



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

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LOCTITE ECCOBOND FP4531

SDS No. : 213458

V006.0

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Replaces version from: 30.10.2025

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

#### 1.1. Product identifier

LOCTITE ECCOBOND FP4531

UFI: KV1M-EX6V-720C-C90Y

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

Intended use:

Encapsulant

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

Henkel Ireland

Operations and Research Limited

Tallaght Business Park, Whitestown

24 Dublin

Ireland

Phone: +353 (0353) 1 404 6444

SDSinfo.Adhesive@henkel.com

For Safety Data Sheet updates please visit our website [www.mysds.henkel.com](http://www.mysds.henkel.com) or [www.henkel-adhesives.com](http://www.henkel-adhesives.com).

#### 1.4. Emergency telephone number

00353 14046280

National Poisons Information Centre: Members of Public: +353 (1) 809 2166. (8.00 a.m. to 10.00 p.m. 7 days a week)

Healthcare Professionals: +353 (1) 809 2566 (24-hour service)

### SECTION 2: Hazards identification

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

##### Classification (CLP):

|                                                                                 |            |
|---------------------------------------------------------------------------------|------------|
| Skin irritation                                                                 | Category 2 |
| H315 Causes skin irritation.                                                    |            |
| Serious eye damage                                                              | Category 1 |
| H318 Causes serious eye damage.                                                 |            |
| Respiratory sensitizer                                                          | Category 1 |
| H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. |            |
| Skin sensitizer                                                                 | Category 1 |
| H317 May cause an allergic skin reaction.                                       |            |
| Germ cell mutagenicity                                                          | Category 2 |
| H341 Suspected of causing genetic defects.                                      |            |
| Chronic hazards to the aquatic environment                                      | Category 3 |
| H412 Harmful to aquatic life with long lasting effects.                         |            |

## 2.2. Label elements

### Label elements (CLP):

|                                                      |                                                                                                                                                                                                                                                                                                                                                                                                  |  |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Hazard pictogram:</b>                             |                                                                                                                                                                                                                                                                                                                 |  |
| <b>Contains</b>                                      | <p>hexahydromethylphthalic anhydride</p> <p>1,6-Naphthalenediol diglycidyl ether<br/>Bisphenol-F epichlorhydrin resin; MW&lt;700<br/>Methyltetrahydrophthalic anhydride</p>                                                                                                                                                                                                                      |  |
| <b>Signal word:</b>                                  | Danger                                                                                                                                                                                                                                                                                                                                                                                           |  |
| <b>Hazard statement:</b>                             | <p>H315 Causes skin irritation.</p> <p>H317 May cause an allergic skin reaction.</p> <p>H318 Causes serious eye damage.</p> <p>H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.</p> <p>H341 Suspected of causing genetic defects.</p> <p>H412 Harmful to aquatic life with long lasting effects.</p>                                                              |  |
| <b>Precautionary statement:</b><br><b>Prevention</b> | <p>P261 Avoid breathing vapors.</p> <p>P273 Avoid release to the environment.</p> <p>P280 Wear protective gloves/protective clothing/eye protection/face protection.</p>                                                                                                                                                                                                                         |  |
| <b>Precautionary statement:</b><br><b>Response</b>   | <p>P302+P352 IF ON SKIN: Wash with plenty of soap and water.</p> <p>P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P333+P313 If skin irritation or rash occurs: Get medical advice/attention.</p> <p>P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor.</p> |  |

## 2.3. Other hazards

None if used properly.

Following substances are present in a concentration  $\geq$  the concentration limit for depiction in Section 3 and fulfill the criteria for PBT/vPvB, or were identified as endocrine disruptor (ED):

This mixture does not contain any substances in a concentration  $\geq$  the concentration limit for depiction in Section 3 that are assessed to be a PBT, vPvB or ED.

## 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.<br>EC No<br>REACH-Reg. No.                           | Concentration | Classification                                                                                                                            | Specific Conc. Limits, M-<br>factors and ATEs | Add.<br>Information |
|--------------------------------------------------------------------------------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|---------------------|
| hexahydromethylphthalic<br>anhydride<br>25550-51-0<br>247-094-1<br>01-2119845474-33  | 10- < 20 %    | Eye Dam. 1, H318<br>Skin Sens. 1, H317<br>Resp. Sens. 1, H334                                                                             |                                               | SVHC                |
| 1,6-Naphthalenediol diglycidyl<br>ether<br>27610-48-6<br>429-960-2                   | 5- < 10 %     | Muta. 2, H341<br>Acute Tox. 4, Dermal, H312<br>Skin Irrit. 2, H315<br>Skin Sens. 1, H317<br>Eye Irrit. 2, H319<br>Aquatic Chronic 3, H412 | oral:ATE = 2.500 mg/kg                        |                     |
| Bisphenol-F epichlorhydrin<br>resin; MW<700<br>-----<br>01-2119454392-40             | 5- < 10 %     | Skin Irrit. 2, H315<br>Skin Sens. 1A, H317<br>Aquatic Chronic 2, H411                                                                     |                                               |                     |
| Methyltetrahydrophthalic<br>anhydride<br>34090-76-1<br>251-823-9<br>01-2119513209-45 | 1- < 3 %      | Resp. Sens. 1, H334<br>Skin Sens. 1, H317<br>Eye Dam. 1, H318                                                                             |                                               |                     |

