

# Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH)  
according to Regulation (EU) 2020/878

Article No.: 348  
Print date: 26.12.2022  
Version: 3.0

DURODUR 2K-PAC Bodenfarbe  
Revision date: 10.12.2022  
Issue date: 10.12.2022

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

### 1.1. product identifiers

Article No. (manufacturer/supplier) 348  
Trade name/designation DURODUR 2K-PAC Bodenfarbe  
MV: 4/1 mit 911

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

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

**supplier (manufacturer/importer/downstream user/distributor)**  
Vismara Unternehmungen CH-5000 Aarau www.farbladen.ch

### Department responsible for information:

laboratory Manager  
E-mail (competent person)

### 1.4. Emergency telephone number

Emergency telephone number 145 (+41 (0)44 251 51 51)

## SECTION 2: Hazards identification

### 2.1. Classification of the substance or mixture

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

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

Eye Irrit. 2 / H319	Serious eye damage/eye irritation	Causes serious eye irritation.
Skin Sens. 1 / H317	Respiratory or skin sensitisation	May cause an allergic skin reaction.
Repr. 2 / H361	Reproductive toxicity	Suspected of damaging the unborn child.
Aquatic Chronic 3 / H412	Hazardous to the aquatic environment	Harmful to aquatic life with long lasting effects.

### 2.2. Label elements

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

#### Hazard pictograms



Warning

#### Hazard statements

H319 Causes serious eye irritation.  
H317 May cause an allergic skin reaction.  
H361 Suspected of damaging the unborn child.  
H412 Harmful to aquatic life with long lasting effects.

#### Precautionary statements

P101 If medical advice is needed, have product container or label at hand.  
P102 Keep out of reach of children.  
P103 Read carefully and follow all instructions.  
P202 Do not handle until all safety precautions have been read and understood.  
P261 Avoid breathing vapours.  
P264 Wash hands thoroughly after handling.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P273 Avoid release to the environment.  
P280 Wear protective gloves and eye/face protection.  
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313 IF exposed or concerned: Get medical advice/attention.  
P333 + P313 If skin irritation or rash occurs: Get medical advice/attention.  
P337 + P313 If eye irritation persists: Get medical advice/attention.  
P362 + P364 Take off contaminated clothing and wash it before reuse.  
P405 Keep locked up.  
P501 Dispose of contents/container to industrial incineration plant.

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## Hazard components for labelling

bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane  
2,2,4-trimethyl-1,3-pentanediol di-isobutyrate  
tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate  
2-[4-(4-Amino-cyclohexylmethyl)-cyclohexylamido]-succinic acid diethyl ester

## Supplemental hazard information

EUH211 Warning! Hazardous respirable droplets may be formed when sprayed. Do not breathe spray or mist.

### 2.3. Other hazards

No information available.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

**Description** solventborne epoxy coating, containing the following hazardous substances:

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

EC No. CAS No. Index No.	REACH No. Designation classification // Remark	weight-%
412-060-9 136210-32-7 607-350-00-9	01-0000015937-58 bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane Skin Sens. 1 H317 / Aquatic Chronic 3 H412	15 - 25
429-270-1 136210-30-5 607-521-00-8	01-0000017556-64 tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate Skin Sens. 1 H317 / Aquatic Chronic 3 H412	15 - 25
229-934-9 6846-50-0	01-2119451093-47 2,2,4-trimethyl-1,3-pentanediol di-isobutyrate Repr. 2 H361 / Aquatic Chronic 3 H412	5 - 10
136210-30-5	2-[4-(4-Amino-cyclohexylmethyl)-cyclohexylamido]-succinic acid diethyl ester Skin Sens. 1 H317	1 - 5
238-878-4 14808-60-7	Quarz (SiO <sub>2</sub> ) Substance with a common (EC) occupational exposure limit value.	1 - 5
210-819-7 623-91-6	Diethylformiate Acute Tox. 4 H302 / Skin Irrit. 2 H315 / Eye Dam. 1 H318 / STOT SE 3 H335 Acute toxicity estimate (ATE), ATE (oral): 1780 mg/kg bw	1 - 5
265-149-8 64742-47-8 649-422-00-2	01-2119484819-18 Hydrocarbons, hydrotreated, light, benzene content <0.1% Asp. Tox. 1 H304	1 - 5
229-962-1 6864-37-5 612-110-00-1	01-2119497829-12 2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine) Acute Tox. 3 H331 / Acute Tox. 3 H311 / Acute Tox. 4 H302 / Skin Corr. 1A H314 / Aquatic Chronic 2 H411	0.1 - 0.5
201-074-9 77-99-6	01-2119486799-10 Propylidynetrimethanol Repr. 2 H361	0.1 - 0.5

#### Additional information

Full text of classification: see section 16

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

#### General information

In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness give nothing by mouth, place in recovery position and seek medical advice.

