

# Safety data sheet PLA

Ultimaker

## 1. Identification of the substance / preparation and of the company

|                               |   |
|-------------------------------|---|
| <b>1.1 Trade name</b>         | PLA   |
| <b>1.2 Use of the product</b> | 3D printer filament   |
| <b>1.3 Supplier</b>           | Ultimaker B.V.<br>Watermolenweg 2<br>4191 PN, Geldermalsen<br>The Netherlands |
| Emergency phone number        | In case of toxicological emergency, contact your doctor                       |

## 2. Hazards identification according to regulation (EC) No 1272/2008 and GHS

|   |  |
|---|--|
| <b>2.1 Classification of the substance or mixture</b> | No risk exists to the health of users if the product is handled and processed properly |
| <b>2.2 Label elements</b>                             | Not applicable   |
| <b>2.3 Other hazards</b>                              | Not known  |

## 3. Composition / information on ingredients

|                        |                 |
|------------------------|-----------------|
| <b>3.1 Composition</b> | Polylactic acid |
| <b>3.2 Mixture</b>     | Not applicable  |

## 4. First-aid measures

### 4.1 Description of first-aid measures

|                   |   |
|-------------------|---|
| General advice    | If you feel unwell, seek medical advice (show the label where possible). Never give anything by mouth to an unconscious person  |
| Inhalation        | In case of inhalation of gases released from molten filament, move person into fresh air  |
| Skin contact      | Wash with soap and water. Seek medical attention if symptoms occur. If burned by contact with hot material, cool molten material adhering to skin as quickly as possible with water – do not try to peel it off. Seek for medical attention, if necessary, for removal and treatment of the burns         |
| Eye contact       | Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. Seek medical attention if symptoms persist. If molten material contacts the eye, immediately flush with plenty of water for at least 15 minutes. Seek medical attention immediately |
| Ingestion         | Not probable. Seek medical advice in case ingestion occurs  |
| Note to physician | Treat symptomatically   |

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

Burns should be treated as thermal burns. The material will come off as healing occurs; therefore immediate removal from skin is not necessary

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

No data available

## 5. Firefighting measures

**5.1 General advice**

Material can accumulate static charges which may cause an electrical spark (ignition source). Use proper bonding and/or grounding procedures

**5.2 Extinguishing media**

Foam, carbon dioxide (CO<sub>2</sub>), water, dry chemical. Alcohol resistant foams are preferred if available. General purpose synthetic foams (including AFFF) or protein foams may function, but are much less effective

Unsuitable extinguishing media: not known

**5.3 Special hazards arising from the substance or mixture**

Burning produces unpleasant and toxic fumes: carbon oxides (CO<sub>x</sub>) and aldehydes

**5.4 Advice for firefighters**

Use self-contained breathing apparatus and full protective clothing

## 6. Accidental release measures

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

Avoid breathing gases released from molten filament. Ensure adequate ventilation, especially in confined areas

**6.2 Environmental precautions**

No data available

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

Allow to solidify molten material. Dispose of waste and residue according to local regulations

**6.4 Reference to other sections**

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## 7. Handling and storage

**7.1 Precautions for safe handling**

Avoid contact with molten material

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

Product should be stored in a dry and cool place at temperatures between -20 to +30 °C. Avoid direct sunlight. Minimize moisture uptake by leaving it in a sealed package together with the supplied desiccant

**7.3 Specific end use(s)**

Filament for 3D printing

## 8. Exposure controls / personal protection

**8.1 Control parameters**

None

DNEL

No data available

PNEC

No data available

**8.2 Exposure controls**

Eye protection

Use safety glasses for prolonged staring at printing

Skin and body protection

Good practices suggest to minimize skin contact. When material is heated, wear gloves to protect against thermal burns

|                        |   |
|------------------------|---|
| Respiratory protection | If engineering controls do not maintain airborne concentrations below recommended exposure limits (when applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be used. Respirator type: air-purifying respirator with an appropriate government-approved (where applicable) air-purifying filter, cartridge, or canister. Contact a health and safety professional or manufacturer for specific information |
| Hand protection        | Follow good industrial hygiene practices  |
| Hygiene measures       | Follow good industrial hygiene practices  |
| Engineering measures   | Good general ventilation (typically 10 air changes per hour) is recommended. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls that maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level  |