If no ATE values are displayed, please refer to LD/LC50 values in Section 11.

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

**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.

RESPIRATORY: Irritation, coughing, shortness of breath, chest tightness.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

SKIN: Redness, inflammation.

After eye contact: Corrosive, may cause permanent damage to eyes (impairment of vision).

**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:

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

Dispose of contaminated material as waste according to Section 13.

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.

### 6.4. Reference to other sections

See advice in section 8

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Avoid skin and eye contact.

See advice in section 8

#### Hygiene measures:

Good industrial hygiene practices should be observed.

Do not eat, drink or smoke while working.

Wash hands before work breaks and after finishing work.

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

Store in sealed original container.

Protect against contamination.

Store in a cool, dry place.

Ensure that storage and workrooms are adequately ventilated.

Must be stored in a room with spill collection facilities.

Keep away from heat and direct sunlight.

Refer to Technical Data Sheet.

### 7.3. Specific end use(s)

Encapsulant

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

| Ingredient [Regulated substance]                    | ppm | mg/m <sup>3</sup> | Value type                   | Short term exposure limit category / Remarks | Regulatory list |
|-----------------------------------------------------|-----|-------------------|------------------------------|----------------------------------------------|-----------------|
| Silica, vitreous<br>60676-86-0<br>[SILICA, FUSED]   |     | 0,08              | Time Weighted Average (TWA): |                                              | IR_OEL          |
| Silicon dioxide<br>7631-86-9<br>[SILICA, AMORPHOUS] |     | 6                 | Time Weighted Average (TWA): |                                              | IR_OEL          |
| Silicon dioxide<br>7631-86-9<br>[SILICA, AMORPHOUS] |     | 2,4               | Time Weighted Average (TWA): |                                              | IR_OEL          |

**Occupational Exposure Limits**Valid for  
Great Britain

| Ingredient [Regulated substance]                                                | ppm | mg/m <sup>3</sup> | Value type                   | Short term exposure limit category / Remarks | Regulatory list |
|---------------------------------------------------------------------------------|-----|-------------------|------------------------------|----------------------------------------------|-----------------|
| Silica, vitreous<br>60676-86-0<br>[SILICA, FUSED, RESPIRABLE DUST]              |     | 0,08              | Time Weighted Average (TWA): |                                              | EH40 WEL        |
| Si-oxide amorphous (fumed)<br>7631-86-9<br>[Dust, respirable dust]              |     | 4                 | Time Weighted Average (TWA): |                                              | EH40 WEL        |
| Si-oxide amorphous (fumed)<br>7631-86-9<br>[Dust, inhalable dust]               |     | 10                | Time Weighted Average (TWA): |                                              | EH40 WEL        |
| Si-oxide amorphous (fumed)<br>7631-86-9<br>[Silica, amorphous, inhalable dust]  |     | 6                 | Time Weighted Average (TWA): |                                              | EH40 WEL        |
| Si-oxide amorphous (fumed)<br>7631-86-9<br>[Silica, amorphous, respirable dust] |     | 2,4               | Time Weighted Average (TWA): |                                              | EH40 WEL        |

