

## SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 30.03.2020

Version 5.4

**SECTION 1. Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

|                           |  |
|---------------------------|--|
| Catalogue No.             | 807331   |
| Product name              | Pentaerythritol for synthesis  |
| REACH Registration Number | A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline. |
| CAS-No.                   | 115-77-5   |

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

|                 |   |
|-----------------|---|
| Identified uses | Chemical for synthesis<br>For additional information on uses please refer to the Merck Chemicals portal ( <a href="http://www.merckgroup.com">www.merckgroup.com</a> ). |
|-----------------|---|

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

|                        |   |
|------------------------|---|
| Company                | Merck KGaA * 64271 Darmstadt * Germany * Phone: +49 6151 72-0                         |
| Responsible Department | LS-QHC * e-mail: <a href="mailto:prodsafe@merckgroup.com">prodsafe@merckgroup.com</a> |

**1.4 Emergency telephone number** **Please contact the regional company representation in your country.****SECTION 2. Hazards identification****2.1 Classification of the substance or mixture****REGULATION (EC) No 1272/2008**

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

**2.2 Label elements****Labelling (REGULATION (EC) No 1272/2008)**

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

**2.3 Other hazards**

None known.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

|               |                               |
|---------------|-------------------------------|
| Catalogue No. | 807331                        |
| Product name  | Pentaerythritol for synthesis |

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## SECTION 3. Composition/information on ingredients

### 3.1 Substance

|            |   |                       |
|------------|---|-----------------------|
| Formula    | $C(CH_2OH)_4$   | $C_5H_{12}O_4$ (Hill) |
| EC-No.     | 204-104-9   |                       |
| Molar mass | 136,14 g/mol  |                       |
| Remarks    | No disclosure requirement according to Regulation (EC) No. 1907/2006. |                       |

### 3.2 Mixture

Not applicable

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## SECTION 4. First aid measures

### 4.1 Description of first aid measures

After inhalation: fresh air.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

After eye contact: rinse out with plenty of water. Remove contact lenses.

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

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

We have no description of any symptoms of toxicity.

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

No information available.

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## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

*Suitable extinguishing media*

Water, Foam, Carbon dioxide (CO<sub>2</sub>), Dry powder

*Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

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

Combustible.

Development of hazardous combustion gases or vapours possible in the event of fire.

### 5.3 Advice for firefighters

*Special protective equipment for firefighters*

In the event of fire, wear self-contained breathing apparatus.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

|               |                               |
|---------------|-------------------------------|
| Catalogue No. | 807331                        |
| Product name  | Pentaerythritol for synthesis |

---

## *Further information*

Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6. Accidental release measures**

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

Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

### **6.2 Environmental precautions**

Do not let product enter drains.

### **6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### **6.4 Reference to other sections**

Indications about waste treatment see section 13.

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## **SECTION 7. Handling and storage**

### **7.1 Precautions for safe handling**

#### *Advice on safe handling*

Observe label precautions.

#### *Hygiene measures*

Change contaminated clothing. Wash hands after working with substance.

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

#### *Storage conditions*

Tightly closed. Dry.

Recommended storage temperature see product label.

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

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

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

### **8.1 Control parameters**

### **8.2 Exposure controls**

#### **Engineering measures**

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 807331  
Product name Pentaerythritol for synthesis

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Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

## Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

### *Eye/face protection*

Safety glasses

### *Hand protection*

full contact:

|                     |                |
|---------------------|----------------|
| Glove material:     | Nitrile rubber |
| Glove thickness:    | 0,11 mm        |
| Break through time: | > 480 min      |

splash contact:

|                     |                |
|---------------------|----------------|
| Glove material:     | Nitrile rubber |
| Glove thickness:    | 0,11 mm        |
| Break through time: | > 480 min      |

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

### *Respiratory protection*

required when dusts are generated.

Recommended Filter type: Filter P 1 (acc. to DIN 3181) for solid particles of inert substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

## Environmental exposure controls

Do not let product enter drains.

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## SECTION 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Form crystals

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

|               |                               |
|---------------|-------------------------------|
| Catalogue No. | 807331                        |
| Product name  | Pentaerythritol for synthesis |

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|  |  |
|--|--|
| Colour                                 | colourless   |
| Odour                                  | odourless  |
| Odour Threshold                        | Not applicable   |
| pH                                     | 3,5 - 4,5<br>at 100 g/l<br>35 °C   |
| Melting point                          | 256 - 258 °C   |
| Boiling point/boiling range            | 276 °C<br>at 40 hPa  |
| Flash point                            | No information available.  |
| Evaporation rate                       | No information available.  |
| Flammability (solid, gas)              | No information available.  |
| Lower explosion limit                  | No information available.  |
| Upper explosion limit                  | No information available.  |
| Vapour pressure                        | < 0,00001 hPa<br>at 20 °C  |
| Relative vapour density                | No information available.  |
| Density                                | 1,39 g/cm <sup>3</sup><br>at 20 °C   |
| Relative density                       | No information available.  |
| Water solubility                       | 72,3 g/l<br>at 25 °C   |
| Partition coefficient: n-octanol/water | log Pow: -1,7<br>OECD Test Guideline 107<br>Bioaccumulation is not expected. |
| Auto-ignition temperature              | No information available.  |
| Decomposition temperature              | No information available.  |
| Viscosity, dynamic                     | No information available.  |
| Explosive properties                   | Not classified as explosive.   |
| Oxidizing properties                   | none   |

