



## Safety Data Sheet according to (EC) No 1907/2006 as amended

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LOCTITE EA 3421 DC50ML EN

SDS No. : 178258  
V003.0

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

#### 1.1. Product identifier

LOCTITE EA 3421 DC50ML EN

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

Intended use:  
Epoxy resin

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

Henkel Ltd  
Adhesives  
Wood Lane End  
HP2 4RQ Hemel Hempstead

Great Britain

Phone: +44 (1442) 278000  
Fax-no.: +44 (1442) 278071

ua-productsafety.uk@henkel.com

#### 1.4. Emergency telephone number

24 Hours Emergency Tel: +44 (0)1442 278497

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

##### Classification (CLP):

|   |            |
|---|------------|
| Skin irritation                                       | Category 2 |
| H315 Causes skin irritation.                          |            |
| Serious eye irritation                                | Category 2 |
| H319 Causes serious eye irritation.                   |            |
| Skin sensitizer                                       | Category 1 |
| H317 May cause an allergic skin reaction.             |            |
| Chronic hazards to the aquatic environment            | Category 2 |
| H411 Toxic to aquatic life with long lasting effects. |            |

#### 2.2. Label elements

##### Label elements (CLP):

##### Hazard pictogram:



##### Contains

reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight $\leq$ 700)

p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether  
Bisphenol-F epichlorhydrin resin; MW<700

|                                 |   |
|---------------------------------|---|
| <b>Signal word:</b>             | Warning   |
| <b>Hazard statement:</b>        | H315 Causes skin irritation.<br>H317 May cause an allergic skin reaction.<br>H319 Causes serious eye irritation.<br>H411 Toxic to aquatic life with long lasting effects. |
| <b>Precautionary statement:</b> | P273 Avoid release to the environment.  |
| <b>Prevention</b>               | P280 Wear protective gloves.  |
| <b>Precautionary statement:</b> | P302+P352 IF ON SKIN: Wash with plenty of soap and water.   |
| <b>Response</b>                 | P333+P313 If skin irritation or rash occurs: Get medical advice/attention.<br>P337+P313 If eye irritation persists: Get medical advice/attention.                         |

### 2.3. Other hazards

None if used properly.

Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

## SECTION 3: Composition/information on ingredients

### 3.2. Mixtures

#### Declaration of the ingredients according to CLP (EC) No 1272/2008:

| Hazardous components<br>CAS-No.  | EC Number<br>REACH-Reg No.    | content  | Classification   |
|--|-------------------------------|----------|--|
| reaction product: bisphenol-A-<br>(epichlorhydrin); epoxy resin (number<br>average molecular weight≤700)<br>25068-38-6 | 01-2119456619-26              | 25- 50 % | Skin Irrit. 2<br>H315<br>Skin Sens. 1<br>H317<br>Eye Irrit. 2<br>H319<br>Aquatic Chronic 2<br>H411 |
| Bisphenol-F epichlorhydrin resin; MW<700<br>9003-36-5  | 01-2119454392-40              | 25- 50 % | Skin Irrit. 2; Dermal<br>H315<br>Skin Sens. 1A<br>H317<br>Aquatic Chronic 2<br>H411                |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl<br>ether<br>3101-60-8   | 221-453-2<br>01-2119959496-20 | 1- < 5 % | Skin Sens. 1A<br>H317<br>Aquatic Chronic 2<br>H411   |

For full text of the H - statements and other abbreviations see section 16 "Other information".

Substances without classification may have community workplace exposure limits available.

## SECTION 4: First aid measures

### 4.1. Description of first aid measures

Inhalation:

Move to fresh air. If symptoms persist, seek medical advice.

Skin contact:

Rinse with running water and soap.

Obtain medical attention if irritation persists.

Eye contact:

Rinse immediately with plenty of running water (for 10 minutes), seek medical attention from a specialist.

**Ingestion:**

Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

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

EYE: Irritation, conjunctivitis.

SKIN: Redness, inflammation.

SKIN: Rash, Urticaria.

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

See section: Description of first aid measures

**SECTION 5: Firefighting measures****5.1. Extinguishing media****Suitable extinguishing media:**

water, carbon dioxide, foam, powder

**Extinguishing media which must not be used for safety reasons:**

None known

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

In the event of a fire, carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) can be released.

**5.3. Advice for firefighters**

Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

**Additional information:**

In case of fire, keep containers cool with water spray.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

Avoid contact with skin and eyes.

Ensure adequate ventilation.

Wear protective equipment.

**6.2. Environmental precautions**

Do not empty into drains / surface water / ground water.

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

For small spills wipe up with paper towel and place in container for disposal.

For large spills absorb onto inert absorbent material and place in sealed container for disposal.

Wash spillage site thoroughly with soap and water or detergent solution.

Dispose of contaminated material as waste according to Section 13.

**6.4. Reference to other sections**

See advice in section 8

**SECTION 7: Handling and storage****7.1. Precautions for safe handling**

Use only in well-ventilated areas.

Avoid skin and eye contact.

Prolonged or repeated skin contact should be avoided to minimise any risk of sensitisation.

See advice in section 8

**Hygiene measures:**

Wash hands before work breaks and after finishing work.

Do not eat, drink or smoke while working.

Good industrial hygiene practices should be observed.

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

Store in a cool, well-ventilated place.

Refer to Technical Data Sheet

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

Epoxy resin

**SECTION 8: Exposure controls/personal protection**

**8.1. Control parameters**

**Occupational Exposure Limits**

Valid for  
Great Britain

None

**Occupational Exposure Limits**

Valid for  
Ireland

None

**Predicted No-Effect Concentration (PNEC):**

| Name on list   | Environmental Compartment    | Exposure period | Value        |     |              |        | Remarks                          |
|--|------------------------------|-----------------|--------------|-----|--------------|--------|----------------------------------|
|  |                              |                 | mg/l         | ppm | mg/kg        | others |                                  |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | aqua (freshwater)            |                 | 0,006 mg/l   |     |              |        |                                  |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | aqua (marine water)          |                 | 0,001 mg/l   |     |              |        |                                  |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | sewage treatment plant (STP) |                 | 10 mg/l      |     |              |        |                                  |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | sediment (freshwater)        |                 |              |     | 0,341 mg/kg  |        |                                  |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | sediment (marine water)      |                 |              |     | 0,034 mg/kg  |        |                                  |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | Soil                         |                 |              |     | 0,065 mg/kg  |        |                                  |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | oral                         |                 |              |     | 11 mg/kg     |        |                                  |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | aqua (intermittent releases) |                 | 0,018 mg/l   |     |              |        |                                  |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | marine water - intermittent  |                 | 0,002 mg/l   |     |              |        |                                  |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | aqua (freshwater)            |                 | 0,003 mg/l   |     |              |        |                                  |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | aqua (marine water)          |                 | 0,0003 mg/l  |     |              |        |                                  |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | sewage treatment plant (STP) |                 | 10 mg/l      |     |              |        |                                  |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | sediment (freshwater)        |                 |              |     | 0,294 mg/kg  |        |                                  |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | sediment (marine water)      |                 |              |     | 0,0294 mg/kg |        |                                  |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | Soil                         |                 |              |     | 0,237 mg/kg  |        |                                  |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | aqua (intermittent releases) |                 | 0,0254 mg/l  |     |              |        |                                  |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | Air                          |                 |              |     |              |        | no hazard identified             |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | Predator                     |                 |              |     |              |        | no potential for bioaccumulation |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8  | aqua (freshwater)            |                 | 0,0075 mg/l  |     |              |        |                                  |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8  | aqua (marine water)          |                 | 0,00075 mg/l |     |              |        |                                  |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8  | sewage treatment plant (STP) |                 | 100 mg/l     |     |              |        |                                  |

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|   |                            |  |  |  |                |  |  |
|---|----------------------------|--|--|--|----------------|--|--|
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8 | sediment<br>(freshwater)   |  |  |  | 33,54<br>mg/kg |  |  |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8 | sediment<br>(marine water) |  |  |  | 3,354<br>mg/kg |  |  |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8 | Soil                       |  |  |  | 11,4 mg/kg     |  |  |

**Derived No-Effect Level (DNEL):**

| Name on list   | Application Area   | Route of Exposure | Health Effect                                | Exposure Time | Value        | Remarks              |
|--|--------------------|-------------------|--|---------------|--------------|----------------------|
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | Workers            | dermal            | Acute/short term exposure - systemic effects |               | 8,33 mg/kg   |                      |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | Workers            | Inhalation        | Acute/short term exposure - systemic effects |               | 12,25 mg/m3  |                      |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | Workers            | dermal            | Long term exposure - systemic effects        |               | 8,33 mg/kg   |                      |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | Workers            | Inhalation        | Long term exposure - systemic effects        |               | 12,25 mg/m3  |                      |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | General population | dermal            | Acute/short term exposure - systemic effects |               | 3,571 mg/kg  |                      |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | General population | dermal            | Long term exposure - systemic effects        |               | 3,571 mg/kg  |                      |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | General population | oral              | Acute/short term exposure - systemic effects |               | 0,75 mg/kg   |                      |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | General population | oral              | Long term exposure - systemic effects        |               | 0,75 mg/kg   |                      |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | General population | inhalation        | Acute/short term exposure - systemic effects |               | 0,75 mg/m3   |                      |
| reaction product: bisphenol-A-(epichlorhydrin)<br>25068-38-6   | General population | inhalation        | Long term exposure - systemic effects        |               | 0,75 mg/m3   |                      |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | Workers            | dermal            | Long term exposure - systemic effects        |               | 104,15 mg/kg | no hazard identified |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | Workers            | Inhalation        | Long term exposure - systemic effects        |               | 29,39 mg/m3  | no hazard identified |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | General population | dermal            | Long term exposure - systemic effects        |               | 62,5 mg/kg   | no hazard identified |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | General population | Inhalation        | Long term exposure - systemic effects        |               | 8,7 mg/m3    | no hazard identified |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | General population | oral              | Long term exposure - systemic effects        |               | 6,25 mg/kg   | no hazard identified |
| Reaction product: bisphenol-F-(epichlorhydrin); epoxy resin (number average molecular weight ≤ 700) (old)<br>9003-36-5 | Workers            | dermal            | Acute/short term exposure - local effects    |               | 8,3 µg/cm2   | no hazard identified |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8  | Workers            | inhalation        | Long term exposure - systemic effects        |               | 19,6 mg/m3   |                      |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8  | Workers            | inhalation        | Acute/short term exposure - systemic effects |               | 19,6 mg/m3   |                      |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8  | Workers            | inhalation        | Acute/short term exposure - local effects    |               | 19,6 mg/m3   |                      |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8  | Workers            | inhalation        | Long term exposure - local effects           |               | 19,6 mg/m3   |                      |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8  | Workers            | dermal            | Long term exposure - systemic effects        |               | 5,6 mg/kg    |                      |

**Biological Exposure Indices:**

None

**8.2. Exposure controls:**

Engineering controls:  
Ensure good ventilation/extraction.