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

| Name on list                                        | Environmental<br>Compartment       | Exposure<br>period | Value          |     |                 |        | Remarks                             |
|-----------------------------------------------------|------------------------------------|--------------------|----------------|-----|-----------------|--------|-------------------------------------|
|                                                     |                                    |                    | mg/l           | ppm | mg/kg           | others |                                     |
| Hexahydromethylphthalic anhydride<br>25550-51-0     | aqua<br>(freshwater)               |                    | 0,1 mg/l       |     |                 |        |                                     |
| Hexahydromethylphthalic anhydride<br>25550-51-0     | aqua (marine<br>water)             |                    | 0,01 mg/l      |     |                 |        |                                     |
| Hexahydromethylphthalic anhydride<br>25550-51-0     | sewage<br>treatment plant<br>(STP) |                    | 2,19 mg/l      |     |                 |        |                                     |
| Hexahydromethylphthalic anhydride<br>25550-51-0     | sediment<br>(freshwater)           |                    |                |     | 2,69 mg/kg      |        |                                     |
| Hexahydromethylphthalic anhydride<br>25550-51-0     | sediment<br>(marine water)         |                    |                |     | 0,269<br>mg/kg  |        |                                     |
| Hexahydromethylphthalic anhydride<br>25550-51-0     | Air                                |                    |                |     |                 |        | no hazard identified                |
| Hexahydromethylphthalic anhydride<br>25550-51-0     | Soil                               |                    |                |     | 0,603<br>mg/kg  |        |                                     |
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | aqua<br>(freshwater)               |                    | 0,003 mg/l     |     |                 |        |                                     |
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | aqua (marine<br>water)             |                    | 0,0003<br>mg/l |     |                 |        |                                     |
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | sewage<br>treatment plant<br>(STP) |                    | 10 mg/l        |     |                 |        |                                     |
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | sediment<br>(freshwater)           |                    |                |     | 0,294<br>mg/kg  |        |                                     |
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | sediment<br>(marine water)         |                    |                |     | 0,0294<br>mg/kg |        |                                     |
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | Soil                               |                    |                |     | 0,237<br>mg/kg  |        |                                     |
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | aqua<br>(intermittent<br>releases) |                    | 0,0254<br>mg/l |     |                 |        |                                     |
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | Air                                |                    |                |     |                 |        | no hazard identified                |
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | Predator                           |                    |                |     |                 |        | no potential for<br>bioaccumulation |
| Tetrahydro-4-methylphthalic anhydride<br>34090-76-1 | aqua<br>(freshwater)               |                    | 2 mg/l         |     |                 |        |                                     |
| Tetrahydro-4-methylphthalic anhydride<br>34090-76-1 | aqua<br>(intermittent<br>releases) |                    | 0,79 mg/l      |     |                 |        |                                     |
| Tetrahydro-4-methylphthalic anhydride<br>34090-76-1 | aqua (marine<br>water)             |                    | 0,2 mg/l       |     |                 |        |                                     |
| Tetrahydro-4-methylphthalic anhydride<br>34090-76-1 | sediment<br>(freshwater)           |                    |                |     | 27,1 mg/kg      |        |                                     |
| Tetrahydro-4-methylphthalic anhydride<br>34090-76-1 | sediment<br>(marine water)         |                    |                |     | 2,71 mg/kg      |        |                                     |
| Tetrahydro-4-methylphthalic anhydride<br>34090-76-1 | Soil                               |                    |                |     | 4,24 mg/kg      |        |                                     |
| Tetrahydro-4-methylphthalic anhydride<br>34090-76-1 | sewage<br>treatment plant<br>(STP) |                    | 0,69 mg/l      |     |                 |        |                                     |

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

| Name on list                                        | Application Area   | Route of Exposure | Health Effect                             | Exposure Time | Value         | Remarks              |
|-----------------------------------------------------|--------------------|-------------------|-------------------------------------------|---------------|---------------|----------------------|
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | Workers            | Inhalation        | Long term exposure - systemic effects     |               | 29,39 mg/m3   | no hazard identified |
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | Workers            | dermal            | Long term exposure - systemic effects     |               | 104,15 mg/kg  | no hazard identified |
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | Workers            | dermal            | Acute/short term exposure - local effects |               | 0,0083 mg/cm2 | no hazard identified |
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | General population | Inhalation        | Long term exposure - systemic effects     |               | 8,7 mg/m3     | no hazard identified |
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | General population | dermal            | Long term exposure - systemic effects     |               | 62,5 mg/kg    | no hazard identified |
| Reaction mass bisphenol-F-(epichlorhydrin)<br>----- | General population | oral              | Long term exposure - systemic effects     |               | 6,25 mg/kg    | no hazard identified |
| Tetrahydro-4-methylphthalic anhydride<br>34090-76-1 | General population | dermal            | Long term exposure - systemic effects     |               | 10 mg/kg      |                      |
| Tetrahydro-4-methylphthalic anhydride<br>34090-76-1 | General population | oral              | Long term exposure - systemic effects     |               | 10 mg/kg      |                      |
| Tetrahydro-4-methylphthalic anhydride<br>34090-76-1 | Workers            | dermal            | Long term exposure - systemic effects     |               | 10 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 &gt; 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 &gt; 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:

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

|                                                                                                                                     |                                                                                                                                     |
|-------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Delivery form                                                                                                                       | liquid                                                                                                                              |
| Colour                                                                                                                              | Black                                                                                                                               |
| Odor                                                                                                                                | Mild                                                                                                                                |
| Physical state                                                                                                                      | liquid                                                                                                                              |
| Melting point                                                                                                                       | Not applicable, Product is a liquid                                                                                                 |
| Solidification temperature                                                                                                          | Not applicable, Determination technically not possible                                                                              |
| Initial boiling point                                                                                                               | Not applicable, Polymerizes before boiling point is reached.                                                                        |
| Flammability                                                                                                                        | The product is not flammable.                                                                                                       |
| Explosive limits                                                                                                                    | Not available., The product is not flammable.                                                                                       |
| Explosive limits                                                                                                                    | Not applicable, The product is not flammable.                                                                                       |
| Flash point                                                                                                                         | 121,00 °C (249.8 °F)                                                                                                                |
| Auto-ignition temperature                                                                                                           | Not applicable, The product is not flammable.                                                                                       |
| Decomposition temperature                                                                                                           | Not applicable, Substance/mixture is not self-reactive, no organic peroxide and does not decompose under foreseen conditions of use |
| pH                                                                                                                                  | Not applicable, Product is non-soluble (in water).                                                                                  |
| Viscosity (kinematic)<br>(40 °C (104 °F); )                                                                                         | 5.000 - 15.000 mm <sup>2</sup> /s                                                                                                   |
| Viscosity, dynamic<br>(Cone and plate; Instrument: HBT; 25 °C (77 °F);<br>speed of rotation: 10 min <sup>-1</sup> ; Spindle No: 52) | 5.000 - 15.000 cp COI OLN 2B; Stress Rheology                                                                                       |
| Solubility (qualitative)<br>(20 °C (68 °F); Solvent: Water)                                                                         | Not miscible or difficult to mix                                                                                                    |
| Solubility (qualitative)<br>(20 °C (68 °F); Solvent: ketones)                                                                       | Partially miscible                                                                                                                  |
| Partition coefficient: n-octanol/water                                                                                              | Not applicable                                                                                                                      |
| Vapour pressure                                                                                                                     | Mixture<br>Not available.                                                                                                           |
| Density<br>(20 °C (68 °F))                                                                                                          | 1,7 g/cm <sup>3</sup> no method / method unknown                                                                                    |
| Relative vapour density:                                                                                                            | Not available.                                                                                                                      |
| Particle characteristics                                                                                                            | Not applicable<br>Product is a liquid                                                                                               |

### 9.2. Other information

Other information not applicable for this product

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

Reacts with strong oxidants.

Reaction with strong acids.

### 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 hazard classes as defined in Regulation (EC) No 1272/2008****Acute oral toxicity:**

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

Based on available data, the classification criteria are not met.

| Hazardous substances<br>CAS-No.                         | Value<br>type                          | Value         | Species | Method                                                            |
|---------------------------------------------------------|----------------------------------------|---------------|---------|-------------------------------------------------------------------|
| hexahydromethylphthalic<br>anhydride<br>25550-51-0      | LD50                                   | > 2.000 mg/kg | rat     | EU Method B.1 tris (Acute Oral Toxicity)                          |
| 1,6-Naphthalenediol<br>diglycidyl ether<br>27610-48-6   | LD50                                   | > 2.000 mg/kg | rat     | EPA OTS 798.1175 (Acute Oral Toxicity)                            |
| 1,6-Naphthalenediol<br>diglycidyl ether<br>27610-48-6   | Acute<br>toxicity<br>estimate<br>(ATE) | 2.500 mg/kg   |         | Expert judgement                                                  |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>----- | LD50                                   | > 5.000 mg/kg | rat     | equivalent or similar to OECD Guideline 401 (Acute Oral Toxicity) |
| Methyltetrahydrophthalic<br>anhydride<br>34090-76-1     | LD50                                   | > 2.000 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.

Based on available data, the classification criteria are not met.

| Hazardous substances<br>CAS-No.                         | Value<br>type | Value                      | Species | Method                                                              |
|---------------------------------------------------------|---------------|----------------------------|---------|---------------------------------------------------------------------|
| hexahydromethylphthalic<br>anhydride<br>25550-51-0      | LD50          | > 2.000 mg/kg              | rat     | OECD Guideline 402 (Acute Dermal Toxicity)                          |
| 1,6-Naphthalenediol<br>diglycidyl ether<br>27610-48-6   | LD50          | > 1.000 - <<br>2.000 mg/kg | rat     | EPA OTS 798.1100 (Acute Dermal Toxicity)                            |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>----- | LD50          | > 2.000 mg/kg              | rat     | equivalent or similar to OECD Guideline 402 (Acute Dermal Toxicity) |
| Methyltetrahydrophthalic<br>anhydride<br>34090-76-1     | 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<br>CAS-No.                         | Result                   | Exposure<br>time | Species | Method                                                                               |
|---------------------------------------------------------|--------------------------|------------------|---------|--------------------------------------------------------------------------------------|
| hexahydromethylphthalic<br>anhydride<br>25550-51-0      | moderately<br>irritating | 24 h             | rabbit  | other guideline:                                                                     |
| 1,6-Naphthalenediol<br>diglycidyl ether<br>27610-48-6   | irritating               |                  | rabbit  | EPA OTS 798.4470 (Acute Dermal Irritation)                                           |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>----- | irritating               | 4 h              | rabbit  | equivalent or similar to OECD Guideline 404 (Acute<br>Dermal Irritation / Corrosion) |