## 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

|                              |                             |
|------------------------------|-----------------------------|
| Appearance                   | Filament                    |
| Color                        | Various (incl. transparent) |
| Odor                         | Slight                      |
| Flash point                  | -                           |
| Ignition temperature         | 388 °C                      |
| Thermal decomposition        | 250 °C                      |
| Auto-ignition temperature    | -                           |
| Melting point / range        | 145 - 160 °C                |
| Density                      | 1.24 g/cm <sup>3</sup>      |
| Water solubility             | Insoluble                   |
| Solubility in other solvents | Chloroform smoothable       |

### 9.2 Other information

-

## 10. Stability

|   |   |
|---|---|
|   | Stable under recommended storage conditions                               |
| 10.1 Reactivity                         | No data available   |
| 10.2 Chemical stability                 | Biodegradable   |
| 10.3 Possibility of hazardous reactions | No decomposition or hazardous reactions if stored and applied as directed |
| 10.4 Conditions to avoid                | Print temperatures above 240 °C (at standard printing speeds)             |
| 10.5 Incompatible materials             | Oxidizing agents, strong bases  |
| 10.6 Hazardous decomposition products   | See 5.2   |

## 11. Toxicological information

### 11.1 Information on toxicological effects

|                                     |   |
|-------------------------------------|---|
| Principal routes of exposure        | Eye contact, skin contact, inhalation, ingestion  |
| Acute toxicity                      | There were no target organ effects noted following ingestion or dermal exposure in animal studies   |
| Skin corrosion / irritation         | May cause eye / skin irritation. Product dust may be irritating to eyes, skin, and respiratory system. Caused mild to moderate conjunctival irritation in eye irritation studies using rabbits. Caused very mild redness in dermal irritation studies using rabbits (slightly irritating) |
| Serious eye damage / eye irritation | No data available   |
| Respiratory or skin sensitization   | No data available   |
| Reproductive toxicity               | No data available   |
| Carcinogenicity                     | No data available   |

## 12. Ecological information

|   |                         |
|---|-------------------------|
| 12.1 Toxicity                           | No data available       |
| 12.2 Persistence and degradability      | -                       |
| 12.3 Bio accumulative potential         | Does not bio accumulate |
| 12.4 Mobility in soil                   | No data available       |
| 12.5 Results of PBT and vPvB assessment | No data available       |
| 12.6 Other adverse effects              | No data available       |

## 13. Disposal considerations

|                              |   |
|------------------------------|---|
| 13.1 Waste treatment methods | In accordance with local and national regulations |
|------------------------------|---|

## 14. Transport information

|                              |               |
|------------------------------|---------------|
| ADR                          | Not regulated |
| RID                          | Not regulated |
| IATA                         | Not regulated |
| IMDG                         | Not regulated |
| Special precautions for user | Not regulated |

## 15. Regulatory information

Not meant to be all-inclusive — selected regulations represented

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

#### US Regulations:

|                                  |            |
|----------------------------------|------------|
| Sara 313 title III               | Not listed |
| TSCA Inventory List              | Listed     |
| OSHA hazard category             | -          |
| CERCLA                           | -          |
| WHMIS                            | -          |
| State right-to-know requirements | -          |

#### Other Inventories:

|   |   |
|---|---|
| Canada DSL Inventory List                 | Listed  |
| REACH / EU EINECS                         | Components are in compliance with REACH and/or are listed |
| NEHAPS                                    | -   |
| Japan (ECL/MITI)                          | Listed  |
| Australia (AICS)                          | Listed  |
| Korean toxic substances control act (ECL) | Listed  |
| Philippines inventory (PICCS)             | Not listed  |
| Chinese chemical inventory (IECSC)        | Listed  |
| 15.2 Chemical Safety Assessment           | No data available   |

## 16. Other information

The information provided in this Safety Data Sheet (SDS) is based on current knowledge and experience. This information is provided without warranty. This information should help to make an independent determination of the methods to ensure proper and safe use and disposal of the filament

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|----------------|-------------------|
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