Respiratory protection:  
Ensure adequate ventilation.  
An approved mask or respirator fitted with an organic vapour cartridge should be worn if the product is used in a poorly ventilated area  
Filter type: A (EN 14387)

Hand protection:  
Chemical-resistant protective gloves (EN 374).  
Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):  
nitrile rubber (NBR; >= 0.4 mm thickness)  
Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):  
nitrile rubber (NBR; >= 0.4 mm thickness)  
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:  
Wear protective glasses.  
Protective eye equipment should conform to EN166.

Skin protection:  
Wear suitable protective clothing.  
Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.

Advices to personal protection equipment:

The information provided on personal protective equipment is for guidance purposes only. A full risk assessment should be conducted prior to using this product to determine the appropriate personal protective equipment to suit local conditions. Personal protective equipment should conform to the relevant EN standard.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

|                                     |                                    |
|-------------------------------------|------------------------------------|
| Appearance                          | paste<br>white                     |
| Odor                                | odourless                          |
| Odour threshold                     | No data available / Not applicable |
| pH                                  | Not applicable                     |
| Melting point                       | No data available / Not applicable |
| Solidification temperature          | No data available / Not applicable |
| Initial boiling point               | > 200 °C (> 392 °F)                |
| Flash point                         | 210 °C (410 °F)                    |
| Evaporation rate                    | No data available / Not applicable |
| Flammability                        | No data available / Not applicable |
| Explosive limits                    | No data available / Not applicable |
| Vapour pressure<br>(50 °C (122 °F)) | 0,001 mbar                         |
| Relative vapour density:            | No data available / Not applicable |
| Density<br>( )                      | 1,15 g/cm <sup>3</sup>             |



|  |                                    |
|--|------------------------------------|
| Bulk density                                 | No data available / Not applicable |
| Solubility                                   | No data available / Not applicable |
| Solubility (qualitative)<br>(Solvent: Water) | Insoluble                          |
| Partition coefficient: n-octanol/water       | No data available / Not applicable |
| Auto-ignition temperature                    | No data available / Not applicable |
| Decomposition temperature                    | No data available / Not applicable |
| Viscosity                                    | No data available / Not applicable |
| Viscosity (kinematic)                        | No data available / Not applicable |
| Explosive properties                         | No data available / Not applicable |
| Oxidising properties                         | No data available / Not applicable |

## 9.2. Other information

No data available / Not applicable

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reaction with oxidants.  
Reaction with strong acids.  
Reaction with strong bases

### 10.2. Chemical stability

Stable under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

See section reactivity

### 10.4. Conditions to avoid

No decomposition if used according to specifications.

### 10.5. Incompatible materials

See section reactivity.

### 10.6. Hazardous decomposition products

carbon oxides.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Acute oral toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.  | Value<br>type                          | Value         | Species | Method   |
|--|--|---------------|---------|--|
| reaction product:<br>bisphenol-A-<br>(epichlorhydrin); epoxy<br>resin (number average<br>molecular weight≤700)<br>25068-38-6 | LD50                                   | > 2.000 mg/kg | rat     | OECD Guideline 420 (Acute Oral Toxicity)                           |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>9003-36-5  | LD50                                   | > 5.000 mg/kg | rat     | OECD Guideline 401 (Acute Oral Toxicity)                           |
| p-tert-Butylphenyl 1-(2,3-<br>epoxy)propyl ether<br>3101-60-8  | LD50                                   | > 2.000 mg/kg | rat     | OECD Guideline 425 (Acute Oral Toxicity: Up-and-Down<br>Procedure) |
| p-tert-Butylphenyl 1-(2,3-<br>epoxy)propyl ether<br>3101-60-8  | Acute<br>toxicity<br>estimate<br>(ATE) | 2.500 mg/kg   |         | Expert judgement   |

**Acute dermal toxicity:**

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances CAS-No.   | Value type | Value         | Species | Method                                     |
|--|------------|---------------|---------|--|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700) 25068-38-6 | LD50       | > 2.000 mg/kg | rat     | OECD Guideline 402 (Acute Dermal Toxicity) |
| Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5   | LD50       | > 2.000 mg/kg | rat     | OECD Guideline 402 (Acute Dermal Toxicity) |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8   | LD50       | > 2.000 mg/kg | rat     | OECD Guideline 402 (Acute Dermal Toxicity) |

**Acute inhalative toxicity:**

No data available.

**Skin corrosion/irritation:**

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances CAS-No.   | Result                | Exposure time | Species | Method   |
|--|-----------------------|---------------|---------|--|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700) 25068-38-6 | moderately irritating | 24 h          | rabbit  | Draize Test  |
| Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5   | irritating            | 4 h           | rabbit  | OECD Guideline 404 (Acute Dermal Irritation / Corrosion) |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8   | not irritating        | 24 h          | rat     | other guideline:   |

**Serious eye damage/irritation:**

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances CAS-No.   | Result         | Exposure time | Species | Method  |
|--|----------------|---------------|---------|---|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700) 25068-38-6 | not irritating |               | rabbit  | OECD Guideline 405 (Acute Eye Irritation / Corrosion) |
| Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5   | not irritating |               | rabbit  | OECD Guideline 405 (Acute Eye Irritation / Corrosion) |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8   | not irritating | 72 h          | rabbit  | OECD Guideline 405 (Acute Eye Irritation / Corrosion) |

**Respiratory or skin sensitization:**

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.  | Result      | Test type                             | Species | Method   |
|--|-------------|---------------------------------------|---------|--|
| reaction product:<br>bisphenol-A-<br>(epichlorhydrin); epoxy<br>resin (number average<br>molecular weight≤700)<br>25068-38-6 | sensitising | Mouse local lymphnode<br>assay (LLNA) | mouse   | OECD Guideline 429 (Skin Sensitisation:<br>Local Lymph Node Assay) |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>9003-36-5  | sensitising | Mouse local lymphnode<br>assay (LLNA) | mouse   | OECD Guideline 429 (Skin Sensitisation:<br>Local Lymph Node Assay) |
| p-tert-Butylphenyl 1-(2,3-<br>epoxy)propyl ether<br>3101-60-8  | sensitising | Mouse local lymphnode<br>assay (LLNA) | mouse   | OECD Guideline 429 (Skin Sensitisation:<br>Local Lymph Node Assay) |

**Germ cell mutagenicity:**

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.  | Result   | Type of study /<br>Route of<br>administration            | Metabolic<br>activation /<br>Exposure time | Species | Method  |
|--|--|--|--|---------|---|
| reaction product:<br>bisphenol-A-<br>(epichlorhydrin); epoxy<br>resin (number average<br>molecular weight≤700)<br>25068-38-6 | negative                                       | bacterial reverse<br>mutation assay (e.g<br>Ames test)   | with and without                           |         | OECD Guideline 472 (Genetic<br>Toxicology: Escherichia coli,<br>Reverse Mutation Assay)                       |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>9003-36-5  | positive                                       | bacterial reverse<br>mutation assay (e.g<br>Ames test)   | with and without                           |         | OECD Guideline 471<br>(Bacterial Reverse Mutation<br>Assay)   |
| p-tert-Butylphenyl 1-(2,3-<br>epoxy)propyl ether<br>3101-60-8  | positive<br>without<br>metabolic<br>activation | in vitro mammalian<br>chromosome<br>aberration test      | with and without                           |         | OECD Guideline 473 (In vitro<br>Mammalian Chromosome<br>Aberration Test)                                      |
| p-tert-Butylphenyl 1-(2,3-<br>epoxy)propyl ether<br>3101-60-8  | positive<br>without<br>metabolic<br>activation | bacterial reverse<br>mutation assay (e.g<br>Ames test)   | with and without                           |         | OECD Guideline 471<br>(Bacterial Reverse Mutation<br>Assay)   |
| p-tert-Butylphenyl 1-(2,3-<br>epoxy)propyl ether<br>3101-60-8  | negative                                       | bacterial reverse<br>mutation assay (e.g<br>Ames test)   | with and without                           |         | OECD Guideline 471<br>(Bacterial Reverse Mutation<br>Assay)   |
| p-tert-Butylphenyl 1-(2,3-<br>epoxy)propyl ether<br>3101-60-8  | positive                                       | sister chromatid<br>exchange assay in<br>mammalian cells | without                                    |         | OECD Guideline 479 (Genetic<br>Toxicology: In Vitro Sister<br>Chromatid Exchange Assay in<br>Mammalian Cells) |
| reaction product:<br>bisphenol-A-<br>(epichlorhydrin); epoxy<br>resin (number average<br>molecular weight≤700)<br>25068-38-6 | negative                                       | oral: gavage   |  | mouse   | not specified   |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>9003-36-5  | negative                                       | oral: gavage   |  | mouse   | OECD Guideline 474<br>(Mammalian Erythrocyte<br>Micronucleus Test)  |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>9003-36-5  | negative                                       | oral: gavage   |  | rat     | OECD Guideline 486<br>(Unscheduled DNA Synthesis<br>(UDS) Test with Mammalian<br>Liver Cells in vivo)         |
| p-tert-Butylphenyl 1-(2,3-<br>epoxy)propyl ether<br>3101-60-8  | negative                                       | oral: gavage   |  | rat     | OECD Guideline 489 (In Vivo<br>Mammalian Alkaline Comet<br>Assay)   |

**Carcinogenicity**

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

| Hazardous components CAS-No.  | Result           | Route of application | Exposure time / Frequency of treatment | Species | Sex         | Method   |
|---|------------------|----------------------|--|---------|-------------|--|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight $\leq$ 700) 25068-38-6 | not carcinogenic | dermal               | 2 y daily                              | mouse   | male        | OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies) |
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight $\leq$ 700) 25068-38-6 | not carcinogenic | oral: gavage         | 2 y daily                              | rat     | male/female | OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies) |

**Reproductive toxicity:**

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

| Hazardous substances CAS-No.  | Result / Value  | Test type            | Route of application | Species | Method  |
|---|---|----------------------|----------------------|---------|---|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight $\leq$ 700) 25068-38-6 | NOAEL P $\geq$ 50 mg/kg<br>NOAEL F1 $\geq$ 750 mg/kg<br>NOAEL F2 $\geq$ 750 mg/kg | Two generation study | oral: gavage         | rat     | OECD Guideline 416 (Two-Generation Reproduction Toxicity Study) |
| Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5  | NOAEL P > 750 mg/kg<br>NOAEL F1 750 mg/kg<br>NOAEL F2 750 mg/kg                   | two-generation study | oral: gavage         | rat     | OECD Guideline 416 (Two-Generation Reproduction Toxicity Study) |

**STOT-single exposure:**

No data available.