**Serious eye damage/irritation:**

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

| Hazardous substances<br>CAS-No.                         | Result         | Exposure<br>time | Species | Method                                                                            |
|---------------------------------------------------------|----------------|------------------|---------|-----------------------------------------------------------------------------------|
| 1,6-Naphthalenediol<br>diglycidyl ether<br>27610-48-6   | irritating     |                  | rabbit  | EPA OTS 798.4500 (Acute Eye Irritation)                                           |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>----- | not irritating |                  | rabbit  | equivalent or similar to OECD Guideline 405 (Acute Eye<br>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                                                             |
|---------------------------------------------------------|----------------------------------|---------------------------------------|------------|--------------------------------------------------------------------|
| 1,6-Naphthalenediol<br>diglycidyl ether<br>27610-48-6   | sensitising                      | Buehler test                          | guinea pig | EPA OTS 798.4100 (Skin Sensitisation)                              |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>----- | Sub-Category 1A<br>(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                                                                                                |
|---------------------------------------------------------|----------|--------------------------------------------------------|--------------------------------------------|---------|-------------------------------------------------------------------------------------------------------|
| hexahydromethylphthalic<br>anhydride<br>25550-51-0      | negative | bacterial reverse<br>mutation assay (e.g<br>Ames test) | with and without                           |         | OECD Guideline 471<br>(Bacterial Reverse Mutation<br>Assay)                                           |
| hexahydromethylphthalic<br>anhydride<br>25550-51-0      | negative | in vitro mammalian<br>chromosome<br>aberration test    | with and without                           |         | OECD Guideline 473 (In vitro<br>Mammalian Chromosome<br>Aberration Test)                              |
| hexahydromethylphthalic<br>anhydride<br>25550-51-0      | negative | mammalian cell<br>gene mutation assay                  | with and without                           |         | OECD Guideline 476 (In vitro<br>Mammalian Cell Gene<br>Mutation Test)                                 |
| 1,6-Naphthalenediol<br>diglycidyl ether<br>27610-48-6   | negative | in vitro mammalian<br>chromosome<br>aberration test    | with                                       |         | OECD Guideline 473 (In vitro<br>Mammalian Chromosome<br>Aberration Test)                              |
| 1,6-Naphthalenediol<br>diglycidyl ether<br>27610-48-6   | positive | in vitro mammalian<br>chromosome<br>aberration test    | without                                    |         | OECD Guideline 473 (In vitro<br>Mammalian Chromosome<br>Aberration Test)                              |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>----- | positive | bacterial reverse<br>mutation assay (e.g<br>Ames test) | with and without                           |         | OECD Guideline 471<br>(Bacterial Reverse Mutation<br>Assay)                                           |
| Methyltetrahydrophthalic<br>anhydride<br>34090-76-1     | negative | mammalian cell<br>gene mutation assay                  | with and without                           |         | OECD Guideline 476 (In vitro<br>Mammalian Cell Gene<br>Mutation Test)                                 |
| 1,6-Naphthalenediol<br>diglycidyl ether<br>27610-48-6   | positive | intraperitoneal                                        |                                            | mouse   | OECD Guideline 474<br>(Mammalian Erythrocyte<br>Micronucleus Test)                                    |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>----- | negative | oral: gavage                                           |                                            | mouse   | OECD Guideline 474<br>(Mammalian Erythrocyte<br>Micronucleus Test)                                    |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>----- | negative | oral: gavage                                           |                                            | rat     | OECD Guideline 486<br>(Unscheduled DNA Synthesis<br>(UDS) Test with Mammalian<br>Liver Cells in vivo) |

**Carcinogenicity**

No data available.

**Reproductive toxicity:**

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

Based on available data, the classification criteria are not met.

| Hazardous substances<br>CAS-No.                         | Result / Value                                                  | Test type                   | Route of<br>application | Species | Method                                                                             |
|---------------------------------------------------------|-----------------------------------------------------------------|-----------------------------|-------------------------|---------|------------------------------------------------------------------------------------|
| hexahydromethylphthalic<br>anhydride<br>25550-51-0      | NOAEL P 450 mg/kg                                               | screening                   | oral: gavage            | rat     | OECD Guideline 421<br>(Reproduction /<br>Developmental Toxicity<br>Screening Test) |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>----- | NOAEL P > 750 mg/kg<br>NOAEL F1 750 mg/kg<br>NOAEL F2 750 mg/kg | two-<br>generation<br>study | oral: gavage            | rat     | OECD Guideline 416 (Two-<br>Generation Reproduction<br>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.

