AODISI

FIRE TECHNOLOGY

# 产品资料与销售咨询

PRODUCT DOCUMENTATION & SALES CONTACT

## FLAMMADUR ® A 386-Ireland - Safety Data Sheet-en


澳迪斯防火科技（廊坊）有限公司

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以上为销售联系信息，不替代安全数据表中的应急联系电话。
原始技术内容及制造商、检测机构和证书签发信息见后续资料页。

Sales contact only; emergency contacts in safety data sheets remain applicable.
Original technical, manufacturer and certification details follow.

# FLAMMADUR® A 386

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2020/878
Issue date: 16/04/2026 Revision date: 16/04/2026 Version: 1.00

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

### 1.1. Product identifier

Product form : Mixture
Trade name : FLAMMADUR® A 386
UFI : XH20-U0T0-G00N-037A

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

#### 1.2.1. Relevant identified uses

Main use category : Industrial use
Use of the substance/mixture : Measures against fire
Two component coating
Resin Component
A Component
manufacture of epoxy resin
Sealing

#### 1.2.2. Uses advised against

Restrictions on use : For professional use only

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

**Manufacturer/Supplier**
KuhnOdice Germany GmbH
Glüsinger Straße 86
DE 21217 Seevetal
Germany
T +49 2753 5945-0

**Email competent person**
sds@kft.de

### 1.4. Emergency telephone number

Emergency number : +353 1 443 4289 (+61 3 9573 3188) (24 h/365 d)

| Country/Area | Organisation | Emergency number |
|---|---|---|
| Ireland | National Poisons Information Centre.<br>Beaumont Hospital.<br>PO Box 1297. Beaumont Road 9 Dublin. | +353 1 809 2566 (Healthcare professionals-24/7)<br>+353 1 809 2166 (public, 8am - 10pm, 7/7) |

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

**Classification according to Regulation (EC) No. 1272/2008 [CLP]**

| | |
|---|---|
| Skin corrosion/irritation, Category 2 | H315 |
| Serious eye damage/eye irritation, Category 2 | H319 |
| Skin sensitisation, Category 1 | H317 |
| Reproductive toxicity, Category 1B | H360F |
| Hazardous to the aquatic environment – Chronic Hazard, Category 2 | H411 |

Full text of H- and EUH-statements: see section 16

**Adverse physicochemical, human health and environmental effects**

May damage fertility.. May cause an allergic skin reaction. Causes skin irritation. Causes serious eye irritation. Toxic to aquatic life with long lasting effects.

## 2.2. Label elements

**Labelling according to Regulation (EC) No. 1272/2008 [CLP]**

Hazard pictograms (CLP) :



GHS07 GHS08 GHS09

Signal word (CLP) : Danger

Contains : oxirane, mono[(C12-14-alkyloxy)methyl] derivs.; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane; bis-[4-(2,3-epoxipropoxi)phenyl]propane

Hazard statements (CLP) : H315 - Causes skin irritation.
H317 - May cause an allergic skin reaction.
H319 - Causes serious eye irritation.
H360F - May damage fertility.
H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) : P201 - Obtain special instructions before use.
P261 - Avoid breathing mist, vapours, spray.
P273 - Avoid release to the environment.
P280 - Wear protective gloves, protective clothing, eye protection, face protection.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P391 - Collect spillage.

## 2.3. Other hazards

Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

| Component | |
|---|---|
| Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII | xylene (1330-20-7), ethylbenzene (100-41-4), Quartz (SiO2) (14808-60-7), cyclohexanone (108-94-1), oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2), Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane, bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3) |
| Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII | xylene (1330-20-7), ethylbenzene (100-41-4), Quartz (SiO2) (14808-60-7), cyclohexanone (108-94-1), oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2), Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane, bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3) |

The mixture does not contain substance(s) included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or substance(s) are not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at a concentration equal to or greater than 0,1 %.

| Component | |
|---|---|
| Substance(s) not included in the list established in accordance with Article 59(1) of REACH for having endocrine disrupting properties, or is not identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 | bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3), oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2), Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane, cyclohexanone (108-94-1), Quartz (SiO2) (14808-60-7), xylene (1330-20-7), ethylbenzene (100-41-4) |

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

| Name | Product identifier | % | Classification according to Regulation (EC) No. 1272/2008 [CLP] |
|---|---|---|---|
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | CAS-No.: 1675-54-3<br>EC-No.: 216-823-5<br>EC Index-No.: 603-074-00-8<br>REACH-no: 01-2119456619-26-xxxx | ≥ 25 – < 50 | Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>Skin Sens. 1, H317<br>Aquatic Chronic 2, H411 |
| oxirane, mono[(C12-14-alkyloxy)methyl] derivs. | CAS-No.: 68609-97-2<br>EC-No.: 271-846-8<br>EC Index-No.: 603-103-00-4<br>REACH-no: 01-2119485289-22-xxxx | ≥ 5 – < 10 | Skin Irrit. 2, H315<br>Skin Sens. 1, H317<br>Repr. 1B, H360F |
| Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane | EC-No.: 701-263-0<br>REACH-no: 01-2119454392-40-xxxx | ≥ 5 – < 10 | Skin Irrit. 2, H315<br>Skin Sens. 1A, H317<br>Aquatic Chronic 2, H411 |
| cyclohexanone<br>substance with national workplace exposure limit(s) (IE); substance with a Community workplace exposure limit | CAS-No.: 108-94-1<br>EC-No.: 203-631-1<br>EC Index-No.: 606-010-00-7<br>REACH-no: 01-2119453616-35-xxxx | ≥ 0.25 – < 1 | Flam. Liq. 3, H226<br>Acute Tox. 4 (Oral), H302 (ATE=500 mg/kg bodyweight)<br>Acute Tox. 4 (Dermal), H312 (ATE=1100 mg/kg bodyweight)<br>Acute Tox. 4 (Inhalation:vapour), H332 (ATE=11 mg/l/4h)<br>Eye Dam. 1, H318 |
| Quartz (SiO2)<br>substance with national workplace exposure limit(s) (IE); substance with a Community workplace exposure limit | CAS-No.: 14808-60-7<br>EC-No.: 238-878-4 | < 3 | Not classified |
| xylene<br>substance with national workplace exposure limit(s) (IE); substance with a Community workplace exposure limit<br>(Note C) | CAS-No.: 1330-20-7<br>EC-No.: 215-535-7<br>EC Index-No.: 601-022-00-9<br>REACH-no: 01-2119488216-32-xxxx | ≥ 0.25 – < 1 | Flam. Liq. 3, H226<br>Acute Tox. 4 (Dermal), H312 (ATE=1100 mg/kg bodyweight)<br>Acute Tox. 4 (Inhalation:vapour), H332 (ATE=11 mg/l/4h)<br>Skin Irrit. 2, H315<br>Eye Irrit. 2, H319<br>STOT SE 3, H335<br>Asp. Tox. 1, H304 |
| ethylbenzene<br>substance with national workplace exposure limit(s) (IE); substance with a Community workplace exposure limit | CAS-No.: 100-41-4<br>EC-No.: 202-849-4<br>EC Index-No.: 601-023-00-4 | ≥ 0.1 – < 0.25 | Flam. Liq. 2, H225<br>Acute Tox. 4 (Inhalation:vapour), H332 (ATE=17.8 mg/l/4h)<br>STOT RE 2, H373<br>Asp. Tox. 1, H304 |