**STOT-repeated exposure::**

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

| Hazardous substances CAS-No.  | Result / Value  | Route of application | Exposure time / Frequency of treatment | Species | Method   |
|---|-----------------|----------------------|--|---------|--|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight $\leq$ 700) 25068-38-6 | NOAEL 50 mg/kg  | oral: gavage         | 14 w daily                             | rat     | OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents) |
| Bisphenol-F epichlorhydrin resin; MW<700 9003-36-5  | NOAEL 250 mg/kg | oral: gavage         | 13 w daily                             | rat     | OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents) |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether 3101-60-8  | NOAEL 100 mg/kg | oral: gavage         | 90 d daily                             | rat     | OECD Guideline 408 (Repeated Dose 90-Day Oral Toxicity in Rodents) |

**Aspiration hazard:**

No data available.

## SECTION 12: Ecological information

### General ecological information:

Do not empty into drains / surface water / ground water.

### 12.1. Toxicity

#### Toxicity (Fish):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.   | Value<br>type | Value     | Exposure time | Species             | Method   |
|---|---------------|-----------|---------------|---------------------|--|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700)<br>25068-38-6 | LC50          | 1,75 mg/l | 96 h          | Oncorhynchus mykiss | OECD Guideline 203 (Fish, Acute Toxicity Test) |
| Bisphenol-F epichlorhydrin resin; MW<700<br>9003-36-5   | LC50          | 5,7 mg/l  | 96 h          | Leuciscus idus      | OECD Guideline 203 (Fish, Acute Toxicity Test) |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8   | LC50          | 7,5 mg/l  | 96 h          | Oncorhynchus mykiss | OECD Guideline 203 (Fish, Acute Toxicity Test) |

#### Toxicity (Daphnia):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.   | Value<br>type | Value     | Exposure time | Species       | Method   |
|---|---------------|-----------|---------------|---------------|--|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700)<br>25068-38-6 | EC50          | 1,7 mg/l  | 48 h          | Daphnia magna | OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test) |
| Bisphenol-F epichlorhydrin resin; MW<700<br>9003-36-5   | EC50          | 2,55 mg/l | 48 h          | Daphnia magna | OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test) |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8   | EC50          | 67,9 mg/l | 48 h          | Daphnia magna | OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test) |

#### Chronic toxicity to aquatic invertebrates

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.   | Value<br>type | Value    | Exposure time | Species       | Method                                      |
|---|---------------|----------|---------------|---------------|---|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700)<br>25068-38-6 | NOEC          | 0,3 mg/l | 21 d          | Daphnia magna | OECD 211 (Daphnia magna, Reproduction Test) |
| Bisphenol-F epichlorhydrin resin; MW<700<br>9003-36-5   | NOEC          | 0,3 mg/l | 21 d          | Daphnia magna | OECD 211 (Daphnia magna, Reproduction Test) |

#### Toxicity (Algae):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.  | Value<br>type | Value     | Exposure time | Species                         | Method  |
|--|---------------|-----------|---------------|---------------------------------|---|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight $\leq$ 700)<br>25068-38-6 | EC50          | > 11 mg/l | 72 h          | Scenedesmus capricornutum       | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight $\leq$ 700)<br>25068-38-6 | NOEC          | 4,2 mg/l  | 72 h          | Scenedesmus capricornutum       | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| Bisphenol-F epichlorhydrin resin; MW<700<br>9003-36-5  | EC50          | 1,8 mg/l  | 72 h          | Pseudokirchneriella subcapitata | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8  | EC50          | 9 mg/l    | 72 h          | Pseudokirchneriella subcapitata | OECD Guideline 201 (Alga, Growth Inhibition Test) |

### Toxicity to microorganisms

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.  | Value<br>type | Value        | Exposure time | Species   | Method   |
|--|---------------|--------------|---------------|---|--|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight $\leq$ 700)<br>25068-38-6 | IC50          | > 100 mg/l   | 3 h           | activated sludge, industrial                        | other guideline:   |
| Bisphenol-F epichlorhydrin resin; MW<700<br>9003-36-5  | IC50          | > 100 mg/l   | 3 h           | activated sludge, industrial                        | other guideline:   |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8  | EC50          | > 1.000 mg/l | 3 h           | activated sludge of a predominantly domestic sewage | OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test) |

### 12.2. Persistence and degradability

The product is not biodegradable.

| Hazardous substances<br>CAS-No.  | Result                     | Test type | Degradability | Exposure time | Method  |
|--|----------------------------|-----------|---------------|---------------|---|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight $\leq$ 700)<br>25068-38-6 | not readily biodegradable. | aerobic   | 5 %           | 28 d          | OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test) |
| Bisphenol-F epichlorhydrin resin; MW<700<br>9003-36-5  | not readily biodegradable. | aerobic   | 0 %           | 28 d          | OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)           |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8  | not readily biodegradable. | aerobic   | 1,1 %         | 28 d          | OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)           |

### 12.3. Bioaccumulative potential

No data available.

### 12.4. Mobility in soil

Cured adhesives are immobile.

| Hazardous substances<br>CAS-No.   | LogPow    | Temperature | Method   |
|---|-----------|-------------|--|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700)<br>25068-38-6 | 3,242     | 25 °C       | EU Method A.8 (Partition Coefficient)  |
| Bisphenol-F epichlorhydrin resin; MW<700<br>9003-36-5   | 2,7 - 3,6 |             | OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC Method)        |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8   | 3,59      | 20 °C       | OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method) |

### 12.5. Results of PBT and vPvB assessment

| Hazardous substances<br>CAS-No.   | PBT / vPvB  |
|---|---|
| reaction product: bisphenol-A-(epichlorhydrin); epoxy resin (number average molecular weight≤700)<br>25068-38-6 | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |
| Bisphenol-F epichlorhydrin resin; MW<700<br>9003-36-5   | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |
| p-tert-Butylphenyl 1-(2,3-epoxy)propyl ether<br>3101-60-8   | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |

### 12.6. Other adverse effects

No data available.

## SECTION 13: Disposal considerations

### 13.1. Waste treatment methods

Product disposal:

Dispose of in accordance with local and national regulations.

Do not empty into drains / surface water / ground water.

Disposal of uncleaned packages:

After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.

Disposal must be made according to official regulations.

Waste code

08 04 09\* waste adhesives and sealants containing organic solvents and other dangerous substances

The valid EWC waste code numbers are source-related. The manufacturer is therefore unable to specify EWC waste codes for the articles or products used in the various sectors. The EWC codes listed are intended as a recommendation for users. We will be happy to advise you.

|  |
|--|
| <b>SECTION 14: Transport information</b> |
|--|

**14.1. UN number**

|      |      |
|------|------|
| ADR  | 3082 |
| RID  | 3082 |
| ADN  | 3082 |
| IMDG | 3082 |
| IATA | 3082 |

**14.2. UN proper shipping name**

|      |  |
|------|--|
| ADR  | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.<br>(Bisphenol-F Epichlorhydrin resin,Bisphenol-A Epichlorhydrin resin) |
| RID  | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.<br>(Bisphenol-F Epichlorhydrin resin,Bisphenol-A Epichlorhydrin resin) |
| ADN  | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.<br>(Bisphenol-F Epichlorhydrin resin,Bisphenol-A Epichlorhydrin resin) |
| IMDG | ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.<br>(Bisphenol-F Epichlorhydrin resin,Bisphenol-A Epichlorhydrin resin) |
| IATA | Environmentally hazardous substance, liquid, n.o.s. (Bisphenol-F Epichlorhydrin resin,Bisphenol-A Epichlorhydrin resin)    |

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

|      |   |
|------|---|
| ADR  | 9 |
| RID  | 9 |
| ADN  | 9 |
| IMDG | 9 |
| IATA | 9 |

**14.4. Packing group**

|      |     |
|------|-----|
| ADR  | III |
| RID  | III |
| ADN  | III |
| IMDG | III |
| IATA | III |

**14.5. Environmental hazards**

|      |                  |
|------|------------------|
| ADR  | not applicable   |
| RID  | not applicable   |
| ADN  | not applicable   |
| IMDG | Marine pollutant |
| IATA | not applicable   |

**14.6. Special precautions for user**

|      |                               |
|------|-------------------------------|
| ADR  | not applicable<br>Tunnelcode: |
| RID  | not applicable                |
| ADN  | not applicable                |
| IMDG | not applicable                |
| IATA | not applicable                |

The transport classifications in this section apply generally to packed and bulk goods alike. For containers with a net volume of no more than 5 L for liquid substances or a net mass of no more than 5 kg for solid substances per individual or inner package, the exemptions SP 375 (ADR), 197 (IATA), 969 (IMDG) may be applied, which can result in a deviation from the transport classification for packed goods.

**14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

not applicable



**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture**

|  |                |
|--|----------------|
| Ozone Depleting Substance (ODS) (Regulation 1005/2009/EC):       | Not applicable |
| Prior Informed Consent (PIC) (Regulation 649/2012/EC):           | Not applicable |
| Persistent Organic Pollutants (POPs) (Regulation 2019/1021/EC) : | Not applicable |

**EU. REACH, Annex XVII, Marketing and Use Restrictions (Regulation 1907/2006/EC):** Not applicable

VOC content < 3,00 %  
(2010/75/EC)

**15.2. Chemical safety assessment**

A chemical safety assessment has not been carried out.

**SECTION 16: Other information**

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H319 Causes serious eye irritation.
- H411 Toxic to aquatic life with long lasting effects.

**Further information:**

This Safety Data Sheet has been produced for sales from Henkel to parties purchasing from Henkel, is based on Regulation (EC) No 1907/2006 and provides information in accordance with applicable regulations of the European Union only. In that respect, no statement, warranty or representation of any kind is given as to compliance with any statutory laws or regulations of any other jurisdiction or territory other than the European Union. When exporting to territories other than the European Union, please consult with the respective Safety Data Sheet of the concerned territory to ensure compliance or liaise with Henkel's Product Safety and Regulatory Affairs Department (ua-productsafety.de@henkel.com) prior to export to other territories than the European Union.