Based on available data, the classification criteria are not met.

| Hazardous substances<br>CAS-No.                         | Result / Value  | Route of<br>application | Exposure time /<br>Frequency of<br>treatment | Species | Method                                                                   |
|---------------------------------------------------------|-----------------|-------------------------|----------------------------------------------|---------|--------------------------------------------------------------------------|
| hexahydromethylphthalic<br>anhydride<br>25550-51-0      | NOAEL 450 mg/kg | oral: gavage            | 28 d<br>once a day, 7 days a<br>week         | rat     | OECD Guideline 407<br>(Repeated Dose 28-Day<br>Oral Toxicity in Rodents) |
| Bisphenol-F<br>epichlorhydrin resin;<br>MW<700<br>----- | NOAEL 250 mg/kg | oral: gavage            | 13 w<br>daily                                | rat     | OECD Guideline 408<br>(Repeated Dose 90-Day<br>Oral Toxicity in Rodents) |

**Aspiration hazard:**

No data available.

**11.2 Information on other hazards****11.2.1 Endocrine disrupting properties**

For the following ingredient(s) information on adverse health effects caused by endocrine disrupting properties is publicly available on the ECHA website:

Substances identified as ED according to EU REACH SVHC list: <https://echa.europa.eu/candidate-list-table>

| Hazardous components                 | CAS No.    | Link ECHA website |
|--------------------------------------|------------|-------------------|
| hexahydromethylphthalic<br>anhydride | 25550-51-0 |                   |

**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.

The table below presents the data of the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.                      | Value<br>type | Value      | Exposure time | Species         | Method                                            |
|------------------------------------------------------|---------------|------------|---------------|-----------------|---------------------------------------------------|
| hexahydromethylphthalic<br>anhydride<br>25550-51-0   | LC50          | 500 mg/l   | 48 h          | Oryzias latipes | OECD Guideline 203 (Fish,<br>Acute Toxicity Test) |
| Bisphenol-F epichlorhydrin<br>resin; MW<700<br>----- | LC50          | 5,7 mg/l   | 96 h          | Leuciscus idus  | OECD Guideline 203 (Fish,<br>Acute Toxicity Test) |
| Methyltetrahydrophthalic<br>anhydride<br>34090-76-1  | LC50          | > 100 mg/l | 96 h          | Oryzias latipes | OECD Guideline 203 (Fish,<br>Acute Toxicity Test) |

**Toxicity (aquatic invertebrates):**

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

The table below presents the data of the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.                      | Value<br>type | Value      | Exposure time | Species       | Method                                                           |
|------------------------------------------------------|---------------|------------|---------------|---------------|------------------------------------------------------------------|
| hexahydromethylphthalic<br>anhydride<br>25550-51-0   | EC50          | > 100 mg/l | 48 h          | Daphnia magna | OECD Guideline 202<br>(Daphnia sp. Acute<br>Immobilisation Test) |
| Bisphenol-F epichlorhydrin<br>resin; MW<700<br>----- | EC50          | 2,55 mg/l  | 48 h          | Daphnia magna | OECD Guideline 202<br>(Daphnia sp. Acute<br>Immobilisation Test) |
| Methyltetrahydrophthalic<br>anhydride<br>34090-76-1  | EC50          | 130 mg/l   | 48 h          | Daphnia magna | OECD Guideline 202<br>(Daphnia sp. Acute<br>Immobilisation Test) |

**Chronic toxicity (aquatic invertebrates):**

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

The table below presents the data of the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.                      | Value<br>type | Value    | Exposure time | Species       | Method                                         |
|------------------------------------------------------|---------------|----------|---------------|---------------|------------------------------------------------|
| Bisphenol-F epichlorhydrin<br>resin; MW<700<br>----- | NOEC          | 0,3 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.

