Parliament
6. Regulation (EU) 618/2012 (III Atp. CLP) of the European Parliament
7. Regulation (EU) 487/2013 (IV Atp. CLP) of the European Parliament
8. Regulation (EU) 944/2013 (V Atp. CLP) of the European Parliament
9. Regulation (EU) 605/2014 (VI Atp. CLP) of the European Parliament
10. Regulation (EU) 2015/1221 (VII Atp. CLP) of the European Parliament
11. Regulation (EU) 2016/918 (VIII Atp. CLP) of the European Parliament
12. Regulation (EU) 2016/1179 (IX Atp. CLP)
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)



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

- 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)

- 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 / 04 / 07 / 08 / 09 / 10 / 11 / 12 / 13 / 14 / 15 / 16.