This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

Dear Customer,

Henkel is committed to creating a sustainable future by promoting opportunities along the entire value chain. If you would like to contribute by switching from a paper to the electronic version of SDS, please contact the local Customer Service representative. We recommend to use a non-personal email address (e.g. SDS@your\_company.com).

**Relevant changes in this safety data sheet are indicated by vertical lines at the left margin in the body of this document. Corresponding text is displayed in a different color on shadowed fields.**



**Safety Data Sheet according to (EC) No 1907/2006 as amended** Page 1 of 25

LOCTITE EA 3421 DC50ML EN

SDS No. : 152796  
V003.0  
Revision: 14.12.2020  
printing date: 15.12.2020  
Replaces version from: 05.09.2019

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

**1.1. Product identifier**

LOCTITE EA 3421 DC50ML EN

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

Intended use:  
Epoxy Hardener

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

Henkel Ltd  
Adhesives  
Wood Lane End  
HP2 4RQ Hemel Hempstead

Great Britain

Phone: +44 (1442) 278000  
Fax-no.: +44 (1442) 278071

ua-productsafety.uk@henkel.com

**1.4. Emergency telephone number**

24 Hours Emergency Tel: +44 (0)1442 278497

**SECTION 2: Hazards identification**

**2.1. Classification of the substance or mixture**

**Classification (CLP):**

|   |                 |
|---|-----------------|
| Skin corrosion  | Sub-category 1B |
| H314 Causes severe skin burns and eye damage.         |                 |
| Serious eye damage                                    | Category 1      |
| H318 Causes serious eye damage.                       |                 |
| Skin sensitizer                                       | Category 1      |
| H317 May cause an allergic skin reaction.             |                 |
| Chronic hazards to the aquatic environment            | Category 2      |
| H411 Toxic to aquatic life with long lasting effects. |                 |

**2.2. Label elements**

**Label elements (CLP):**

**Hazard pictogram:****Contains**

Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine

C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer

3,6-diazaoctanethylenediamin

2-piperazin-1-ylethylamine

3,6,9-triazaundecamethylenediamine

**Signal word:**

**Danger**

**Hazard statement:**

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H411 Toxic to aquatic life with long lasting effects.

**Precautionary statement:**

P273 Avoid release to the environment.

**Prevention**

P280 Wear protective gloves/protective clothing/eye protection/face protection.

**Precautionary statement:**

P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].

**Response**

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER or doctor.

**2.3. Other hazards**

None if used properly.

Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria.

## SECTION 3: Composition/information on ingredients

**3.2. Mixtures**

**Declaration of the ingredients according to CLP (EC) No 1272/2008:**

| <b>Hazardous components<br/>CAS-No.</b>   | <b>EC Number<br/>REACH-Reg No.</b> | <b>content</b> | <b>Classification</b>   |
|---|------------------------------------|----------------|---|
| Fatty acids, C18-unsatd., dimers,<br>oligomeric reaction products with tall-oil<br>fatty acids and triethylenetetramine<br>68082-29-1 | 500-191-5<br>500-191-5             | 25- 50 %       | Aquatic Chronic 2<br>H411<br>Eye Dam. 1<br>H318<br>Skin Irrit. 2<br>H315<br>Skin Sens. 1A<br>H317   |
| C18 Fatty acid dimer, tall oil fatty acid,<br>triethylenetetramine polymer<br>68082-29-1  | 500-191-5<br>01-2119972320-44      | 20- 40 %       | Skin Irrit. 2<br>H315<br>Eye Dam. 1<br>H318<br>Skin Sens. 1A<br>H317<br>Aquatic Chronic 2<br>H411   |
| Polyamide adduct<br>106906-26-7   | 500-296-6                          | 10- 20 %       | Aquatic Acute 1<br>H400   |
| benzyl alcohol<br>100-51-6  | 202-859-9<br>01-2119492630-38      | 5- < 10 %      | Acute Tox. 4; Oral<br>H302<br>Acute Tox. 4; Inhalation<br>H332<br>Eye Irrit. 2<br>H319  |
| 2,4,6-tris(dimethylaminomethyl)phenol<br>90-72-2  | 202-013-9<br>01-2119560597-27      | 1- < 5 %       | Skin Corr. 1C<br>H314<br>Acute Tox. 4; Oral<br>H302<br>Eye Dam. 1<br>H318   |
| 3,6-diazaoctanethylenediamin<br>112-24-3  | 203-950-6<br>01-2119487919-13      | 1- < 5 %       | Acute Tox. 4; Oral<br>H302<br>Acute Tox. 4; Dermal<br>H312<br>Skin Sens. 1<br>H317<br>Skin Corr. 1B<br>H314<br>Aquatic Chronic 3<br>H412                    |
| 2-piperazin-1-ylethylamine<br>140-31-8  | 205-411-0<br>01-2119471486-30      | 1- < 3 %       | Acute Tox. 3; Dermal<br>H311<br>Acute Tox. 4; Oral<br>H302<br>Skin Corr. 1B<br>H314<br>Aquatic Chronic 3<br>H412<br>Skin Sens. 1<br>H317<br>Repr. 2<br>H361 |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2  | 203-986-2<br>01-2119487290-37      | 0,1- < 1 %     | Acute Tox. 4; Dermal<br>H312<br>Acute Tox. 4; Oral<br>H302<br>Skin Sens. 1<br>H317<br>Aquatic Chronic 2<br>H411<br>Skin Corr. 1B<br>H314                    |

**For full text of the H - statements and other abbreviations see section 16 "Other information".  
Substances without classification may have community workplace exposure limits available.**

**SECTION 4: First aid measures****4.1. Description of first aid measures****Inhalation:**

Move to fresh air. If symptoms persist, seek medical advice.

**Skin contact:**

Rinse with running water and soap.

Obtain medical attention if irritation persists.

**Eye contact:**

Rinse immediately with plenty of running water (for 10 minutes), seek medical attention from a specialist.

**Ingestion:**

Rinse mouth, drink 1-2 glasses of water, do not induce vomiting, consult a doctor.

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

SKIN: Rash, Urticaria.

Causes burns.

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

See section: Description of first aid measures

**SECTION 5: Firefighting measures****5.1. Extinguishing media****Suitable extinguishing media:**

Carbon dioxide, foam, powder

**Extinguishing media which must not be used for safety reasons:**

High pressure waterjet

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

In the event of a fire, carbon monoxide (CO), carbon dioxide (CO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>) can be released.

**5.3. Advice for firefighters**

Wear self-contained breathing apparatus and full protective clothing, such as turn-out gear.

**Additional information:**

In case of fire, keep containers cool with water spray.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures**

Avoid contact with skin and eyes.

Wear protective equipment.

Ensure adequate ventilation.

**6.2. Environmental precautions**

Do not empty into drains / surface water / ground water.

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

For small spills wipe up with paper towel and place in container for disposal.

For large spills absorb onto inert absorbent material and place in sealed container for disposal.

Wash spillage site thoroughly with soap and water or detergent solution.

Dispose of contaminated material as waste according to Section 13.

**6.4. Reference to other sections**

See advice in section 8

**SECTION 7: Handling and storage****7.1. Precautions for safe handling**

Use only in well-ventilated areas.

Avoid skin and eye contact.

Prolonged or repeated skin contact should be avoided to minimise any risk of sensitisation.

See advice in section 8

**Hygiene measures:**

Good industrial hygiene practices should be observed.

Wash hands before work breaks and after finishing work.

Do not eat, drink or smoke while working.

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

Store in a cool, well-ventilated place.

Refer to Technical Data Sheet

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

Epoxy Hardener

**SECTION 8: Exposure controls/personal protection****8.1. Control parameters****Occupational Exposure Limits**

Valid for  
Great Britain

None

**Occupational Exposure Limits**

Valid for  
Ireland

None

**Predicted No-Effect Concentration (PNEC):**

| Name on list  | Environmental Compartment    | Exposure period | Value        |     |              |        | Remarks                          |
|---|------------------------------|-----------------|--------------|-----|--------------|--------|----------------------------------|
|   |                              |                 | mg/l         | ppm | mg/kg        | others |                                  |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1 | aqua (freshwater)            |                 | 0,00434 mg/l |     |              |        |                                  |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1 | aqua (marine water)          |                 | 0,00043 mg/l |     |              |        |                                  |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1 | aqua (intermittent releases) |                 | 0,0434 mg/l  |     |              |        |                                  |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1 | sewage treatment plant (STP) |                 | 3,84 mg/l    |     |              |        |                                  |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1 | sediment (freshwater)        |                 |              |     | 434,02 mg/kg |        |                                  |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1 | sediment (marine water)      |                 |              |     | 43,4 mg/kg   |        |                                  |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1 | Soil                         |                 |              |     | 86,78 mg/kg  |        |                                  |
| Benzyl alcohol<br>100-51-6  | Soil                         |                 |              |     | 0,456 mg/kg  |        |                                  |
| Benzyl alcohol<br>100-51-6  | sewage treatment plant (STP) |                 | 39 mg/l      |     |              |        |                                  |
| Benzyl alcohol<br>100-51-6  | sediment (freshwater)        |                 |              |     | 5,27 mg/kg   |        |                                  |
| Benzyl alcohol<br>100-51-6  | sediment (marine water)      |                 |              |     | 0,527 mg/kg  |        |                                  |
| Benzyl alcohol<br>100-51-6  | aqua (marine water)          |                 | 0,1 mg/l     |     |              |        |                                  |
| Benzyl alcohol<br>100-51-6  | aqua (intermittent releases) |                 | 2,3 mg/l     |     |              |        |                                  |
| Benzyl alcohol<br>100-51-6  | aqua (freshwater)            |                 | 1 mg/l       |     |              |        |                                  |
| Benzyl alcohol<br>100-51-6  | Air                          |                 |              |     |              |        | no hazard identified             |
| Benzyl alcohol<br>100-51-6  | Predator                     |                 |              |     |              |        | no potential for bioaccumulation |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | aqua (freshwater)            |                 | 0,046 mg/l   |     |              |        |                                  |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | aqua (marine water)          |                 | 0,005 mg/l   |     |              |        |                                  |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | freshwater - intermittent    |                 | 0,46 mg/l    |     |              |        |                                  |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | marine water - intermittent  |                 | 0,046 mg/l   |     |              |        |                                  |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | sewage treatment plant (STP) |                 | 0,2 mg/l     |     |              |        |                                  |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | sediment (freshwater)        |                 |              |     | 0,262 mg/kg  |        |                                  |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | sediment (marine water)      |                 |              |     | 0,026 mg/kg  |        |                                  |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | Soil                         |                 |              |     | 0,025 mg/kg  |        |                                  |
| 3,6-diazaoctanethylenediamin<br>112-24-3  | aqua (freshwater)            |                 | 0,027 mg/l   |     |              |        |                                  |
| 3,6-diazaoctanethylenediamin<br>112-24-3  | aqua (marine water)          |                 | 0,003 mg/l   |     |              |        |                                  |
| 3,6-diazaoctanethylenediamin<br>112-24-3  | Sewage treatment plant       |                 | 0,13 mg/l    |     |              |        |                                  |
| 3,6-diazaoctanethylenediamin<br>112-24-3  | sediment (freshwater)        |                 |              |     | 8,572 mg/kg  |        |                                  |
| 3,6-diazaoctanethylenediamin  | sediment                     |                 |              |     | 0,857        |        |                                  |