| Specific concentration limits: | | |
|---|---|---|
| **Name** | **Product identifier** | **Specific concentration limits (%)** |
| bis-[4-(2,3-epoxipropoxi)phenyl]propane | CAS-No.: 1675-54-3<br>EC-No.: 216-823-5<br>EC Index-No.: 603-074-00-8<br>REACH-no: 01-2119456619-26-xxxx | (5 ≤ C ≤ 100) Skin Irrit. 2; H315<br>(5 ≤ C ≤ 100) Eye Irrit. 2; H319 |

Note C: Some organic substances may be marketed either in a specific isomeric form or as a mixture of several isomers. In this case the supplier must state on the label whether the substance is a specific isomer or a mixture of isomers.

Full text of H- and EUH-statements: see section 16

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

First-aid measures general : IF exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact : Wash skin with plenty of water. Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.

Self protection of the first-aider : First-aiders should pay attention to their own protection and use the recommended personal protective equipment (see section 8).

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

Symptoms/effects after skin contact : May cause an allergic skin reaction. Irritation.

Symptoms/effects after eye contact : Eye irritation.

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

Treat symptomatically.

## SECTION 5: Firefighting measures

### 5.1. Extinguishing media

Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire. Water spray. Dry powder. Foam. Carbon dioxide.

Unsuitable extinguishing media : Strong water jet.

### 5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released. Carbon monoxide. Carbon dioxide.

### 5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

Other information : Do not allow run-off from fire fighting to enter drains or water courses. Disposal must be done according to official regulations.

## SECTION 6: Accidental release measures

### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Only qualified personnel equipped with suitable protective equipment may intervene. Avoid breathing mist, vapours, spray.

#### 6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

### 6.2. Environmental precautions

Notify authorities if product enters sewers or public waters. Avoid sub-soil penetration. Prevent entry to sewers and public waters.

### 6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.

Methods for cleaning up : Take up liquid spill into absorbent material. Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal. Notify authorities if product enters sewers or public waters.

Other information : Disposal must be done according to official regulations.

### 6.4. Reference to other sections

Information for safe handling. See section 7. Concerning personal protective equipment to use, see section 8. For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid contact with skin and eyes. Avoid breathing mist, vapours, spray.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Separate working clothes from town clothes. Launder separately. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep cool. Store locked up.

Information about storage in one common storage facility : Keep away from food, drink and animal feeding stuffs.

### 7.3. Specific end use(s)

No additional information available

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### 8.1.1 National occupational exposure and biological limit values

| **xylene (1330-20-7)** | |
|---|---|
| **EU - Indicative Occupational Exposure Limit (IOEL)** | |
| Local name | Xylene, mixed isomers, pure |

| | |
|---|---|
| IOEL TWA | 221 mg/m³ |
| | 50 ppm |
| IOEL STEL | 442 mg/m³ |
| | 100 ppm |
| Remark | Skin |
| Regulatory reference | COMMISSION DIRECTIVE 2000/39/EC |
| **Ireland - Occupational Exposure Limits** | |
| Local name | Xylene, mixed isomers |
| OEL TWA | 221 mg/m³ |
| | 50 ppm |
| OEL STEL | 442 mg/m³ |
| | 100 ppm |
| Remark | IOELV (Indicative Occupational Exposure Limit Values), Skin (Substances which have the capacity to penetrate intact skin when they come in contact with it and be absorbed into the body. A substantial contribution to the total body burden via dermal exposure is possible) |
| Regulatory reference | Chemical Agents Code of Practice 2024 |
| **Ireland - Biological limit values** | |
| Local name | Xylene |
| BMGV | 1.5 g/g creatinine Parameter: methylhippuric acids - Medium: urine - Sampling time: End of Shift |
| Regulatory reference | Biological Monitoring Guidelines (HSA, 2011) |

| **ethylbenzene (100-41-4)** | |
|---|---|
| **EU - Indicative Occupational Exposure Limit (IOEL)** | |
| Local name | Ethylbenzene |
| IOEL TWA | 442 mg/m³ |
| | 100 ppm |
| IOEL STEL | 884 mg/m³ |
| | 200 ppm |
| Remark | Skin |
| Regulatory reference | COMMISSION DIRECTIVE 2000/39/EC |
| **Ireland - Occupational Exposure Limits** | |
| Local name | Ethylbenzene |
| OEL TWA | 442 mg/m³ |
| | 100 ppm |
| OEL STEL | 884 mg/m³ |
| | 200 ppm |
| Remark | IOELV (Indicative Occupational Exposure Limit Values), Skin (Substances which have the capacity to penetrate intact skin when they come in contact with it and be absorbed into the body. A substantial contribution to the total body burden via dermal exposure is possible) |