#### In case of inhalation

Remove casualty to fresh air and keep warm and at rest. In case of irregular breathing or respiratory arrest provide artificial

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respiration.

#### Following skin contact

Take off immediately all contaminated clothing. After contact with skin, wash immediately with plenty of water and soap. Do not use solvents or thinners.

#### After eye contact

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Seek medical advice immediately.

#### Following ingestion

If swallowed, rinse mouth with water (only if the person is conscious). Seek medical advice immediately. Keep victim calm. Do NOT induce vomiting.

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

In all cases of doubt, or when symptoms persist, seek medical advice.

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

First Aid, decontamination, treatment of symptoms.

### SECTION 5: Firefighting measures

#### 5.1. Extinguishing media

##### Suitable extinguishing media

alcohol resistant foam, carbon dioxide, Powder, spray mist, (water)

##### Unsuitable extinguishing media

strong water jet

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

Dense black smoke occurs during fire. Inhaling hazardous decomposing products can cause serious health damage.

#### 5.3. Advice for firefighters

Provide a conveniently located respiratory protective device. Cool closed containers that are near the source of the fire. Do not allow water used to extinguish fire to enter drains, ground or waterways.

### SECTION 6: Accidental release measures

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

Keep away from sources of ignition. Ventilate affected area. Do not breathe vapours.

#### 6.2. Environmental precautions

Do not allow to enter into surface water or drains. If the product contaminates lakes, rivers or sewages, inform competent authorities in accordance with local regulations.

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

Isolate leaked material using non-flammable absorption agent (e.g. sand, earth, vermiculit, diatomaceous earth) and collect it for disposal in appropriate containers in accordance with the local regulations (see section 13). Clean using cleansing agents. Do not use solvents.

#### 6.4. Reference to other sections

Observe protective provisions (see section 7 and 8).

### SECTION 7: Handling and storage

#### 7.1. Precautions for safe handling

##### Advices on safe handling

Avoid formation of flammable and explosive vapour concentrations in the air and exceeding the exposure limit values. Only use the material in places where open light, fire and other flammable sources can be kept away. Electrical equipment must be protected meeting the accepted standard. Product may become electrostatically charged. Provide earthing of containers, equipment, pumps and ventilation facilities. Anti-static clothing including shoes are recommended. Floors must be electrically conductive. Keep away from heat sources, sparks and open flames. Use only spark proof tools. Avoid contact with skin, eyes and clothes. Do not inhale dusts, particulates and spray mist when using this preparation. Avoid respiration of swarf. When using do not eat, drink or smoke. Personal protection equipment: refer to section 8. Do not empty containers with pressure - no pressure vessel! Always keep in containers that correspond to the material of the original container. Follow the legal protection and safety regulations.

##### Further information

Vapours are heavier than air. Vapours form explosive mixtures with air.

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

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## Requirements for storage rooms and vessels

Storage in accordance with the Ordinance on Industrial Safety and Health (BetrSivO). Keep container tightly closed. Do not empty containers with pressure - no pressure vessel! Smoking is forbidden. Access only for authorised persons. Store carefully closed containers upright to prevent any leaks. Soils have to conform to the "Guidelines for avoidance of ignition hazards due to electrostatic charges (TRGS 727)".

## Hints on joint storage

Keep away from strongly acidic and alkaline materials as well as oxidizers.

## Further information on storage conditions

Take care of instructions on label. Store in a well-ventilated and dry room at temperatures between 15 °C and 30 °C. Protect from heat and direct sunlight. Keep container tightly closed. Remove all sources of ignition. Smoking is forbidden. Access only for authorised persons. Store carefully closed containers upright to prevent any leaks.