|  |                                    |  |                 |  |                |  |  |
|--|------------------------------------|--|-----------------|--|----------------|--|--|
| 112-24-3                                       | (marine water)                     |  |                 |  | mg/kg          |  |  |
| 3,6-diazaoctanethylenediamin<br>112-24-3       | Soil                               |  |                 |  | 1,25 mg/kg     |  |  |
| 3,6-diazaoctanethylenediamin<br>112-24-3       | freshwater -<br>intermittent       |  | 0,2 mg/l        |  |                |  |  |
| 3,6-diazaoctanethylenediamin<br>112-24-3       | marine water -<br>intermittent     |  | 0,02 mg/l       |  |                |  |  |
| 2-Piperazin-1-ylethylamine<br>140-31-8         | aqua<br>(freshwater)               |  | 0,058 mg/l      |  |                |  |  |
| 2-Piperazin-1-ylethylamine<br>140-31-8         | aqua (marine<br>water)             |  | 0,0058<br>mg/l  |  |                |  |  |
| 2-Piperazin-1-ylethylamine<br>140-31-8         | sediment<br>(freshwater)           |  |                 |  | 215 mg/kg      |  |  |
| 2-Piperazin-1-ylethylamine<br>140-31-8         | sediment<br>(marine water)         |  |                 |  | 21,5 mg/kg     |  |  |
| 2-Piperazin-1-ylethylamine<br>140-31-8         | Soil                               |  |                 |  | 1 mg/kg        |  |  |
| 2-Piperazin-1-ylethylamine<br>140-31-8         | sewage<br>treatment plant<br>(STP) |  | 250 mg/l        |  |                |  |  |
| 2-Piperazin-1-ylethylamine<br>140-31-8         | aqua<br>(intermittent<br>releases) |  | 0,58 mg/l       |  |                |  |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2 | Soil                               |  |                 |  | 0,683<br>mg/kg |  |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2 | aqua<br>(freshwater)               |  | 0,0068<br>mg/l  |  |                |  |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2 | aqua (marine<br>water)             |  | 0,00068<br>mg/l |  |                |  |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2 | sediment<br>(freshwater)           |  |                 |  | 3,43 mg/kg     |  |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2 | sediment<br>(marine water)         |  |                 |  | 0,343<br>mg/kg |  |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2 | sewage<br>treatment plant<br>(STP) |  | 9,73 mg/l       |  |                |  |  |



**Derived No-Effect Level (DNEL):**

| Name on list  | Application Area   | Route of Exposure | Health Effect                                | Exposure Time | Value       | Remarks              |
|---|--------------------|-------------------|--|---------------|-------------|----------------------|
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1 | Workers            | inhalation        | Long term exposure - systemic effects        |               | 3,9 mg/m3   |                      |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1 | Workers            | dermal            | Long term exposure - systemic effects        |               | 1,1 mg/kg   |                      |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1 | General population | inhalation        | Long term exposure - systemic effects        |               | 0,97 mg/m3  |                      |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1 | General population | dermal            | Long term exposure - systemic effects        |               | 0,56 mg/kg  |                      |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1 | General population | oral              | Long term exposure - systemic effects        |               | 0,56 mg/kg  |                      |
| Benzyl alcohol<br>100-51-6  | General population | oral              | Acute/short term exposure - systemic effects |               | 20 mg/kg    | no hazard identified |
| Benzyl alcohol<br>100-51-6  | General population | oral              | Long term exposure - systemic effects        |               | 4 mg/kg     | no hazard identified |
| Benzyl alcohol<br>100-51-6  | Workers            | inhalation        | Acute/short term exposure - systemic effects |               | 110 mg/m3   | no hazard identified |
| Benzyl alcohol<br>100-51-6  | Workers            | inhalation        | Long term exposure - systemic effects        |               | 22 mg/m3    | no hazard identified |
| Benzyl alcohol<br>100-51-6  | General population | inhalation        | Acute/short term exposure - systemic effects |               | 27 mg/m3    | no hazard identified |
| Benzyl alcohol<br>100-51-6  | General population | inhalation        | Long term exposure - systemic effects        |               | 5,4 mg/m3   | no hazard identified |
| Benzyl alcohol<br>100-51-6  | Workers            | dermal            | Acute/short term exposure - systemic effects |               | 40 mg/kg    | no hazard identified |
| Benzyl alcohol<br>100-51-6  | Workers            | dermal            | Long term exposure - systemic effects        |               | 8 mg/kg     | no hazard identified |
| Benzyl alcohol<br>100-51-6  | General population | dermal            | Acute/short term exposure - systemic effects |               | 20 mg/kg    | no hazard identified |
| Benzyl alcohol<br>100-51-6  | General population | dermal            | Long term exposure - systemic effects        |               | 4 mg/kg     | no hazard identified |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | Workers            | inhalation        | Long term exposure - systemic effects        |               | 0,53 mg/m3  |                      |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | Workers            | inhalation        | Acute/short term exposure - systemic effects |               | 2,1 mg/m3   |                      |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | Workers            | dermal            | Long term exposure - systemic effects        |               | 0,15 mg/kg  |                      |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | Workers            | dermal            | Acute/short term exposure - systemic effects |               | 0,6 mg/kg   |                      |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | General population | inhalation        | Long term exposure - systemic effects        |               | 0,13 mg/m3  |                      |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | General population | inhalation        | Acute/short term exposure - systemic effects |               | 0,13 mg/m3  |                      |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | General population | dermal            | Long term exposure - systemic effects        |               | 0,075 mg/kg |                      |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2                                      | General population | dermal            | Acute/short term exposure -                  |               | 0,075 mg/kg |                      |

|  |                    |            |  |  |                          |  |
|--|--------------------|------------|--|--|--------------------------|--|
|  |                    |            | systemic effects                             |  |                          |  |
| 2,4,6-Tris(dimethylaminomethyl)phenol<br>90-72-2 | General population | oral       | Long term exposure - systemic effects        |  | 0,075 mg/kg              |  |
| 3,6-diazaoctanethylenediamin<br>112-24-3         | Workers            | inhalation | Long term exposure - systemic effects        |  | 0,54 mg/m <sup>3</sup>   |  |
| 3,6-diazaoctanethylenediamin<br>112-24-3         | General population | inhalation | Long term exposure - systemic effects        |  | 0,096 mg/m <sup>3</sup>  |  |
| 3,6-diazaoctanethylenediamin<br>112-24-3         | General population | oral       | Long term exposure - systemic effects        |  | 0,14 mg/kg               |  |
| 2-Piperazin-1-ylethylamine<br>140-31-8           | Workers            | inhalation | Acute/short term exposure - local effects    |  | 80 mg/m <sup>3</sup>     |  |
| 2-Piperazin-1-ylethylamine<br>140-31-8           | Workers            | inhalation | Long term exposure - local effects           |  | 0,015 mg/m <sup>3</sup>  |  |
| 2-Piperazin-1-ylethylamine<br>140-31-8           | Workers            | Inhalation | Acute/short term exposure - systemic effects |  | 10,6 mg/m <sup>3</sup>   |  |
| 2-Piperazin-1-ylethylamine<br>140-31-8           | Workers            | dermal     | Long term exposure - systemic effects        |  | 3,33 mg/kg               |  |
| 2-Piperazin-1-ylethylamine<br>140-31-8           | Workers            | Inhalation | Long term exposure - systemic effects        |  | 10,6 mg/m <sup>3</sup>   |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2   | Workers            | dermal     | Long term exposure - systemic effects        |  | 0,74 mg/kg               |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2   | Workers            | inhalation | Long term exposure - systemic effects        |  | 1,29 mg/m <sup>3</sup>   |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2   | Workers            | inhalation | Acute/short term exposure - systemic effects |  | 6940 mg/m <sup>3</sup>   |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2   | General population | dermal     | Long term exposure - systemic effects        |  | 0,32 mg/kg               |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2   | General population | inhalation | Long term exposure - systemic effects        |  | 0,38 mg/m <sup>3</sup>   |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2   | General population | oral       | Long term exposure - systemic effects        |  | 0,53 mg/kg               |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2   | General population | oral       | Acute/short term exposure - systemic effects |  | 26 mg/kg                 |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2   | General population | inhalation | Acute/short term exposure - systemic effects |  | 2071 mg/m <sup>3</sup>   |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2   | General population | dermal     | Acute/short term exposure - systemic effects |  | 10 mg/kg                 |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2   | General population | dermal     | Acute/short term exposure - local effects    |  | 1,29 mg/cm <sup>2</sup>  |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2   | General population | dermal     | Long term exposure - local effects           |  | 0,56 mg/cm <sup>2</sup>  |  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2   | Workers            | dermal     | Long term exposure - local effects           |  | 0,036 mg/cm <sup>2</sup> |  |

**Biological Exposure Indices:**

None

**8.2. Exposure controls:**

Engineering controls:  
Ensure good ventilation/extraction.

Respiratory protection:  
Ensure adequate ventilation.  
An approved mask or respirator fitted with an organic vapour cartridge should be worn if the product is used in a poorly ventilated area  
Filter type: A (EN 14387)

Hand protection:  
Chemical-resistant protective gloves (EN 374).  
Suitable materials for short-term contact or splashes (recommended: at least protection index 2, corresponding to > 30 minutes permeation time as per EN 374):  
nitrile rubber (NBR;  $\geq 0.4$  mm thickness)  
Suitable materials for longer, direct contact (recommended: protection index 6, corresponding to > 480 minutes permeation time as per EN 374):  
nitrile rubber (NBR;  $\geq 0.4$  mm thickness)  
This information is based on literature references and on information provided by glove manufacturers, or is derived by analogy with similar substances. Please note that in practice the working life of chemical-resistant protective gloves may be considerably shorter than the permeation time determined in accordance with EN 374 as a result of the many influencing factors (e.g. temperature). If signs of wear and tear are noticed then the gloves should be replaced.