| | |
|---|---|
| Regulatory reference | Chemical Agents Code of Practice 2024 |
| **Ireland - Biological limit values** | |
| Local name | Ethyl benzene |
| BMGV | 0.7 g/g creatinine Parameter: mandelic acid and phenylglyoxylic acid - Medium: urine - Sampling time: End of shift at end of workweek - Notations: Ns (Non-specific), Sq (Semi-quantitative)<br>Parameter: ethylbenzene - Medium: end-exhaled air - Sampling time: Not critical - Notations: Sq (Semi-quantitative) |
| Regulatory reference | Biological Monitoring Guidelines (HSA, 2011) |

| **Quartz (SiO2) (14808-60-7)** | |
|---|---|
| **EU - Indicative Occupational Exposure Limit (IOEL)** | |
| Local name | Silica crystaline (Quartz) |
| IOEL TWA | 0.05 mg/m³ (respirable dust) |
| Remark | (Year of adoption 2003) |
| Regulatory reference | SCOEL Recommendations |
| **Ireland - Occupational Exposure Limits** | |
| Local name | Quartz, respirable dust |
| OEL TWA | 0.1 mg/m³ |
| Remark | BOELV (Binding Occupational Exposure Limit Values) |
| Regulatory reference | Chemical Agents Code of Practice 2024 |

| **cyclohexanone (108-94-1)** | |
|---|---|
| **EU - Indicative Occupational Exposure Limit (IOEL)** | |
| Local name | Cyclohexanone |
| IOEL TWA | 40.8 mg/m³ |
| | 10 ppm |
| IOEL STEL | 81.6 mg/m³ |
| | 20 ppm |
| Remark | Skin |
| Regulatory reference | COMMISSION DIRECTIVE 2000/39/EC |
| **Ireland - Occupational Exposure Limits** | |
| Local name | Cyclohexanone |
| OEL TWA | 40.8 mg/m³ |
| | 10 ppm |
| OEL STEL | 81.6 mg/m³ |
| | 20 ppm |
| Remark | IOELV (Indicative Occupational Exposure Limit Values), Skin (Substances which have the capacity to penetrate intact skin when they come in contact with it and be absorbed into the body. A substantial contribution to the total body burden via dermal exposure is possible) |
| Regulatory reference | Chemical Agents Code of Practice 2024 |

| Ireland - Biological limit values | |
|---|---|
| Local name | Cyclohexanone |
| BMGV | 8 mg/l Parameter: cyclohexanol - Medium: urine - Sampling time: End of shift - Notations: Cyclohexanol= metabolite; Ns (Non-specific)<br>80 mg/l Parameter: 1,2-Cyclohexanediol - Medium: urine - Sampling time: End of shift - Notations: Ns (Non-specific) |
| Regulatory reference | Biological Monitoring Guidelines (HSA, 2011) |

**8.1.2. Recommended monitoring procedures**

No additional information available

**8.1.3. Air contaminants formed**

No additional information available

**8.1.4. DNEL and PNEC**

| xylene (1330-20-7) | |
|---|---|
| **DNEL/DMEL (Workers)** | |
| Acute - systemic effects, inhalation | 442 mg/m³ |
| Acute - local effects, inhalation | 442 mg/m³ |
| Long-term - systemic effects, dermal | 212 mg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 221 mg/m³ |
| Long-term - local effects, inhalation | 221 mg/m³ |
| **DNEL/DMEL (General population)** | |
| Acute - systemic effects, inhalation | 260 mg/m³ |
| Acute - local effects, inhalation | 260 mg/m³ |
| Long-term - systemic effects,oral | 5 mg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 65.3 mg/m³ |
| Long-term - systemic effects, dermal | 125 mg/kg bodyweight/day |
| Long-term - local effects, inhalation | 65.3 mg/m³ |
| **PNEC (Water)** | |
| PNEC aqua (freshwater) | 0.044 mg/l |
| PNEC aqua (marine water) | 0.004 mg/l |
| PNEC aqua (intermittent, freshwater) | 0.01 mg/l |
| PNEC aqua (intermittent, marine water) | 0.001 mg/l |
| **PNEC (Sediment)** | |
| PNEC sediment (freshwater) | 2.52 mg/kg dwt |
| PNEC sediment (marine water) | 0.252 mg/kg dwt |
| **PNEC (Soil)** | |
| PNEC soil | 0.852 mg/kg dwt |
| **PNEC (STP)** | |
| PNEC sewage treatment plant | 1.6 mg/l |

| **ethylbenzene (100-41-4)** | |
|---|---|
| **DNEL/DMEL (Workers)** | |
| Acute - local effects, inhalation | 293 mg/m³ |
| Long-term - systemic effects, dermal | 180 mg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 77 mg/m³ |
| **DNEL/DMEL (General population)** | |
| Long-term - systemic effects,oral | 1.6 mg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 15 mg/m³ |
| **PNEC (Water)** | |
| PNEC aqua (freshwater) | 0.1 mg/l |
| PNEC aqua (marine water) | 0.01 mg/l |
| PNEC aqua (intermittent, freshwater) | 0.1 mg/l |
| **PNEC (Sediment)** | |
| PNEC sediment (freshwater) | 13.7 mg/kg dwt |
| PNEC sediment (marine water) | 1.37 mg/kg dwt |
| **PNEC (Soil)** | |
| PNEC soil | 2.68 mg/kg dwt |
| **PNEC (Oral)** | |
| PNEC oral (secondary poisoning) | 20 mg/kg food |
| **PNEC (STP)** | |
| PNEC sewage treatment plant | 9.6 mg/l |