## 7.3. Specific end use(s)

Observe technical data sheet. Observe instructions for use.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Occupational exposure limit values:

Quarz (SiO<sub>2</sub>)

EC No. 238-878-4 / CAS No. 14808-60-7

WEL, TWA: 0.1 mg/m<sup>3</sup>

Remark: (Silica, crystalline; respirable fraction)

Hydrocarbons, hydrotreated, light, benzene content <0.1%

Index No. 649-422-00-2 / EC No. 265-149-8 / CAS No. 64742-47-8

WEL, TWA: 800 mg/m<sup>3</sup>

Remark: (> or = C<sub>7</sub>, Cycloalkanes)

WEL, TWA: 1200 mg/m<sup>3</sup>

Remark: (> or = C<sub>7</sub>, Normal and branched chain alkanes)

#### Additional information

TWA : Long-term occupational exposure limit value

STEL : short-term occupational exposure limit value

Ceiling : peak limitation

#### DNEL:

bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane

Index No. 607-350-00-9 / EC No. 412-060-9 / CAS No. 136210-32-7

DNEL long-term dermal (systemic), Workers: 11,9 mg/kg bw/day

DNEL acute inhalative (systemic), Workers: 672 mg/m<sup>3</sup>

DNEL long-term inhalative (systemic), Workers: 84 mg/m<sup>3</sup>

DNEL short-term oral (acute), Consumer: 4,2 mg/kg bw/day

DNEL long-term oral (repeated), Consumer: 4,2 mg/kg bw/day

DNEL acute dermal, short-term (systemic), Consumer: 4,2 mg/kg bw/day

DNEL long-term dermal (systemic), Consumer: 4,2 mg/kg bw/day

DNEL acute inhalative (systemic), Consumer: 14,5 mg/m<sup>3</sup>

DNEL long-term inhalative (systemic), Consumer: 14,5 mg/m<sup>3</sup>

tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate

Index No. 607-521-00-8 / EC No. 429-270-1 / CAS No. 136210-30-5

DNEL short-term oral (acute), Workers:

DNEL long-term dermal (systemic), Workers: 4 mg/kg bw/day

DNEL acute inhalative (systemic), Workers: 112 mg/m<sup>3</sup>

DNEL long-term inhalative (systemic), Workers: 28 mg/m<sup>3</sup>

DNEL long-term oral (repeated), Consumer: 1,4 mg/kg bw/day

DNEL acute dermal, short-term (systemic), Consumer: 1,4 mg/kg bw/day

DNEL long-term dermal (systemic), Consumer: 1,4 mg/kg bw/day

DNEL acute inhalative (systemic), Consumer: 4,8 mg/m<sup>3</sup>

DNEL long-term inhalative (systemic), Consumer: 4,8 mg/m<sup>3</sup>

DNEL short-term oral (systemic): 1,4 mg/kg bw/day

#### PNEC:

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bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane  
Index No. 607-350-00-9 / EC No. 412-060-9 / CAS No. 136210-32-7

PNEC aquatic, freshwater: 0,0001 mg/L  
PNEC aquatic, marine water: < 0,0001 mg/L  
PNEC sediment, freshwater: 0,21 mg/kg  
PNEC sediment, marine water: 0,02 mg/kg  
PNEC, soil: 0,1 mg/kg  
PNEC sewage treatment plant (STP): 31,1 mg/L

tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate  
Index No. 607-521-00-8 / EC No. 429-270-1 / CAS No. 136210-30-5

PNEC aquatic, freshwater: > 0,0001 mg/L  
PNEC aquatic, marine water: < 0,0001 mg/L  
PNEC sediment, freshwater: 0,21 mg/kg dw  
PNEC sediment, marine water: 0,02 mg/kg dw  
PNEC, soil: 0,1 mg/kg dw  
PNEC sewage treatment plant (STP): 31,1 mg/L

## 8.2. Exposure controls

Provide good ventilation. This can be achieved with local or room suction. If this should not be sufficient to keep aerosol and solvent vapour concentration below the exposure limit values, a suitable respiratory protection must be used.

### Personal protection equipment

#### **Respiratory protection**

If concentration of solvents is beyond the occupational exposure limit values, approved and suitable respiratory protection must be used. Use only respiratory protection equipment with CE-symbol including four digit test number.

#### **Hand protection**

For prolonged or repeated handling the following glove material must be used: NBR (Nitrile rubber)

Thickness of the glove material > 0,4 mm ; Breakthrough time: > 480 min.

Observe the instructions and details for use, storage, maintenance and replacement provided by the protective glove manufacturer. Penetration time of glove material depending on intensity and duration of exposure to skin. Recommended glove articles EN ISO 374

Barrier creams can help protecting exposed skin areas. In no case should they be used after contact.