Eye protection:  
Safety glasses with sideshields or chemical safety goggles should be worn if there is a risk of splashing.  
Protective eye equipment should conform to EN166.

Skin protection:  
Wear suitable protective clothing.  
Protective clothing should conform to EN 14605 for liquid splashes or to EN 13982 for dusts.

Advices to personal protection equipment:

The information provided on personal protective equipment is for guidance purposes only. A full risk assessment should be conducted prior to using this product to determine the appropriate personal protective equipment to suit local conditions. Personal protective equipment should conform to the relevant EN standard.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

|                                     |                                    |
|-------------------------------------|------------------------------------|
| Appearance                          | liquid<br>Amber, clear             |
| Odor                                | of amine                           |
| Odour threshold                     | No data available / Not applicable |
| pH                                  | Not available.                     |
| Melting point                       | No data available / Not applicable |
| Solidification temperature          | No data available / Not applicable |
| Initial boiling point               | > 180 °C (> 356 °F)                |
| Flash point                         | 110 °C (230 °F)                    |
| Evaporation rate                    | No data available / Not applicable |
| Flammability                        | No data available / Not applicable |
| Explosive limits                    | No data available / Not applicable |
| Vapour pressure<br>(50 °C (122 °F)) | 0,04 mbar                          |
| Relative vapour density:            | No data available / Not applicable |

|  |                                    |
|--|------------------------------------|
| Density                                | 1,1 g/cm <sup>3</sup>              |
| ( )                                    |                                    |
| Bulk density                           | No data available / Not applicable |
| Solubility                             | No data available / Not applicable |
| Solubility (qualitative)               | Insoluble                          |
| (Solvent: Water)                       |                                    |
| Partition coefficient: n-octanol/water | No data available / Not applicable |
| Auto-ignition temperature              | No data available / Not applicable |
| Decomposition temperature              | No data available / Not applicable |
| Viscosity                              | No data available / Not applicable |
| Viscosity (kinematic)                  | No data available / Not applicable |
| Explosive properties                   | No data available / Not applicable |
| Oxidising properties                   | No data available / Not applicable |

## 9.2. Other information

No data available / Not applicable

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reaction with strong acids.  
Reacts with strong oxidants.

### 10.2. Chemical stability

Stable under recommended storage conditions.

### 10.3. Possibility of hazardous reactions

See section reactivity

### 10.4. Conditions to avoid

Stable under normal conditions of storage and use.

### 10.5. Incompatible materials

See section reactivity.

### 10.6. Hazardous decomposition products

carbon oxides.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

#### Acute oral toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances CAS-No.   | Value type | Value         | Species | Method                                   |
|--|------------|---------------|---------|--|
| Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine 68082-29-1 | LD50       | > 2.000 mg/kg | rat     | OECD Guideline 423 (Acute Oral toxicity) |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer 68082-29-1   | LD50       | > 2.000 mg/kg | rat     | OECD Guideline 423 (Acute Oral toxicity) |
| benzyl alcohol 100-51-6  | LD50       | 1.620 mg/kg   | rat     | not specified                            |
| 2,4,6-tris(dimethylaminomethyl)phenol 90-72-2  | LD50       | 1.200 mg/kg   | rat     | not specified                            |
| 3,6-diazaoctanethylenediamin 112-24-3  | LD50       | 1.591 mg/kg   | rat     | OECD Guideline 401 (Acute Oral Toxicity) |
| 3,6,9-triazaundecamethylenediamine 112-57-2  | LD50       | 1.716 mg/kg   | rat     | OECD Guideline 401 (Acute Oral Toxicity) |

#### Acute dermal toxicity:

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances CAS-No.   | Value type                    | Value         | Species | Method                                     |
|--|-------------------------------|---------------|---------|--|
| Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine 68082-29-1 | LD50                          | > 2.000 mg/kg | rat     | OECD Guideline 402 (Acute Dermal Toxicity) |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer 68082-29-1   | LD50                          | > 2.000 mg/kg | rat     | OECD Guideline 402 (Acute Dermal Toxicity) |
| benzyl alcohol 100-51-6  | Acute toxicity estimate (ATE) | 2.500 mg/kg   |         | Expert judgement                           |
| 3,6-diazaoctanethylenediamin 112-24-3  | LD50                          | 1.465 mg/kg   | rabbit  | OECD Guideline 402 (Acute Dermal Toxicity) |
| 2-piperazin-1-ylethylamine 140-31-8  | LD50                          | 866 mg/kg     | rabbit  | Draize Test                                |
| 3,6,9-triazaundecamethylenediamine 112-57-2  | LD50                          | 1.260 mg/kg   | rabbit  | not specified                              |

**Acute inhalative toxicity:**

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances CAS-No. | Value type                    | Value        | Test atmosphere | Exposure time | Species | Method   |
|------------------------------|-------------------------------|--------------|-----------------|---------------|---------|--|
| benzyl alcohol<br>100-51-6   | Acute toxicity estimate (ATE) | 4,17 mg/l    | dust/mist       |               |         | Expert judgement                               |
| benzyl alcohol<br>100-51-6   | LC50                          | > 4,178 mg/l | dust/mist       | 4 h           | rat     | OECD Guideline 403 (Acute Inhalation Toxicity) |

**Skin corrosion/irritation:**

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances CAS-No.  | Result         | Exposure time | Species  | Method   |
|---|----------------|---------------|----------|--|
| Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine<br>68082-29-1 | irritating     |               |          | OECD Guideline 439 (In Vitro Skin Irritation: Reconstructed Human Epidermis (RHE) Test Method) |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1   | irritating     |               | In vitro | OECD Guideline 439 (In Vitro Skin Irritation: Reconstructed Human Epidermis (RHE) Test Method) |
| benzyl alcohol<br>100-51-6  | not irritating | 4 h           | rabbit   | OECD Guideline 404 (Acute Dermal Irritation / Corrosion)                                       |
| 2,4,6-tris(dimethylaminomethyl)phenol<br>90-72-2  | corrosive      | 4 h           | rabbit   | OECD Guideline 404 (Acute Dermal Irritation / Corrosion)                                       |
| 3,6-diazaoctanethylenediamin<br>112-24-3  | corrosive      |               | rabbit   | OECD Guideline 404 (Acute Dermal Irritation / Corrosion)                                       |
| 2-piperazin-1-ylethylamine<br>140-31-8  | corrosive      | 20 min        | rabbit   | not specified  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2  | corrosive      | 4 h           | rabbit   | Draize Test  |

**Serious eye damage/irritation:**

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances CAS-No.  | Result                                       | Exposure time | Species | Method  |
|---|--|---------------|---------|---|
| Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine<br>68082-29-1 | corrosive                                    |               | rabbit  | OECD Guideline 405 (Acute Eye Irritation / Corrosion) |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1   | Category 1 (irreversible effects on the eye) |               | rabbit  | OECD Guideline 405 (Acute Eye Irritation / Corrosion) |
| benzyl alcohol<br>100-51-6  | irritating                                   | 24 h          | rabbit  | OECD Guideline 405 (Acute Eye Irritation / Corrosion) |

**Respiratory or skin sensitization:**

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

| <b>Hazardous substances<br/>CAS-No.</b>   | <b>Result</b>   | <b>Test type</b>                   | <b>Species</b> | <b>Method</b>   |
|---|-----------------|------------------------------------|----------------|---|
| Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine<br>68082-29-1 | Sensitizing     | Mouse local lymphnode assay (LLNA) | mouse          | OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay) |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1   | sensitising     | Mouse local lymphnode assay (LLNA) | mouse          | OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay) |
| benzyl alcohol<br>100-51-6  | not sensitising | Mouse local lymphnode assay (LLNA) | mouse          | OECD Guideline 429 (Skin Sensitisation: Local Lymph Node Assay) |
| 2,4,6-tris(dimethylaminomethyl)phenol<br>90-72-2  | not sensitising | Buehler test                       | guinea pig     | OECD Guideline 406 (Skin Sensitisation)                         |
| 2,4,6-tris(dimethylaminomethyl)phenol<br>90-72-2  | not sensitising | Guinea pig maximisation test       | guinea pig     | OECD Guideline 406 (Skin Sensitisation)                         |
| 3,6-diazaoctanethylenediamin<br>112-24-3  | sensitising     | Buehler test                       | guinea pig     | OECD Guideline 406 (Skin Sensitisation)                         |
| 2-piperazin-1-ylethylamine<br>140-31-8  | sensitising     | Guinea pig maximisation test       | guinea pig     | OECD Guideline 406 (Skin Sensitisation)                         |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2  | sensitising     | Buehler test                       | guinea pig     | OECD Guideline 406 (Skin Sensitisation)                         |