The table below presents the data of the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.                      | Value<br>type | Value    | Exposure time | Species                                                                     | Method                                               |
|------------------------------------------------------|---------------|----------|---------------|-----------------------------------------------------------------------------|------------------------------------------------------|
| hexahydromethylphthalic<br>anhydride<br>25550-51-0   | EC50          | 135 mg/l | 72 h          | Pseudokirchneriella subcapitata                                             | OECD Guideline 201 (Alga,<br>Growth Inhibition Test) |
| hexahydromethylphthalic<br>anhydride<br>25550-51-0   | NOEC          | 32 mg/l  | 72 h          | Pseudokirchneriella subcapitata                                             | OECD Guideline 201 (Alga,<br>Growth Inhibition Test) |
| Bisphenol-F epichlorhydrin<br>resin; MW<700<br>----- | EC50          | 1,8 mg/l | 72 h          | Pseudokirchneriella subcapitata                                             | OECD Guideline 201 (Alga,<br>Growth Inhibition Test) |
| Methyltetrahydrophthalic<br>anhydride<br>34090-76-1  | EC50          | 79 mg/l  | 72 h          | Selenastrum capricornutum<br>(new name: Pseudokirchneriella<br>subcapitata) | OECD Guideline 201 (Alga,<br>Growth Inhibition Test) |
| Methyltetrahydrophthalic<br>anhydride<br>34090-76-1  | NOEC          | 32 mg/l  | 72 h          | Selenastrum capricornutum<br>(new name: Pseudokirchneriella<br>subcapitata) | OECD Guideline 201 (Alga,<br>Growth Inhibition Test) |

#### Toxicity (microorganisms):

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

The table below presents the data of the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.                      | Value<br>type | Value        | Exposure time | Species                      | Method                                                                            |
|------------------------------------------------------|---------------|--------------|---------------|------------------------------|-----------------------------------------------------------------------------------|
| hexahydromethylphthalic<br>anhydride<br>25550-51-0   | EC20          | 95,3 mg/l    | 3 h           | activated sludge, domestic   | OECD Guideline 209<br>(Activated Sludge,<br>Respiration Inhibition Test)          |
| Bisphenol-F epichlorhydrin<br>resin; MW<700<br>----- | IC50          | > 100 mg/l   | 3 h           | activated sludge, industrial | other guideline:                                                                  |
| Methyltetrahydrophthalic<br>anhydride<br>34090-76-1  | EC50          | > 1.000 mg/l | 3 h           |                              | ISO 8192 (Test for<br>Inhibition of Oxygen<br>Consumption by Activated<br>Sludge) |

#### 12.2. Persistence and degradability

The table below presents the data of the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.                      | Result                     | Test type | Degradability | Exposure<br>time | Method                                                                            |
|------------------------------------------------------|----------------------------|-----------|---------------|------------------|-----------------------------------------------------------------------------------|
| hexahydromethylphthalic<br>anhydride<br>25550-51-0   | not readily biodegradable. | aerobic   | 2 %           | 28 d             | OECD Guideline 301 F (Ready<br>Biodegradability: Manometric<br>Respirometry Test) |
| Bisphenol-F epichlorhydrin<br>resin; MW<700<br>----- | not readily biodegradable. | aerobic   | 0 %           | 28 d             | OECD Guideline 301 D (Ready<br>Biodegradability: Closed Bottle<br>Test)           |
| Methyltetrahydrophthalic<br>anhydride<br>34090-76-1  | not readily biodegradable. | aerobic   | 0 %           | 28 d             | OECD Guideline 301 C (Ready<br>Biodegradability: Modified MITI<br>Test (I))       |

#### 12.3. Bioaccumulative potential

The table below presents the data of the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.                    | Bioconcentratio<br>n factor (BCF) | Exposure time | Temperature | Species    | Method                                                 |
|----------------------------------------------------|-----------------------------------|---------------|-------------|------------|--------------------------------------------------------|
| hexahydromethylphthalic<br>anhydride<br>25550-51-0 | 11,12                             |               |             | calculated | QSAR (Quantitative Structure<br>Activity Relationship) |

#### 12.4. Mobility in soil

The table below presents the data of the classified substances present in the mixture.

| Hazardous substances<br>CAS-No.                      | LogPow    | Temperature | Method                                                                         |
|------------------------------------------------------|-----------|-------------|--------------------------------------------------------------------------------|
| hexahydromethylphthalic<br>anhydride<br>25550-51-0   | 2,59      | 25 °C       | QSAR (Quantitative Structure Activity Relationship)                            |
| Bisphenol-F epichlorhydrin<br>resin; MW<700<br>----- | 2,7 - 3,6 |             | OECD Guideline 117 (Partition Coefficient (n-octanol / water), HPLC<br>Method) |

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

This mixture does not contain any substances that are assessed to be a PBT or vPvB.

#### 12.6. Endocrine disrupting properties

For the following ingredient(s) information on adverse health effects caused by endocrine disrupting properties is publicly available on the ECHA website:

Substances identified as ED according to EU REACH SVHC list: <https://echa.europa.eu/candidate-list-table>

| Hazardous components                 | CAS No.    | Link ECHA website |
|--------------------------------------|------------|-------------------|
| hexahydromethylphthalic<br>anhydride | 25550-51-0 |                   |

#### 12.7. Other adverse effects

No data available.