#### **Eye/face protection**

Wear closely fitting protective glasses in case of splashes.

#### **Body protection**

Wear antistatic clothing of natural fibers (cotton) or heat resistant synthetic fibers.

#### **Protective measures**

After contact clean skin thoroughly with water and soap or use appropriate cleanser.

#### Environmental exposure controls

Do not allow to enter into surface water or drains. See section 7. No additional measures necessary.

## SECTION 9: Physical and chemical properties

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

<b>Physical state:</b>	<b>Liquid</b>
<b>Colour:</b>	<b>refer to label</b>
<b>Odour:</b>	<b>characteristic</b>
<b>Odour threshold:</b>	<b>not applicable</b>
<b>Melting point/freezing point:</b>	<b>not applicable</b>
<b>Initial boiling point and boiling range:</b>	<b>not applicable</b>
<b>Flammability:</b>	<b>Combustible liquid.</b>
<b>Lower and upper explosion limit:</b>	
<b>Lower explosion limit:</b>	<b>0.8 Vol-%</b>
<b>Upper explosion limit:</b>	<b>not applicable</b>
<b>Flash point:</b>	<b>&gt; 100 °C</b> Method: DIN 53213
<b>Auto-ignition temperature:</b>	<b>230 °C</b> Source: Hydrocarbons, hydrotreated, light, benzene content <0.1%

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<b>Decomposition temperature:</b>	<b>not applicable</b>
<b>pH at 20 °C:</b>	<b>not applicable</b>
<b>Cinematic viscosity (40°C):</b>	<b>404.34 mm<sup>2</sup>/s</b>
<b>Viscosity at 20 °C:</b>	<b>700 - 1000 mPas</b>
<b>Solubility(ies):</b>	
<b>Water solubility at 20 °C:</b>	<b>insoluble</b>
<b>Partition coefficient: n-octanol/water:</b>	<b>see section 12</b>
<b>Vapour pressure at 20 °C:</b>	<b>not applicable</b>
<b>Density and/or relative density:</b>	
<b>Density at 20 °C:</b>	<b>1.73 g/cm<sup>3</sup></b>
<b>Relative vapour density:</b>	<b>not applicable</b>
<b>particle characteristics:</b>	<b>not applicable</b>

## 9.2. Other information

<b>Solid content:</b>	<b>99 weight-%</b>
<b>solvent content:</b>	
<b>Organic solvents:</b>	<b>1 weight-%</b>
<b>Water:</b>	<b>0 weight-%</b>

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

No information available.

### 10.2. Chemical stability

Stable when applying the recommended regulations for storage and handling. Further information on correct storage: refer to section 7.

### 10.3. Possibility of hazardous reactions

Keep away from strong acids, strong bases and strong oxidizing agents to avoid exothermic reactions.

### 10.4. Conditions to avoid

Hazardous decomposition byproducts may form with exposure to high temperatures.

### 10.5. Incompatible materials

not applicable

### 10.6. Hazardous decomposition products

Hazardous decomposition byproducts may form with exposure to high temperatures, e.g.: carbon dioxide, carbon monoxide, smoke, nitrogen oxides.

## SECTION 11: Toxicological information

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

#### Acute toxicity

bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane  
oral, LD50, Rat: > 1780 mg/kg

tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate  
oral, LD50, Rat: > 2000 mg/kg

EU Test B.1

dermal, LD50, Rat: > 2000 mg/kg

EU Test B.3

inhalative (dust and mist), LC50, Rat: > 4224 mg/L (4 h)

Method: OECD 403

Diethylformiate

oral, LD50, Rat: 1780 mg/kg

Hydrocarbons, hydrotreated, light, benzene content <0.1%

oral, LD50, Rat: > 5000 mg/kg

Method: OECD 401

dermal, LD50, Rabbit: > 5000 mg/kg

Method: OECD 402

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**Skin corrosion/irritation; Serious eye damage/eye irritation**

Causes serious eye irritation.

bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane  
Skin (4 h)

No data available

eyes

No data available

tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate

Skin, Rabbit (4 h)

Method: OECD 404

No skin irritation; Toxicological tests on a comparable product.

eyes, Rabbit

Method: OECD 405

No eye irritation; Toxicological tests on a comparable product.