| **cyclohexanone (108-94-1)** | |
|---|---|
| **DNEL/DMEL (Workers)** | |
| Acute - systemic effects, inhalation | 10 mg/m³ |
| Acute - local effects, dermal | 4 mg/kg bodyweight/day |
| Acute - local effects, inhalation | 20 mg/m³ |
| Long-term - systemic effects, dermal | 4 mg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 10 mg/m³ |
| Long-term - local effects, inhalation | 40 mg/m³ |
| **DNEL/DMEL (General population)** | |
| Acute - systemic effects, oral | 1.5 mg/kg bodyweight/day |
| Acute - local effects, dermal | 1 mg/kg bodyweight/day |
| Acute - local effects, inhalation | 5 mg/m³ |
| Long-term - systemic effects,oral | 1.5 mg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 2.55 mg/m³ |
| Long-term - systemic effects, dermal | 1 mg/kg bodyweight/day |
| **PNEC (Water)** | |
| PNEC aqua (freshwater) | 0.356 mg/l |
| PNEC aqua (marine water) | 0.036 mg/l |

| | |
|---|---|
| PNEC aqua (intermittent, freshwater) | 3.29 mg/l |
| **PNEC (Sediment)** | |
| PNEC sediment (freshwater) | 2.69 mg/kg dwt |
| PNEC sediment (marine water) | 0.269 mg/kg dwt |
| **PNEC (Soil)** | |
| PNEC soil | 0.328 mg/kg dwt |
| **PNEC (STP)** | |
| PNEC sewage treatment plant | 10 mg/l |

| **oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2)** | |
|---|---|
| **DNEL/DMEL (Workers)** | |
| Long-term - systemic effects, dermal | 0.75 mg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 0.49 mg/m³ |
| **DNEL/DMEL (General population)** | |
| Long-term - systemic effects,oral | 50 µg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 87 µg/m³ |
| Long-term - systemic effects, dermal | 89 µg/kg bodyweight/day |
| **PNEC (Water)** | |
| PNEC aqua (freshwater) | 1.12 mg/l |
| PNEC aqua (marine water) | 0.112 mg/l |
| PNEC aqua (intermittent, freshwater) | 0.072 mg/l |
| PNEC aqua (intermittent, marine water) | 0.0072 mg/l |
| **PNEC (Sediment)** | |
| PNEC sediment (freshwater) | 1.05 mg/kg dwt |
| PNEC sediment (marine water) | 0.105 mg/kg dwt |
| **PNEC (Soil)** | |
| PNEC soil | 20 mg/kg dwt |
| **PNEC (STP)** | |
| PNEC sewage treatment plant | 10 mg/l |

| **Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane** | |
|---|---|
| **DNEL/DMEL (Workers)** | |
| Acute - local effects, dermal | 8.3 µg/cm² |
| Long-term - systemic effects, dermal | 104.15 mg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 29.39 mg/m³ |
| **DNEL/DMEL (General population)** | |
| Long-term - systemic effects,oral | 6.25 mg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 8.7 mg/m³ |
| Long-term - systemic effects, dermal | 62.5 mg/kg bodyweight/day |

| | |
|---|---|
| **PNEC (Water)** | |
| PNEC aqua (freshwater) | 0.003 mg/l |
| PNEC aqua (marine water) | 0.0003 mg/l |
| PNEC aqua (intermittent, freshwater) | 0.025 mg/l |
| **PNEC (Sediment)** | |
| PNEC sediment (freshwater) | 0.294 mg/kg dwt |
| PNEC sediment (marine water) | 0.029 mg/kg dwt |
| **PNEC (Soil)** | |
| PNEC soil | 0.237 mg/kg dwt |
| **PNEC (STP)** | |
| PNEC sewage treatment plant | 10 mg/l |

| **bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)** | |
|---|---|
| **DNEL/DMEL (Workers)** | |
| Long-term - systemic effects, dermal | 0.75 mg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 4.93 mg/m³ |
| **DNEL/DMEL (General population)** | |
| Long-term - systemic effects,oral | 0.5 mg/kg bodyweight/day |
| Long-term - systemic effects, inhalation | 0.87 mg/m³ |
| Long-term - systemic effects, dermal | 89.3 µg/kg bodyweight/day |
| **PNEC (Water)** | |
| PNEC aqua (freshwater) | 0.006 mg/l |
| PNEC aqua (marine water) | 0.001 mg/l |
| PNEC aqua (intermittent, freshwater) | 0.018 mg/l |
| PNEC aqua (intermittent, marine water) | 0.002 mg/l |
| **PNEC (Sediment)** | |
| PNEC sediment (freshwater) | 0.341 mg/kg dwt |
| PNEC sediment (marine water) | 0.034 mg/kg dwt |
| **PNEC (Soil)** | |
| PNEC soil | 0.065 mg/kg dwt |
| **PNEC (Oral)** | |
| PNEC oral (secondary poisoning) | 11 mg/kg food |
| **PNEC (STP)** | |
| PNEC sewage treatment plant | 10 mg/l |

#### 8.1.5. Control banding

No additional information available

### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

**Appropriate engineering controls:**
Ensure good ventilation of the work station.

#### 8.2.2. Personal protection equipment

##### 8.2.2.1. Eye and face protection

**Eye protection:**
Wear closed safety glasses. ISO 16321-1

##### 8.2.2.2. Skin protection

**Skin and body protection:**
Wear suitable protective clothing. EN ISO 13688. EN 13034

**Hand protection:**
Chemically resistant protective gloves. ISO 374-1. Choosing the proper glove is a decision that depends not only on the type of material, but also on other quality features, which differ for each manufacturer. Please follow the instructions related to the permeability and the penetration time provided by the manufacturer. Gloves must be replaced after each use and whenever signs of wear or perforation appear

| Hand protection | | | | | |
|---|---|---|---|---|---|
| **Type** | **Material** | **Permeation** | **Thickness (mm)** | **Penetration** | **Standard** |
| Chemically resistant protective gloves | Ethyl Vinyl Alcohol Laminate (EVAL), Butyl rubber | 6 (> 480 minutes) | - | No additional information available | EN ISO 374-1 |
| Chemically resistant protective gloves | Nitrile rubber | 1 (> 10 minutes) | - | No additional information available | EN ISO 374-1 |