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

|               |                               |
|---------------|-------------------------------|
| Catalogue No. | 807331                        |
| Product name  | Pentaerythritol for synthesis |

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## 9.2 Other data

|                      |                             |
|----------------------|-----------------------------|
| Ignition temperature | 490 °C                      |
| Bulk density         | 750 - 850 kg/m <sup>3</sup> |

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## SECTION 10. Stability and reactivity

### 10.1 Reactivity

The following applies in general to flammable organic substances and mixtures: in correspondingly fine distribution, when whirled up a dust explosion potential may generally be assumed.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapours with:

Strong oxidizing agents

Risk of explosion with:

Nitric acid, Acid chlorides

### 10.4 Conditions to avoid

Strong heating (decomposition).

### 10.5 Incompatible materials

no information available

### 10.6 Hazardous decomposition products

no information available

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## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

#### *Acute oral toxicity*

LD<sub>50</sub> Rat: > 5.110 mg/kg

OECD Test Guideline 401

#### *Acute inhalation toxicity*

This information is not available.

#### *Acute dermal toxicity*

LD<sub>50</sub> Rabbit: > 10.000 mg/kg

OECD Test Guideline 402

#### *Skin irritation*

Rabbit

Result: No irritation

OECD Test Guideline 404

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# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

|               |                               |
|---------------|-------------------------------|
| Catalogue No. | 807331                        |
| Product name  | Pentaerythritol for synthesis |

---

## *Eye irritation*

Rabbit

Result: No eye irritation

OECD Test Guideline 405

## *Sensitisation*

This information is not available.

## *Germ cell mutagenicity*

*Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

(IUCLID)

Mutagenicity (mammal cell test): chromosome aberration.

Result: negative

(IUCLID)

## *Carcinogenicity*

This information is not available.

## *Reproductive toxicity*

This information is not available.

## *Teratogenicity*

This information is not available.

## *Specific target organ toxicity - single exposure*

This information is not available.

## *Specific target organ toxicity - repeated exposure*

This information is not available.

## *Aspiration hazard*

This information is not available.

### **11.2 Further information**

Hazardous properties cannot be excluded but are unlikely when the product is handled appropriately.

Handle in accordance with good industrial hygiene and safety practice.

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## **SECTION 12. Ecological information**

### **12.1 Toxicity**

#### *Toxicity to fish*

LC50 *Leuciscus idus* (Golden orfe): > 5.000 mg/l; 48 h

(External MSDS)

#### *Toxicity to daphnia and other aquatic invertebrates*

static test EC50 *Daphnia magna* (Water flea): > 1.000 mg/l; 24 h

OECD Test Guideline 202

#### *Toxicity to algae*

NOEC *Pseudokirchneriella subcapitata* (green algae): > 5.000 mg/l; 72 h

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

|               |                               |
|---------------|-------------------------------|
| Catalogue No. | 807331                        |
| Product name  | Pentaerythritol for synthesis |

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## *Toxicity to bacteria*

EC50 activated sludge: > 1.000 mg/l; 3 h

OECD Test Guideline 209

NOEC activated sludge: 1.000 mg/l; 3 h

OECD Test Guideline 209

## **12.2 Persistence and degradability**

### *Biodegradability*

99 %; 28 d

OECD Test Guideline 301E

Readily biodegradable

### *Biochemical Oxygen Demand (BOD)*

67 mg/g (5 d)

(IUCLID)

### *Chemical Oxygen Demand (COD)*

1.380 mg/g

(IUCLID)

### *Theoretical oxygen demand (ThOD)*

1.300 mg/g

(IUCLID)

## **12.3 Bioaccumulative potential**

### *Partition coefficient: n-octanol/water*

log Pow: -1,7

OECD Test Guideline 107

Bioaccumulation is not expected.

## **12.4 Mobility in soil**

No information available.

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

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

## **12.6 Other adverse effects**

### *Additional ecological information*

Discharge into the environment must be avoided.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 807331  
Product name Pentaerythritol for synthesis

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## SECTION 13. Disposal considerations

### *Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14. Transport information

### Land transport (ADR/RID)

**14.1 - 14.6** Not classified as dangerous in the meaning of transport regulations.

### Inland waterway transport (ADN)

Not relevant

### Air transport (IATA)

**14.1 - 14.6** Not classified as dangerous in the meaning of transport regulations.

### Sea transport (IMDG)

**14.1 - 14.6** Not classified as dangerous in the meaning of transport regulations.

### 14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

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## SECTION 15. Regulatory information

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

#### *EU regulations*

|                       |                |
|-----------------------|----------------|
| Major Accident Hazard | SEVESO III     |
| Legislation           | Not applicable |

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

|  |  |
|--|--|
| Substances of very high concern (SVHC) | This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of $\geq 0.1\%$ (w/w). |
|--|--|

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# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

|               |                               |
|---------------|-------------------------------|
| Catalogue No. | 807331                        |
| Product name  | Pentaerythritol for synthesis |

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*National legislation*

Storage class 10 - 13

## 15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

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## SECTION 16. Other information

### Training advice

Provide adequate information, instruction and training for operators.

### Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

### Regional representation

This information is given on the authorised Safety Data Sheet for your country.

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*The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.*

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