### SECTION 13: Disposal considerations

#### 13.1. Waste treatment methods

Product disposal:

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

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.

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.

## SECTION 14: Transport information

- 14.1. UN number or ID number**  
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.
- 14.2. UN proper shipping name**  
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.
- 14.3. Transport hazard class(es)**  
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.
- 14.4. Packing group**  
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.
- 14.5. Environmental hazards**  
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.
- 14.6. Special precautions for user**  
Not hazardous according to RID, ADR, ADN, IMDG, IATA-DGR.
- 14.7. Maritime transport in bulk according to IMO instruments**  
not applicable

## SECTION 15: Regulatory information

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

|                                                                |                |
|----------------------------------------------------------------|----------------|
| Ozone Depleting Substance (ODS) (Regulation (EC) No 2024/590): | Not applicable |
| Prior Informed Consent (PIC) (Regulation (EU) No 649/2012):    | Not applicable |
| Persistent organic pollutants (Regulation (EU) 2019/1021):     | Not applicable |

VOC content < 3 %  
(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:

H312 Harmful in contact with skin.  
H315 Causes skin irritation.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H319 Causes serious eye irritation.  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
H341 Suspected of causing genetic defects.  
H411 Toxic to aquatic life with long lasting effects.  
H412 Harmful to aquatic life with long lasting effects.

Abbreviations and acronyms:

ADG(-Code): Australian Dangerous Goods (Code)  
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways  
ADR : European Agreement concerning the International Carriage of Dangerous Goods by Road  
ASTM: American Society for Testing and Materials  
ATE: acute toxicity estimate  
AS: Australian Standard  
AwSV: Ordinance on Installations for the Handling of Substances Hazardous to Water  
CAS: Chemical Abstract Service  
CLP: Regulation (EC) No 1272/2008  
CMR: cancerogenic, mutagenic or reprotoxic  
DIN: German Institute for Standardization  
ECx: Effective concentration (x% effective level)  
ECHA: European Chemicals Agency  
EC-Nummer: Substance number in the EU-inventories EINECS/ELINCS  
ECTLV: European community threshold limit value  
ED: Substance identified as having endocrine disrupting properties  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
EN : European Standard  
ENCS: Japanese chemical inventory  
EPA: US Environmental Protection Agency  
EU: European Union  
EU EXPLD1: Substance listed in Annex I, Reg (EC) No. 2019/1148  
EU EXPLD2: Substance listed in Annex II, Reg (EC) No. 2019/1148  
EWC: European Waste Catalogue  
GHS: Globally Harmonised System for Classification and Labelling of Chemicals  
GLP: Good Laboratory Practice  
HSNO: Hazardous Substances and New Organisms  
IARC: International Agency for Research of Cancer  
IATA: International Air Transport Association  
IBC-Code: International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk  
IC50: half maximal inhibitory concentration  
ICAO: International Civil Aviation Organization  
IMDG-Code: International Maritime Code for Dangerous Goods  
IMO: International Maritime Organization  
ISO: International Standardization Organisation  
LC50: Median lethal concentration  
LD50: Median lethal dose  
MARPOL: International Convention for the Prevention of Marine Pollution from Ships  
n.o.s.: not otherwise specified  
NO(A)EC: No (adverse) effect concentration  
NO(A)EL: No (adverse) effect level  
NZS: New Zealand Standard  
OECD: Organisation for Economic Co-operation and Development  
OEL: Occupational Exposure Limit  
OPPT: US EPA Office of Pollution Prevention and Toxics  
OPPTS: US EPA Office of Prevention, Pesticides and Toxic Substances  
PBT: Persistent, bioaccumulative, toxic  
(Q)SAR: (Quantitative) structure–activity relationship

REACH: Regulation (EC) No. 1907/2006  
RID: Regulations concerning the International Transport of Dangerous Goods by Rail  
SADT: Self Accelerating Decomposition Temperature  
SDS: Safety Data Sheet  
STOT: Specific Target Organ Toxicity  
STOT SE: Specific Target Organ Toxicity - single exposure  
STOT RE: Specific Target Organ Toxicity - repeated exposure  
SUSMP: Standard for the Uniform Scheduling of Medicines and Poisons  
SVHC: Substance of very high concern (REACH Candidate List)  
TRGS: German Technical Rules for hazardous substances  
UN: United Nations  
VOC: Volatile Organic Compound  
814.018 VOC Reg CH: Swiss Ordinance 814.018 on the Incentive Tax on Volatile Organic Compounds  
vPvB: Very persistent, very bioaccumulative  
VwVwS: Administrative Regulation on Substances Hazardous to Waters  
WGK: Water hazard class

**Further information:**

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