##### 8.2.2.3. Respiratory protection

**Respiratory protection:**
In case of insufficient ventilation, wear suitable respiratory equipment. EN 143. Breathing apparatus with filter. A-P2. . Breathing equipment is only to be used in order to handle the residual risk of short term jobs if all other risk minimizing measures have been carried out e.g. retention and/or local exhaust

##### 8.2.2.4. Thermal hazards

No additional information available

#### 8.2.3. Environmental exposure controls

**Environmental exposure controls:**
Avoid release to the environment.

**Consumer exposure controls:**
Under the intended and foreseeable conditions of use, the product does not generate respirable dust, and therefore exposure to substances in dust form is not expected during handling or application. Occupational exposure limits relating to dust are only relevant if dust is generated (e.g, during the mechanical processing of the cured product).

**Other information:**
Do not eat, drink or smoke when using this product. Avoid contact with skin and eyes. Always wash hands after handling the product.

## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

| | | |
|---|---|---|
| Physical state | : | Liquid |
| Colour | : | Brown. |
| Odour | : | Mild. |
| Odour threshold | : | Not available |
| Melting point | : | Not applicable |
| Freezing point | : | Not available |
| Boiling point | : | 200 °C |
| Flammability | : | Not available |
| Explosive properties | : | Product is not explosive. |
| Oxidising properties | : | Non oxidizing. |
| Lower explosion limit | : | Not available |

| | | |
|---|---|---|
| Upper explosion limit | : | Not available |
| Flash point | : | 130 °C |
| Auto-ignition temperature | : | Not available |
| Decomposition temperature | : | Not available |
| pH | : | Not available |
| Viscosity, kinematic | : | Not available |
| Solubility | : | Water: Insoluble |
| Partition coefficient n-octanol/water (Log Kow) | : | Not available |
| Vapour pressure | : | Not available |
| Vapour pressure at 50°C | : | Not available |
| Density | : | 1.5 g/cm³ (20°C) |
| Relative density | : | Not available |
| Relative vapour density at 20°C | : | Not available |
| Particle characteristics | : | Not applicable |

### 9.2. Other information

#### 9.2.1. Information with regard to physical hazard classes

No additional information available

#### 9.2.2. Other safety characteristics

VOC content : ≈ 1 %

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

### 10.4. Conditions to avoid

No additional information available

### 10.5. Incompatible materials

No additional information available

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

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

| | | |
|---|---|---|
| Acute toxicity (oral) | : | Not classified (Based on available data, the classification criteria are not met) |
| Acute toxicity (dermal) | : | Not classified (Based on available data, the classification criteria are not met) |
| Acute toxicity (inhalation) | : | Not classified (Based on available data, the classification criteria are not met) |
| Skin corrosion/irritation | : | Causes skin irritation. |
| Serious eye damage/irritation | : | Causes serious eye irritation. |
| Respiratory or skin sensitisation | : | May cause an allergic skin reaction. |
| Germ cell mutagenicity | : | Not classified (Based on available data, the classification criteria are not met) |
| Carcinogenicity | : | Not classified (Based on available data, the classification criteria are not met) |
| Reproductive toxicity | : | May damage fertility. |

| **oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2)** | |
|---|---|
| NOAEL (animal/male, F0/P) | 40 mg/kg bodyweight/day |
| NOAEL (animal/female, F0/P) | 40 mg/kg bodyweight/day |
| NOAEL (animal/male, F1) | 40 mg/kg bodyweight/day |
| NOAEL (animal/female, F1) | 40 mg/kg bodyweight/day |

| **bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)** | |
|---|---|
| NOAEL (animal/male, F0/P) | 50 mg/kg bodyweight/day (Oral, rat, (OECD 416 method)) |
| NOAEL (animal/female, F0/P) | 540 mg/kg bodyweight/day (Oral, rat, (OECD 416 method)) |
| NOAEL (animal/male, F1) | 750 mg/kg bodyweight/day (Oral, rat, (OECD 416 method)) |
| NOAEL (animal/female, F1) | 750 mg/kg bodyweight/day (Oral, rat, (OECD 416 method)) |

STOT-single exposure : Not classified (Based on available data, the classification criteria are not met)
STOT-repeated exposure : Not classified (Based on available data, the classification criteria are not met)
Aspiration hazard : Not classified (Based on available data, the classification criteria are not met)

### 11.2. Information on other hazards

#### 11.2.1. Endocrine disrupting properties

No additional information available

#### 11.2.2. Other information

No additional information available

## SECTION 12: Ecological information

### 12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.
Hazardous to the aquatic environment, short–term (acute) : Not classified (Based on available data, the classification criteria are not met)
Hazardous to the aquatic environment, long–term (chronic) : Toxic to aquatic life with long lasting effects.

| **xylene** | |
|---|---|
| EC50 72h algae | 4.831 mg/l (72 h; Pseudokirchneriella subcapitata) |

| **Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane** | |
|---|---|
| LC50 - Fish [1] | 2.54 mg/l (96 h; (OECD 203 method)) |
| EC50 - Crustacea [1] | 2.55 mg/l (48 h; Daphnia magna; (OECD 202 method)) |
| ErC50 algae | 1.8 mg/l (72 h; Pseudokirchneriella subcapitata; (OECD 201 method)) |
| NOEC chronic crustacea | 0.3 mg/l (21 d; Daphnia magna; (OECD 211 method)) |

| **bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)** | |
|---|---|
| LC50 - Fish [1] | 1.75 mg/l (96 h; Oncorhynchus mykiss; (OECD 203 method)) |
| EC50 - Crustacea [1] | 2.8 mg/l (48 h; Daphnia magna; (OECD 202 method)) |
| ErC50 algae | > 11 mg/l (72 h; Scenedesmus capricornutum; EPA-660/3-75-009) |
| NOEC chronic crustacea | 0.3 mg/l (21 d; Daphnia magna; (OECD 211 method)) |
| NOEC chronic algae | 4.2 mg/l (72 h; Scenedesmus capricornutum; EPA-660/3-75-009) |