**Germ cell mutagenicity:**

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

| <b>Hazardous substances<br/>CAS-No.</b>   | <b>Result</b> | <b>Type of study /<br/>Route of<br/>administration</b>                             | <b>Metabolic<br/>activation /<br/>Exposure time</b> | <b>Species</b> | <b>Method</b>   |
|---|---------------|--|---|----------------|---|
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1 | negative      | bacterial reverse mutation assay (e.g Ames test)                                   | with and without                                    |                | OECD Guideline 471 (Bacterial Reverse Mutation Assay)   |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1 | negative      | mammalian cell gene mutation assay   | with and without                                    |                | OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)   |
| benzyl alcohol<br>100-51-6  | negative      | bacterial reverse mutation assay (e.g Ames test)                                   | with and without                                    |                | equivalent or similar to OECD Guideline 471 (Bacterial Reverse Mutation Assay)  |
| 2,4,6-tris(dimethylaminomethyl)phenol<br>90-72-2                                      | negative      | bacterial reverse mutation assay (e.g Ames test)                                   | with and without                                    |                | OECD Guideline 471 (Bacterial Reverse Mutation Assay)   |
| 2,4,6-tris(dimethylaminomethyl)phenol<br>90-72-2                                      | negative      | in vitro mammalian chromosome aberration test                                      | with and without                                    |                | OECD Guideline 473 (In vitro Mammalian Chromosome Aberration Test)  |
| 2,4,6-tris(dimethylaminomethyl)phenol<br>90-72-2                                      | negative      | mammalian cell gene mutation assay   | with and without                                    |                | OECD Guideline 476 (In vitro Mammalian Cell Gene Mutation Test)   |
| 3,6-diazaoctanethylenediamin<br>112-24-3  | positive      | bacterial reverse mutation assay (e.g Ames test)                                   | with and without                                    |                | OECD Guideline 471 (Bacterial Reverse Mutation Assay)   |
| 3,6-diazaoctanethylenediamin<br>112-24-3  | negative      | DNA damage and repair assay, unscheduled DNA synthesis in mammalian cells in vitro | with and without                                    |                | OECD Guideline 482 (Genetic Toxicology: DNA Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells In Vitro) |
| 2-piperazin-1-ylethylamine<br>140-31-8  | negative      | bacterial reverse mutation assay (e.g Ames test)                                   | with and without                                    |                | OECD Guideline 471 (Bacterial Reverse Mutation Assay)   |
| 2-piperazin-1-ylethylamine<br>140-31-8  | negative      | DNA damage and repair assay, unscheduled DNA synthesis in mammalian cells in vitro | with and without                                    |                | not specified   |
| 2-piperazin-1-ylethylamine<br>140-31-8  | negative      | mammalian cell gene mutation assay   | with and without                                    |                | not specified   |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2  | positive      | bacterial reverse mutation assay (e.g Ames test)                                   | with and without                                    |                | OECD Guideline 471 (Bacterial Reverse Mutation Assay)   |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2  | ambiguous     | sister chromatid exchange assay in mammalian cells                                 | with and without                                    |                | OECD Guideline 479 (Genetic Toxicology: In Vitro Sister Chromatid Exchange Assay in Mammalian Cells)                  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2  | negative      | DNA damage and repair assay, unscheduled DNA synthesis in mammalian cells in vitro | with and without                                    |                | OECD Guideline 482 (Genetic Toxicology: DNA Damage and Repair, Unscheduled DNA Synthesis in Mammalian Cells In Vitro) |
| benzyl alcohol<br>100-51-6  | negative      | intraperitoneal  |   | mouse          | OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)  |
| 3,6-diazaoctanethylenediamin<br>112-24-3  | negative      | intraperitoneal  |   | mouse          | OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test)  |



|   |          |                 |  |       |  |
|---|----------|-----------------|--|-------|--|
| 2-piperazin-1-ylethylamine<br>140-31-8          | negative | intraperitoneal |  | mouse | not specified  |
| 3,6,9-triazaundecamethylenedia mine<br>112-57-2 | negative | intraperitoneal |  | mouse | OECD Guideline 474 (Mammalian Erythrocyte Micronucleus Test) |

### Carcinogenicity

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

| Hazardous components CAS-No. | Result           | Route of application | Exposure time / Frequency of treatment | Species | Sex         | Method   |
|------------------------------|------------------|----------------------|--|---------|-------------|--|
| benzyl alcohol<br>100-51-6   | not carcinogenic | oral: gavage         | 104 weeks once daily, 5 days/week      | rat     | male/female | equivalent or similar OECD Guideline 451 (Carcinogenicity Studies) |

### Reproductive toxicity:

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

| Hazardous substances CAS-No.           | Result / Value                        | Test type | Route of application | Species | Method   |
|--|---------------------------------------|-----------|----------------------|---------|--|
| benzyl alcohol<br>100-51-6             | NOAEL P 200 mg/kg                     | screening | oral: gavage         | mouse   | not specified  |
| 2-piperazin-1-ylethylamine<br>140-31-8 | NOAEL P 8000 ppm<br>NOAEL F1 8000 ppm | screening | oral: drinking water | rat     | OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test) |

### STOT-single exposure:

No data available.

**STOT-repeated exposure::**

The mixture is classified based on threshold limits referring to the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.                        | Result / Value  | Route of<br>application    | Exposure time /<br>Frequency of<br>treatment | Species | Method  |
|--|-----------------|----------------------------|--|---------|---|
| benzyl alcohol<br>100-51-6                             | NOAEL 400 mg/kg | oral: gavage               | 13 weeks<br>once daily, 5<br>days/week       | rat     | equivalent or similar to<br>OECD Guideline 408<br>(Repeated Dose 90-Day<br>Oral Toxicity in Rodents)                                    |
| 3,6-<br>diazaoctanethylenediamin<br>112-24-3           | LOAEL 50 mg/kg  | oral: gavage               | 26 w<br>daily                                | rat     | OECD Guideline 408<br>(Repeated Dose 90-Day<br>Oral Toxicity in Rodents)  |
| 3,6-<br>diazaoctanethylenediamin<br>112-24-3           | NOAEL 50 mg/kg  | oral: gavage               | 26 w<br>daily                                | rat     | OECD Guideline 408<br>(Repeated Dose 90-Day<br>Oral Toxicity in Rodents)  |
| 2-piperazin-1-<br>ylethylamine<br>140-31-8             | NOAEL 2000 ppm  | oral:<br>drinking<br>water | >= 28 d<br>daily                             | rat     | OECD Guideline 422<br>(Combined Repeated<br>Dose Toxicity Study with<br>the Reproduction /<br>Developmental Toxicity<br>Screening Test) |
| 3,6,9-<br>triazoundecamethylenedia<br>mine<br>112-57-2 | LOAEL 50 mg/kg  | oral: gavage               | 26 w<br>daily                                | rat     | OECD Guideline 408<br>(Repeated Dose 90-Day<br>Oral Toxicity in Rodents)  |
| 3,6,9-<br>triazoundecamethylenedia<br>mine<br>112-57-2 | NOAEL 50 mg/kg  | oral: gavage               | 26 w<br>daily                                | rat     | OECD Guideline 408<br>(Repeated Dose 90-Day<br>Oral Toxicity in Rodents)  |

**Aspiration hazard:**

No data available.

## SECTION 12: Ecological information

### General ecological information:

Do not empty into drains / surface water / ground water.

### 12.1. Toxicity

#### Toxicity (Fish):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances CAS-No.   | Value type | Value      | Exposure time | Species   | Method   |
|--|------------|------------|---------------|---|--|
| Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine 68082-29-1 | LC50       | 7,07 mg/l  | 96 h          | Danio rerio                                     | OECD Guideline 203 (Fish, Acute Toxicity Test)   |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer 68082-29-1   | LC50       | 7,07 mg/l  | 96 h          | Danio rerio                                     | OECD Guideline 203 (Fish, Acute Toxicity Test)   |
| benzyl alcohol 100-51-6  | LC50       | 460 mg/l   | 96 h          | Pimephales promelas                             | EPA OPP 72-1 (Fish Acute Toxicity Test)  |
| 2,4,6-tris(dimethylaminomethyl)phenol 90-72-2  | LC50       | 153 mg/l   | 96 h          | Brachydanio rerio (new name: Danio rerio)       | ISO 7346-1 (Determination of the Acute Lethal Toxicity of Substances to a Freshwater Fish [Brachydanio rerio Hamilton-Buchanan (Teleostei, Cyprinidae)]) |
| 3,6-diazaoctanethylenediamine 112-24-3   | LC50       | 570 mg/l   | 96 h          | Poecilia reticulata                             | OECD Guideline 203 (Fish, Acute Toxicity Test)   |
| 2-piperazin-1-ylethylamine 140-31-8  | LC50       | > 100 mg/l | 96 h          | Salmo gairdneri (new name: Oncorhynchus mykiss) | OECD Guideline 203 (Fish, Acute Toxicity Test)   |
| 3,6,9-triazaundecamethylenediamine 112-57-2  | LC50       | 420 mg/l   | 96 h          | Poecilia reticulata                             | OECD Guideline 203 (Fish, Acute Toxicity Test)   |

#### Toxicity (Daphnia):

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances CAS-No.   | Value type | Value     | Exposure time | Species       | Method   |
|--|------------|-----------|---------------|---------------|--|
| Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine 68082-29-1 | EC50       | 7,07 mg/l | 48 h          | Daphnia magna | OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test) |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer 68082-29-1   | EC50       | 7,07 mg/l | 48 h          | Daphnia magna | OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test) |
| benzyl alcohol 100-51-6  | EC50       | 230 mg/l  | 48 h          | Daphnia magna | OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test) |
| 3,6-diazaoctanethylenediamine 112-24-3   | EC50       | 31 mg/l   | 48 h          | Daphnia magna | OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test) |
| 2-piperazin-1-ylethylamine 140-31-8  | EC50       | 32 mg/l   | 48 h          | Daphnia magna | OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test) |
| 3,6,9-triazaundecamethylenediamine 112-57-2  | EC50       | 24,1 mg/l | 48 h          | Daphnia magna | OECD Guideline 202 (Daphnia sp. Acute Immobilisation Test) |

#### Chronic toxicity to aquatic invertebrates

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances<br>CAS-No. | Value<br>type | Value   | Exposure time | Species       | Method   |
|---------------------------------|---------------|---------|---------------|---------------|--|
| benzyl alcohol<br>100-51-6      | NOEC          | 51 mg/l | 21 d          | Daphnia magna | OECD 211 (Daphnia<br>magna, Reproduction Test) |

**Toxicity (Algae):**

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.  | Value<br>type | Value      | Exposure time | Species   | Method  |
|--|---------------|------------|---------------|---|---|
| Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine 68082-29-1 | EC50          | 4,34 mg/l  | 72 h          | Pseudokirchneriella subcapitata                                       | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine 68082-29-1 | NOEC          | 0,5 mg/l   | 72 h          | Pseudokirchneriella subcapitata                                       | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer 68082-29-1   | EC50          | 4,34 mg/l  | 72 h          | Pseudokirchneriella subcapitata                                       | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer 68082-29-1   | NOEC          | 0,5 mg/l   | 72 h          | Pseudokirchneriella subcapitata                                       | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| benzyl alcohol 100-51-6  | EC50          | 770 mg/l   | 72 h          | Pseudokirchneriella subcapitata                                       | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| benzyl alcohol 100-51-6  | NOEC          | 310 mg/l   | 72 h          | Pseudokirchneriella subcapitata                                       | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| 2,4,6-tris(dimethylaminomethyl)phenol 90-72-2  | EC50          | 84 mg/l    | 72 h          | Scenedesmus subspicatus (new name: Desmodesmus subspicatus)           | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| 2,4,6-tris(dimethylaminomethyl)phenol 90-72-2  | NOEC          | 6,25 mg/l  | 72 h          | Desmodesmus subspicatus   | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| 3,6-diazaoctanethylenediamin 112-24-3  | EC10          | < 2,5 mg/l | 72 h          | Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata) | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| 3,6-diazaoctanethylenediamin 112-24-3  | EC50          | 20 mg/l    | 72 h          | Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata) | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| 2-piperazin-1-ylethylamine 140-31-8  | NOEC          | 31 mg/l    | 72 h          | Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata) | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| 2-piperazin-1-ylethylamine 140-31-8  | EC50          | 495 mg/l   | 72 h          | Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata) | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| 3,6,9-triazaundecamethylenediamine 112-57-2  | NOEC          | 0,5 mg/l   | 72 h          | Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata) | OECD Guideline 201 (Alga, Growth Inhibition Test) |
| 3,6,9-triazaundecamethylenediamine 112-57-2  | EC50          | 6,8 mg/l   | 72 h          | Selenastrum capricornutum (new name: Pseudokirchneriella subcapitata) | OECD Guideline 201 (Alga, Growth Inhibition Test) |