Diethylformiate

Skin (4 h)

No data available

eyes

No data available

Hydrocarbons, hydrotreated, light, benzene content <0.1%

Skin, Rabbit (4 h)

Method: OECD 404

No skin irritation

eyes

No data available

**Respiratory or skin sensitisation**

May cause an allergic skin reaction.

bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane  
Skin:

No data available

Respiratory system:

No data available

tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate

Skin, Guinea pig: ; Evaluation positive

> 1 %; Skin sensitisation

Respiratory system:

No data available

Diethylformiate

Skin:

No data available

Respiratory system:

No data available

Hydrocarbons, hydrotreated, light, benzene content <0.1%

Skin:

No data available

Respiratory system:

No data available

**CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**

Suspected of damaging the unborn child.

bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane  
Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

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tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate

Germ cell mutagenicity

No data available

Carcinogenicity; Evaluation negative

Reproductive toxicity; Evaluation negative

Method: OECD 416

Rat; oral; NOAEL (parents, general toxicity): 200 mg/kg NOAEL (parents, fertility): 1,000 mg/kg NOAEL (offspring): 1,000 mg/kg Test type: two-generation study Dosages: 0 - 40 - 200 - 1000 mg/kg Toxicological studies on a comparable product.

Reproductive toxicity/teratogenicity ; Evaluation negative

Method: OECD 414

Rat; oral; NOAEL (teratogenicity): 1 000 mg/kg NOAEL (maternal): 1 000 mg/kg NOAEL (developmental toxicity): 1 000 mg/kg Dosages: 0 - 100 - 300 - 1000 mg/kg Examination on a comparable product.

Genotoxicity in vitro; Evaluation negative

Method: OECD 471 (Ames test)

Salmonella typhimurium; Toxicological tests on a comparable product.

Genotoxicity in vivo; Evaluation negative

Method: OECD 474

Mouse; Toxicological tests on a comparable product.

Diethylformiate

Germ cell mutagenicity

No data available

Carcinogenicity; Evaluation negative

Reproductive toxicity

No data available

Hydrocarbons, hydrotreated, light, benzene content <0.1%

Reproductive toxicity

No data available

## STOT-single exposure; STOT-repeated exposure

bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane

Specific target organ toxicity (single exposure)

No data available

Specific target organ toxicity (repeated exposure)

No data available

tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate

Specific target organ toxicity (single exposure) Evaluation negative

Specific target organ toxicity (repeated exposure) Evaluation negative

Diethylformiate

Specific target organ toxicity (single exposure)

No data available

Specific target organ toxicity (repeated exposure)

No data available

Hydrocarbons, hydrotreated, light, benzene content <0.1%

Specific target organ toxicity (single exposure)

No data available

Specific target organ toxicity (repeated exposure)

No data available

## Aspiration hazard

bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane

Aspiration hazard

No data available

tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate

Aspiration hazard; Evaluation negative

Diethylformiate

Aspiration hazard

No data available

Hydrocarbons, hydrotreated, light, benzene content <0.1%

Aspiration hazard

No data available



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## Practical experience/human evidence

Inhaling of solvent components above the MWC-value can lead to health damage, e.g. irritation of the mucous membrane and respiratory organs, as well as damage to the liver, kidneys and the central nerve system. Indications for this are: headache, dizziness, fatigue, amyosthenia, drowsiness, in serious cases: unconsciousness. Solvents may cause some of the aforementioned effects through skin resorption. Repeated or prolonged contact with the preparation may cause removal of natural fat from the skin resulting in non-allergic contact dermatitis and/or absorption through skin. Splashing may cause eye irritation and reversible damage.

## Overall assessment on CMR properties

The ingredients in this mixture do not meet the criteria for classification as CMR category 1A or 1B according to CLP.

### 11.2. Information on other hazards

#### Endocrine disrupting properties

No information available.

## SECTION 12: Ecological information

Classification according to Regulation (EC) No 1272/2008 [CLP]  
Do not allow to enter into surface water or drains.

### 12.1. Toxicity

bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane  
Fish toxicity, LC50, *Pimephales promelas* (fathead minnow): 4,5 mg/L (96 h)

tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate  
Fish toxicity, LC50, *Danio rerio* (Zebrafisch): 66 mg/L (96 h)

Method: OECD 203

Daphnia toxicity, EC50, *Daphnia magna*: 88,6 mg/L (48 h)

Algae toxicity, ErC50, *Desmodesmus subspicatus*: 1,319 mg/L (48 h)

Method: OECD 201

Algae toxicity, EC50: 113 mg/L (72 h)

Daphnia toxicity, NOEC, *Daphnia magna* (Big water flea): 0,01 mg/L (21 d)

Directive 67/548/EEC, Annex V, C.20; Examination on a comparable product.