## 12.2. Persistence and degradability

| FLAMMADUR® A 386 | |
|---|---|
| Persistence and degradability | The product has not been tested. |

| xylene (1330-20-7) | |
|---|---|
| Biodegradation | 87.8 % (28 d; (OECD 301F method)) |

| ethylbenzene (100-41-4) | |
|---|---|
| Persistence and degradability | Readily biodegradable. |
| Biodegradation | 70 – 80 % (28d; ISO 14593-CO2-Headspace Test) |

| cyclohexanone (108-94-1) | |
|---|---|
| Persistence and degradability | Readily biodegradable. |
| Biodegradation | 90 – 100 % (28 d; (OECD 301F method)) |

| oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2) | |
|---|---|
| Persistence and degradability | Readily biodegradable. |
| Biodegradation | 87 % (28 d; (OECD 301F method)) |

| Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane | |
|---|---|
| Persistence and degradability | Not readily biodegradable. |
| Biodegradation | ≈ 0 % (28 d; Test method EU C.4-E) |

| bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3) | |
|---|---|
| Persistence and degradability | Not readily biodegradable. |
| Biodegradation | 5 % (28 d; (OECD 301F method)) |

## 12.3. Bioaccumulative potential

| FLAMMADUR® A 386 | |
|---|---|
| Bioaccumulative potential | The product has not been tested. |

| xylene (1330-20-7) | |
|---|---|
| Bioconcentration factor (BCF REACH) | < 25.9 |
| Partition coefficient n-octanol/water (Log Pow) | 3.2 (20 °C) |
| Bioaccumulative potential | Bioaccumulation is not expected to occur. |

| ethylbenzene (100-41-4) | |
|---|---|
| Partition coefficient n-octanol/water (Log Pow) | 3.6 (20 °C; EU Method A.8) |

| cyclohexanone (108-94-1) | |
|---|---|
| Partition coefficient n-octanol/water (Log Pow) | 0.86 (25 °C; (OECD 107 method)) |
| Bioaccumulative potential | Bioaccumulation unlikely. |

| oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2) | |
|---|---|
| Partition coefficient n-octanol/water (Log Pow) | 3.77 (20 °C; (OECD 107 method)) |

| **Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane** | |
|---|---|
| BCF - Fish [1] | 150 l/kg (Quantitative structure-activity relationship (QSAR)) |
| Partition coefficient n-octanol/water (Log Pow) | 3.6 (OECD 117 method) |
| Bioaccumulative potential | Bioaccumulation unlikely. |

| **bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)** | |
|---|---|
| BCF - Other aquatic organisms [1] | 31 l/kg (Quantitative structure-activity relationship (QSAR)) |
| Partition coefficient n-octanol/water (Log Pow) | 7.1 |
| Bioaccumulative potential | not bioaccumulable. |

### 12.4. Mobility in soil

| **FLAMMADUR® A 386** | |
|---|---|
| Mobility in soil | The product has not been tested |

| **xylene (1330-20-7)** | |
|---|---|
| Surface tension | 28.747 mN/m (25°C; average (Isomer mixture)) |
| Organic Carbon Normalized Adsorption Coefficient (Log Koc) | ≈ 2.73 (o-xylene; Estimation of the adsorption coefficient (Koc) on soil and on sewage sludge using high performance liquid chromatography (HPLC); (OECD 121 method)) |
| Ecology - soil | Very volatile. |

| **ethylbenzene (100-41-4)** | |
|---|---|
| Organic Carbon Normalized Adsorption Coefficient (Log Koc) | 3.12 (QSAR) |

| **cyclohexanone (108-94-1)** | |
|---|---|
| Organic Carbon Normalized Adsorption Coefficient (Log Koc) | 1.596 (25 °C; Quantitative structure-activity relationship (QSAR)) |

| **Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane** | |
|---|---|
| Organic Carbon Normalized Adsorption Coefficient (Log Koc) | 3.65 (OECD 121 method) |
| Ecology - soil | Small adsorption. |

| **bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3)** | |
|---|---|
| Organic Carbon Normalized Adsorption Coefficient (Log Koc) | 2.65 (20 °C; Quantitative structure-activity relationship (QSAR)) |
| Ecology - soil | Product adsorbs little onto the soil. |

### 12.5. Results of PBT and vPvB assessment

| **Component** | |
|---|---|
| Substance(s) not meeting the PBT criteria of REACH regulation, in accordance with Annex XIII | xylene (1330-20-7), ethylbenzene (100-41-4), Quartz (SiO2) (14808-60-7), cyclohexanone (108-94-1), oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2), Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane, bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3) |

| | |
|---|---|
| Substance(s) not meeting the vPvB criteria of REACH regulation, in accordance with Annex XIII | xylene (1330-20-7), ethylbenzene (100-41-4), Quartz (SiO2) (14808-60-7), cyclohexanone (108-94-1), oxirane, mono[(C12-14-alkyloxy)methyl] derivs. (68609-97-2), Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane, bis-[4-(2,3-epoxipropoxi)phenyl]propane (1675-54-3) |

### 12.6. Endocrine disrupting properties

No additional information available

### 12.7. Other adverse effects

No additional information available

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Waste treatment methods : Disposal must be done according to official regulations. European waste catalogue. Do not discharge into drains or the environment. Do not dispose of with domestic waste.

Product/Packaging disposal recommendations : Recycle or dispose of in compliance with current legislation.