#### Toxicity to microorganisms

The mixture is classified based on calculation method referring to the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.  | Value<br>type | Value    | Exposure time | Species   | Method   |
|--|---------------|----------|---------------|---|--|
| Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine 68082-29-1 | EC10          | 130 mg/l | 3 h           | activated sludge of a predominantly domestic sewage | OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test) |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer 68082-29-1   | EC10          | 130 mg/l | 3 h           | activated sludge of a predominantly domestic sewage | OECD Guideline 209 (Activated Sludge, Respiration Inhibition Test) |
| benzyl alcohol 100-51-6  | EC10          | 658 mg/l | 17 h          | Pseudomonas putida                                  | DIN 38412, part 8 (Pseudomonas Zellvermehrungshemm-Test)           |

|  |       |            |        |                    |  |
|--|-------|------------|--------|--------------------|--|
| 2,4,6-tris(dimethylaminomethyl)phenol<br>90-72-2 | EC0   | 27 mg/l    | 16 h   | Pseudomonas putida | DIN 38412, part 8<br>(Pseudomonas Zellvermehrungshemm-Test)                      |
| 3,6-diazaoctanethylenediamin<br>112-24-3         | EC0   | 137 mg/l   | 30 min | Pseudomonas putida | DIN 38412, part 27<br>(Bacterial oxygen consumption test)                        |
| 2-piperazin-1-ylethylamine<br>140-31-8           | EC10  | 100 mg/l   | 17 h   |                    | not specified  |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2   | EC 50 | 1.600 mg/l | 1 h    |                    | EU Method C.11<br>(Biodegradation: Activated Sludge Respiration Inhibition Test) |

### 12.2. Persistence and degradability

The product is not biodegradable.

| Hazardous substances<br>CAS-No.   | Result   | Test type | Degradability | Exposure time | Method   |
|---|--|-----------|---------------|---------------|--|
| Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine<br>68082-29-1 | not readily biodegradable.                       | no data   | 0 - 60 %      | 28 d          | OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)        |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1   | not readily biodegradable.                       | no data   | 0 - 60 %      | 28 d          | OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)        |
| benzyl alcohol<br>100-51-6  | readily biodegradable                            | aerobic   | 92 - 96 %     | 14 d          | OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))    |
| 2,4,6-tris(dimethylaminomethyl)phenol<br>90-72-2  | not readily biodegradable.                       | aerobic   | 4 %           | 28 d          | OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)        |
| 3,6-diazaoctanethylenediamin<br>112-24-3  | not inherently biodegradable                     | aerobic   | 0 %           | 28 d          | OECD Guideline 302 B (Inherent biodegradability: Zahn-Wellens/EMPA Test) |
| 3,6-diazaoctanethylenediamin<br>112-24-3  | not readily biodegradable.                       | aerobic   | 0 %           | 162 d         | OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)        |
| 2-piperazin-1-ylethylamine<br>140-31-8  | under test conditions no biodegradation observed | aerobic   | 0 %           | 28 d          | OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)        |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2  | under test conditions no biodegradation observed | aerobic   | 0 %           | 28 d          | OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)        |

### 12.3. Bioaccumulative potential

No data available.

### 12.4. Mobility in soil

Cured adhesives are immobile.

| Hazardous substances<br>CAS-No.   | LogPow | Temperature | Method   |
|---|--------|-------------|--|
| Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine<br>68082-29-1 | 10,34  |             | QSAR (Quantitative Structure Activity Relationship)                                |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1   | 10,34  |             | QSAR (Quantitative Structure Activity Relationship)                                |
| benzyl alcohol<br>100-51-6  | 1,05   | 20 °C       | EU Method A.8 (Partition Coefficient)  |
| 2,4,6-tris(dimethylaminomethyl)phenol<br>90-72-2  | -0,66  | 21,5 °C     | EPA OPPTS 830.7550 (Partition Coefficient, n-octanol / H2O, Shake Flask Method)    |
| 3,6-diazaoctanethylenediamin<br>112-24-3  | -2,65  |             | OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method) |
| 2-piperazin-1-ylethylamine<br>140-31-8  | -1,48  |             | OECD Guideline 107 (Partition Coefficient (n-octanol / water), Shake Flask Method) |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2  | -3,16  |             | not specified  |

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

| Hazardous substances<br>CAS-No.   | PBT / vPvB  |
|---|---|
| Fatty acids, C18-unsatd., dimers, oligomeric reaction products with tall-oil fatty acids and triethylenetetramine<br>68082-29-1 | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |
| C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer<br>68082-29-1   | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |
| Polyamide adduct<br>106906-26-7   | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |
| benzyl alcohol<br>100-51-6  | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |
| 2,4,6-tris(dimethylaminomethyl)phenol<br>90-72-2  | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |
| 3,6-diazaoctanethylenediamin<br>112-24-3  | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |
| 2-piperazin-1-ylethylamine<br>140-31-8  | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |
| 3,6,9-triazaundecamethylenediamine<br>112-57-2  | Not fulfilling Persistent, Bioaccumulative and Toxic (PBT), very Persistent and very Bioaccumulative (vPvB) criteria. |

#### 12.6. Other adverse effects

No data available.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

**Product disposal:**

Collection and delivery to recycling enterprise or other registered elimination institution.  
Dispose of in accordance with local and national regulations.

**Disposal of uncleaned packages:**

After use, tubes, cartons and bottles containing residual product should be disposed of as chemically contaminated waste in an authorised legal land fill site or incinerated.  
Disposal must be made according to official regulations.

**Waste code**

The valid EWC waste code numbers are source-related. The manufacturer is therefore unable to specify EWC waste codes for the articles or products used in the various sectors. The EWC codes listed are intended as a recommendation for users. We will be happy to advise you.

08 04 09\* waste adhesives and sealants containing organic solvents and other dangerous substances

**SECTION 14: Transport information****14.1. UN number**

|      |      |
|------|------|
| ADR  | 2735 |
| RID  | 2735 |
| ADN  | 2735 |
| IMDG | 2735 |
| IATA | 2735 |

**14.2. UN proper shipping name**

|      |  |
|------|--|
| ADR  | AMINES, LIQUID, CORROSIVE, N.O.S. (2,4,6-Tris(dimethyl amino methyl) phenole,Triethylenetetramine)   |
| RID  | AMINES, LIQUID, CORROSIVE, N.O.S. (2,4,6-Tris(dimethyl amino methyl) phenole,Triethylenetetramine)   |
| ADN  | AMINES, LIQUID, CORROSIVE, N.O.S. (2,4,6-Tris(dimethyl amino methyl) phenole,Triethylenetetramine)   |
| IMDG | AMINES, LIQUID, CORROSIVE, N.O.S. (2,4,6-Tris(dimethyl amino methyl) phenole,Triethylenetetramine,C18 Fatty acid dimer, tall oil fatty acid, triethylenetetramine polymer) |
| IATA | Amines, liquid, corrosive, n.o.s. (2,4,6-Tris(dimethyl amino methyl) phenole,Triethylenetetramine)   |

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

|      |   |
|------|---|
| ADR  | 8 |
| RID  | 8 |
| ADN  | 8 |
| IMDG | 8 |
| IATA | 8 |

**14.4. Packing group**

|      |     |
|------|-----|
| ADR  | III |
| RID  | III |
| ADN  | III |
| IMDG | III |
| IATA | III |

**14.5. Environmental hazards**

|     |                           |
|-----|---------------------------|
| ADR | Environmentally Hazardous |
| RID | Environmentally Hazardous |



ADN Environmentally Hazardous  
IMDG Marine pollutant  
IATA not applicable

**14.6. Special precautions for user**

ADR not applicable  
Tunnelcode: (E)  
RID not applicable  
ADN not applicable  
IMDG not applicable  
IATA not applicable

**14.7. Transport in bulk according to Annex II of Marpol and the IBC Code**

not applicable

**SECTION 15: Regulatory information**

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

|  |                |
|--|----------------|
| Ozone Depleting Substance (ODS) (Regulation 1005/2009/EC):       | Not applicable |
| Prior Informed Consent (PIC) (Regulation 649/2012/EC):           | Not applicable |
| Persistent Organic Pollutants (POPs) (Regulation 2019/1021/EC) : | Not applicable |

**EU. REACH, Annex XVII, Marketing and Use Restrictions (Regulation 1907/2006/EC):** Not applicable

VOC content < 3,00 % Combined A/B  
(2010/75/EC)

**15.2. Chemical safety assessment**

A chemical safety assessment has not been carried out.

**SECTION 16: Other information**

The labelling of the product is indicated in Section 2. The full text of all abbreviations indicated by codes in this safety data sheet are as follows:

- H302 Harmful if swallowed.
- H311 Toxic in contact with skin.
- H312 Harmful in contact with skin.
- H314 Causes severe skin burns and eye damage.
- 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.
- H361 Suspected of damaging fertility or the unborn child.
- H400 Very toxic to aquatic life.
- H411 Toxic to aquatic life with long lasting effects.
- H412 Harmful to aquatic life with long lasting effects.

**Further information:**

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This information is based on our current level of knowledge and relates to the product in the state in which it is delivered. It is intended to describe our products from the point of view of safety requirements and is not intended to guarantee any particular properties.

Dear Customer,

Henkel is committed to creating a sustainable future by promoting opportunities along the entire value chain. If you would like to contribute by switching from a paper to the electronic version of SDS, please contact the local Customer Service representative. We recommend to use a non-personal email address (e.g. SDS@your\_company.com).

**Relevant changes in this safety data sheet are indicated by vertical lines at the left margin in the body of this document. Corresponding text is displayed in a different color on shadowed fields.**