Bacteria toxicity, EC50, Activated sludge: 3110 mg/L (3 h)

ISO 8192-1986 E; Examination on a comparable product.

Toxicity to soil macroorganisms, NOEC, *Eisenia fetida*: > 1000 mg/kg (14 d)

Method: OECD 207

Examination on a comparable product.

Toxicity to terrestrial plants, NOEC, *Allium cepa* (onion): > 100 mg/kg (14 d)

Method: OECD 208

Examination on a comparable product.

#### Diethylformiate

Fish toxicity, LC50, *Pimephales promelas* (fathead minnow): 4,5 mg/L (96 h)

Fish toxicity, LC50, *Oryzias latipes*: 24 mg/L (72 h)

#### Hydrocarbons, hydrotreated, light, benzene content <0.1%

Daphnia toxicity, EC50, *Daphnia magna* (Big water flea): > 1000 mg/L (48 h)

Method: OECD 202

Static test

Algae toxicity, ErC50, *Pseudokirchneriella subcapitata*: > 1000 mg/L (72 h)

Method: OECD 201

Static test

Fish toxicity, LC50, *Oncorhynchus mykiss* (Rainbow trout): > 1000 mg/L (48 h)

Method: OECD 203

Static test

### Long-term Ecotoxicity

Harmful to aquatic life with long lasting effects.

#### tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate

Daphnia toxicity, NOEC, *Daphnia magna* (Big water flea): 0,013 mg/L

Daphnia toxicity, *Daphnia magna* (Big water flea): 0,01 mg/L (21 d)

Bacteria toxicity: 3110 mg/L (3 h)

### 12.2. Persistence and degradability

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bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane  
soil:

No data available

tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate

Biodegradation: 13 percent (1 month(s)); Evaluation Biodegradable.

Diethylformiate

Biodegradation: Evaluation Readily biodegradable (according to OECD criteria).

Hydrocarbons, hydrotreated, light, benzene content <0.1%

Biodegradation: Evaluation Readily biodegradable (according to OECD criteria)

Method: OECD 301 F

aerobic

## 12.3. Bioaccumulative potential

bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane

Distribution coefficient n-octanol/water (log KOW):

tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate

Distribution coefficient n-octanol/water (log KOW):

No data available

Diethylformiate

Distribution coefficient n-octanol/water (log KOW):

No data available

### Bioconcentration factor (BCF)

tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate

Bioconcentration factor (BCF): 5,16

## 12.4. Mobility in soil

bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane

:

No data available

tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate

soil:

No data available

Diethylformiate

soil:

No data available

Hydrocarbons, hydrotreated, light, benzene content <0.1%

soil:

No data available

## 12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

## 12.6. Endocrine disrupting properties

No information available.

## 12.7. Other adverse effects

No information available.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

#### Appropriate disposal / Product Recommendation

Do not allow to enter into surface water or drains. This material and its container must be disposed of in a safe way. Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste. Dispose of waste according to applicable legislation.

#### List of proposed waste codes/waste designations in accordance with EWC

080111\* Waste paint and varnish containing organic solvents or other dangerous substances

\*Hazardous waste according to Directive 2008/98/EC (waste framework directive).

#### Appropriate disposal / Package Recommendation

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Non-contaminated packages may be recycled. Vessels not properly emptied are special waste.

## SECTION 14: Transport information

**No dangerous good in sense of this transport regulation.**

**14.1. UN number or ID number**

not applicable

**14.2. UN proper shipping name**

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

not applicable

**14.4. Packing group**

not applicable

**14.5. Environmental hazards**

Land transport (ADR/RID)

not applicable

Marine pollutant

not applicable

**14.6. Special precautions for user**

Transport always in closed, upright and safe containers. Make sure that persons transporting the product know what to do in case of an accident or leakage.

Advices on safe handling: see parts 6 - 8

**Further information**

**Land transport (ADR/RID)**

Tunnel restriction code

-

**Sea transport (IMDG)**

EmS-No.

not applicable

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

No transport as bulk according IBC - Code.