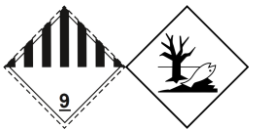
European List of Waste (LoW, EC 2000/532) : 08 01 11* - waste paint and varnish containing organic solvents or other dangerous substances

HP Code : HP4 - “Irritant – skin irritation and eye damage:” waste which on application can cause skin irritation or damage to the eye.
HP10 - “Toxic for reproduction:” waste which has adverse effects on sexual function and fertility in adult males and females, as well as developmental toxicity in the offspring.
HP13 - “Sensitising:” waste which contains one or more substances known to cause sensitising effects to the skin or the respiratory organs.
HP14 - “Ecotoxic:” waste which presents or may present immediate or delayed risks for one or more sectors of the environment

## SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

| ADR | IMDG | IATA | ADN | RID |
|---|---|---|---|---|
| **14.1. UN number or ID number** | | | | |
| UN 3082 | UN 3082 | UN 3082 | UN 3082 | UN 3082 |
| **14.2. UN proper shipping name** | | | | |
| ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)phenyl]propane ; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)phenyl]propane ; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane) | Environmentally hazardous substance, liquid, n.o.s. (bis-[4-(2,3-epoxipropoxi)phenyl]propane ; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)phenyl]propane ; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane) | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)phenyl]propane ; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane) |

| Transport document description | | | | |
|---|---|---|---|---|
| UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)phenyl]propane ; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane), 9, III, (-) | UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)phenyl]propane ; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane), 9, III, MARINE POLLUTANT | UN 3082 Environmentally hazardous substance, liquid, n.o.s. (bis-[4-(2,3-epoxipropoxi)phenyl]propane ; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane), 9, III | UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)phenyl]propane ; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane), 9, III | UN 3082 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (bis-[4-(2,3-epoxipropoxi)phenyl]propane ; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane), 9, III |
| **14.3. Transport hazard class(es)** | | | | |
| 9 | 9 | 9 | 9 | 9 |
|  |  |  |  |  |
| **14.4. Packing group** | | | | |
| III | III | III | III | III |
| **14.5. Environmental hazards** | | | | |
| Dangerous for the environment: Yes | Dangerous for the environment: Yes<br>Marine pollutant: Yes<br>EmS-No. (Fire): F-A<br>EmS-No. (Spillage): S-F | Dangerous for the environment: Yes | Dangerous for the environment: Yes | Dangerous for the environment: Yes |
| No supplementary information available | | | | |

## 14.6. Special precautions for user

**Overland transport**

Classification code (ADR) : M6
Special provisions (ADR) : 274, 335, 375, 601, 650
Limited quantities (ADR) : 5l
Excepted quantities (ADR) : E1
Transport category (ADR) : 3
Hazard identification number (Kemler No.) : 90
Orange plates :




Tunnel restriction code (ADR) : -

**Transport by sea**

Special provisions (IMDG) : 274, 335, 375, 969
Limited quantities (IMDG) : 5 L
Excepted quantities (IMDG) : E1

**Air transport**

| | | |
|---|---|---|
| PCA Excepted quantities (IATA) | : | E1 |
| PCA Limited quantities (IATA) | : | Y964 |
| PCA limited quantity max net quantity (IATA) | : | 30kgG |
| PCA packing instructions (IATA) | : | 964 |
| PCA max net quantity (IATA) | : | 450L |
| CAO max net quantity (IATA) | : | 450L |
| Special provisions (IATA) | : | A97, A158, A197, A215 |

**Inland waterway transport**

| | | |
|---|---|---|
| Classification code (ADN) | : | M6 |
| Special provisions (ADN) | : | 274, 335, 375, 601, 650 |
| Limited quantities (ADN) | : | 5 L |
| Excepted quantities (ADN) | : | E1 |
| Carriage permitted (ADN) | : | T |

**Rail transport**

| | | |
|---|---|---|
| Classification code (RID) | : | M6 |
| Special provisions (RID) | : | 274, 335, 375, 601, 650 |
| Limited quantities (RID) | : | 5L |
| Excepted quantities (RID) | : | E1 |
| Transport category (RID) | : | 3 |
| Hazard identification number (RID) | : | 90 |

### 14.7. Maritime transport in bulk according to IMO instruments

Not applicable

## SECTION 15: Regulatory information

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU-Regulations

Other information, restriction and prohibition regulations : Take note of Directive 94/33/EC on the protection of young people at work. Take note of Directive 92/85/EC on the safety and health of pregnant workers at work.

**REACH Annex XVII (Restriction List)**

| EU restriction list (REACH Annex XVII) | |
|---|---|
| **Reference code** | **Applicable on** |
| 3(a) | xylene ; ethylbenzene ; cyclohexanone |
| 3(b) | FLAMMADUR® A 386 ; xylene ; ethylbenzene ; cyclohexanone ; oxirane, mono[(C12-14-alkyloxy)methyl] derivs. ; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane ; bis-[4-(2,3-epoxipropoxi)phenyl]propane |
| 3(c) | FLAMMADUR® A 386 ; Reaction mass of 2,2'-[methylenebis(2,1-phenyleneoxymethylene)]bis(oxirane) and 2,2'-[methylenebis(4,1-phenyleneoxymethylene)]bis(oxirane) and 2-({2-[4-(oxiran-2-ylmethoxy)benzyl]phenoxy}methyl)oxirane ; bis-[4-(2,3-epoxipropoxi)phenyl]propane |

**REACH Annex XIV (Authorisation List)**

Contains no substance(s) listed on REACH Annex XIV (Authorisation List)

**REACH Candidate List (SVHC)**

Contains no substance(s) listed on the REACH Candidate List

**PIC Regulation (Prior Informed Consent)**

Contains no substance(s) listed on the PIC list (Regulation EU 649/2012 concerning the export and import of hazardous chemicals)

**POP Regulation (Persistent Organic Pollutants)**

Contains no substance(s) listed on the POP list (Regulation EU 2019/1021 on persistent organic pollutants)

**Ozone Regulation (2024/590)**

Not listed on the Ozone Depletion list (Regulation EU 2024/590)
Contains no substance(s) listed on the Ozone Depletion list (Regulation EU 2024/590 on substances that deplete the ozone layer)

**Council Regulation (EC) for the control of dual-use items**

Contains no substance subject to the COUNCIL REGULATION (EC) for the control of dual-use items

**VOC Directive (2004/42)**

| | | |
|---|---|---|
| VOC content | : | ≈ 1 % |
| Decopaint Directive (2004/42/EC) - Annex II | : | A/j (Paints and Varnishes - Two-pack reactive performance coatings for specific end use such as floors) |
| Maximum allowed concentration | : | 500 g/l VOC |
| Maximum content of VOC | : | 15.81 g/l VOC |

**Seveso Directive (Disaster Risk Reduction)**

| **Seveso III Part I (Categories of dangerous substances)** | **Qualifying quantity (tonnes)** | |
|---|---|---|
| | **Lower-tier** | **Upper-tier** |
| E2 Hazardous to the Aquatic Environment in Category Chronic 2 | 200 | 500 |

**Explosives Precursors Regulation (EU 2019/1148)**

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

**Drug Precursors Regulation (EC 273/2004)**

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

**15.1.2. National regulations**

**Ireland**

| | | |
|---|---|---|
| National regulations | : | Refer to S.I. No. 299/2007 (Safety, Health and Welfare at Work (General Application) Regulations 2007) on the protection of young people at work (Art. 143-146).<br>Refer to S.I. No. 299/2007 (Safety, Health and Welfare at Work (General Application) Regulations 2007) on the protection of maternity at work places (Art. 147-152). |

### 15.2. Chemical safety assessment

No chemical safety assessment has been carried out

## SECTION 16: Other information

| **Abbreviations and acronyms:** | |
|---|---|
| ADN | European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways |
| ADR | European Agreement concerning the International Carriage of Dangerous Goods by Road |
| ATE | Acute Toxicity Estimate |
| BCF | Bioconcentration factor |
| CAS-No. | Chemical Abstracts Service number |
| CLP | Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008 |
| DMEL | Derived Minimal Effect level |
| DNEL | Derived-No Effect Level |
| EWC | European waste catalogue |

| | |
|---|---|
| EC50 | Median effective concentration |
| EC-No. | European Community number |
| IARC | International Agency for Research on Cancer |
| IATA | International Air Transport Association |
| IMDG | International Maritime Dangerous Goods |
| LC50 | Median lethal concentration |
| LD50 | Median lethal dose |
| LOAEL | Lowest Observed Adverse Effect Level |
| NOAEC | No-Observed Adverse Effect Concentration |
| NOAEL | No-Observed Adverse Effect Level |
| NOEC | No-Observed Effect Concentration |
| OECD | Organisation for Economic Co-operation and Development |
| OEL | Occupational Exposure Limit |
| PBT | Persistent Bioaccumulative Toxic |
| PNEC | Predicted No-Effect Concentration |
| REACH | Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006 |
| RID | Regulations concerning the International Carriage of Dangerous Goods by Rail |
| SDS | Safety Data Sheet |
| STP | Sewage treatment plant |
| TLM | Median Tolerance Limit |
| UFI | Unique Formula Identifier |
| vPvB | Very Persistent and Very Bioaccumulative |

Data sources : MSDSs of the suppliers. Information provided by the manufacturer. European Chemicals Agency, http://echa.europa.eu/.

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| **Full text of H- and EUH-statements:** | |
|---|---|
| Acute Tox. 4 (Dermal) | Acute toxicity (dermal), Category 4 |
| Acute Tox. 4 (Inhalation:vapour) | Acute toxicity (inhalation:vapour) Category 4 |
| Acute Tox. 4 (Oral) | Acute toxicity (oral), Category 4 |
| Aquatic Chronic 2 | Hazardous to the aquatic environment – Chronic Hazard, Category 2 |
| Asp. Tox. 1 | Aspiration hazard, Category 1 |
| Eye Dam. 1 | Serious eye damage/eye irritation, Category 1 |
| Eye Irrit. 2 | Serious eye damage/eye irritation, Category 2 |
| Flam. Liq. 2 | Flammable liquids, Category 2 |

| | |
|---|---|
| Flam. Liq. 3 | Flammable liquids, Category 3 |
| Repr. 1B | Reproductive toxicity, Category 1B |
| Skin Irrit. 2 | Skin corrosion/irritation, Category 2 |
| Skin Sens. 1 | Skin sensitisation, Category 1 |
| Skin Sens. 1A | Skin sensitisation, category 1A |
| STOT RE 2 | Specific target organ toxicity – Repeated exposure, Category 2 |
| STOT SE 3 | Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation |
| H225 | Highly flammable liquid and vapour. |
| H226 | Flammable liquid and vapour. |
| H302 | Harmful if swallowed. |
| H304 | May be fatal if swallowed and enters airways. |
| H312 | Harmful in contact with skin. |
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H318 | Causes serious eye damage. |
| H319 | Causes serious eye irritation. |
| H332 | Harmful if inhaled. |
| H335 | May cause respiratory irritation. |
| H360F | May damage fertility. |
| H373 | May cause damage to organs through prolonged or repeated exposure. |
| H411 | Toxic to aquatic life with long lasting effects. |

| **Classification and procedure used to derive the classification for mixtures according to Regulation (EC) 1272/2008 [CLP]:** | | |
|---|---|---|
| Skin Irrit. 2 | H315 | Calculation method |
| Eye Irrit. 2 | H319 | Calculation method |
| Skin Sens. 1 | H317 | Calculation method |
| Repr. 1B | H360F | Calculation method |
| Aquatic Chronic 2 | H411 | Calculation method |

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.