## SECTION 15: Regulatory information

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

**EU legislation**

**Directive 2010/75/EU on industrial emissions [Industrial Emissions Directive]**

VOC-value (in g/L): 24

**National regulations**

**Restrictions of occupation**

Observe employment restrictions under the Maternity Protection Directive 92/85/EEC or stricter national regulations, if applicable.

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC) or stricter national regulations, if applicable.

**15.2. Chemical Safety Assessment**

**For the following substances of this mixture a chemical safety assessment has been carried out:**

EC No. CAS No.	Designation	REACH No.
412-060-9 136210-32-7	bis(4-(1,2-bis(ethoxycarbonyl)ethylamino)-3-methylcyclohexyl)methane	01-0000015937-58
429-270-1 136210-30-5	tetraethyl N,N'-(methylenedicyclohexane-4,1-diyl)bis-dl-aspartate	01-0000017556-64
229-934-9 6846-50-0	2,2,4-trimethyl-1,3-pentanediol di-isobutyrate	01-2119451093-47
265-149-8 64742-47-8	Hydrocarbons, hydrotreated, light, benzene content <0.1%	01-2119484819-18
229-962-1 6864-37-5	2,2'-dimethyl-4,4'-methylenebis(cyclohexylamine)	01-2119497829-12

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201-074-9  
77-99-6

Propylidynetrimethanol

01-2119486799-10

## SECTION 16: Other information

### Full text of classification in section 3

Skin Sens. 1 / H317	Respiratory or skin sensitisation	May cause an allergic skin reaction.
Aquatic Chronic 3 / H412	Hazardous to the aquatic environment	Harmful to aquatic life with long lasting effects.
Repr. 2 / H361	Reproductive toxicity	Suspected of damaging the unborn child.
Acute Tox. 4 / H302	Acute toxicity (oral)	Harmful if swallowed.
Skin Irrit. 2 / H315	Skin corrosion/irritation	Causes skin irritation.
Eye Dam. 1 / H318	Serious eye damage/eye irritation	Causes serious eye damage.
STOT SE 3 / H335	STOT-single exposure	May cause respiratory irritation.
Asp. Tox. 1 / H304	Aspiration hazard	May be fatal if swallowed and enters airways.
Acute Tox. 3 / H331	Acute toxicity (inhalative)	Toxic if inhaled.
Acute Tox. 3 / H311	Acute toxicity (dermal)	Toxic in contact with skin.
Skin Corr. 1A / H314	Skin corrosion/irritation	Causes severe skin burns and eye damage.
Aquatic Chronic 2 / H411	Hazardous to the aquatic environment	Toxic to aquatic life with long lasting effects.
Repr. 2 / H361	Reproductive toxicity	Suspected of damaging fertility. Suspected of damaging the unborn child.

### Classification procedure

Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Eye Irrit. 2	Serious eye damage/eye irritation	Calculation method.
Skin Sens. 1	Respiratory or skin sensitisation	Calculation method.
Repr. 2	Reproductive toxicity	Calculation method.
Aquatic Chronic 3	Hazardous to the aquatic environment	Calculation method.

### Abbreviations and acronyms

ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
OEL	Occupational Exposure Limit Value
BLV	Biological Limit Value
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
CMR	Carcinogenic, Mutagenic and Reprotoxic
DIN	German Institute for Standardization / German industrial standard
DNEL	Derived No-Effect Level
EAKV	European Waste Catalogue Directive
EC	Effective Concentration
EC	European Community
EN	European Standard
IATA-DGR	International Air Transport Association – Dangerous Goods Regulations
IBC Code	International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk
ICAO-TI	International Civil Aviation Organization Technical Instructions for the Safe Transport of Dangerous Goods by Air
IMDG Code	International Maritime Code for Dangerous Goods
ISO	International Organization for Standardization
LC	Lethal Concentration
LD	Lethal Dose
MARPOL	Maritime Pollution: The International Convention for the Prevention of Pollution from Ships
OECD	Organisation for Economic Cooperation and Development
PBT	persistent, bioaccumulative, toxic
PNEC	Predicted No Effect Concentration
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
UN	United Nations
VOC	Volatile Organic Compounds
vPvB	very persistent and very bioaccumulative

### Further information

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

The information supplied on this safety data sheet complies with our current level of knowledge as well as with national and EU regulations. Without written approval, the product must not be used for purposes different from those mentioned in

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section 1. It is always the user's duty to take any necessary measures for meeting the requirements laid down by local rules and regulations. The details in this safety data sheet describe the safety requirements of our product and are not to be regarded as guaranteed attributes of the product.