

# TECHNICAL DATA SHEET

## Transparent PLA

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### Transparent PLA Filament for Aesthetical and Functional FDM 3D Printing

FormFutura Transparent PLA is a premium, highly crystalline PLA filament designed for FDM/FFF 3D printers. It offers excellent clarity, light diffusion, and semi-optical transparency. This advanced PLA formulation allows users to fine-tune the visual appearance of printed parts, ranging from high-gloss transparent finishes to subtle semi-matte effects, simply by adjusting print temperature, cooling, and print speed.

When printed at higher temperatures and lower speeds, layer lines visually blend, resulting in smooth, clear surfaces that are ideal for aesthetic, functional, and light-transmitting applications.

Thanks to its optimized material flow properties, FormFutura Transparent PLA enables fast, precise, and reliable 3D printing. This filament delivers outstanding dimensional accuracy and stability, making it easy to print complex geometries and detailed structures with consistent results and minimal defects.

FormFutura Transparent PLA is also food contact approved, making it suitable for applications where food safety compliance is required when printed under appropriate conditions.

### Food Contact Approved

The raw materials used to produce FormFutura Transparent PLA filament are approved for food contact applications in the EU, USA, and China.

- **European Union:** EC No. 10/2011.
- **USA:** FDA 21 CFR.
- **China:** GB 9685-2016 and GB4806.7-2023.

### Sustainability

FormFutura Transparent PLA is made from 100% biobased content according to EN16785-1 and ASTM D6866 regulations. This plant-based thermoplastic is 100% recyclable and fully certified industrially compostable according to EN13432 and ASTM D6400 standards for industrial composting.

### Important Key Features of Transparent PLA Filament

- Highly transparent PLA filament with customizable visual appearance and surface finish.
- Optimized material flow properties for fast and precise 3D printing.
- Food contact safe.
- Compatible with all AMS systems and suitable for high speed printing.
- EU-Made Premium Quality Filament spooled on recycled certified second-life PP spools.

### Suitable Applications for Transparent PLA Filament

- 3D Printing light-related parts, such as LED diffusers, light covers, lamp shades, backlit signs and logos, or indicator windows in enclosures.
- Creating Visual inspection parts, like fluid channels and enclosures where you want to monitor movement or flow.
- Printing decorative & aesthetic parts, such as vases, art pieces, lithophanes, trophy parts and display stands.
- Windows, lenses and covers, such as small viewing windows in enclosures, protective covers for electronics, camera housings, and instrument covers.
- Manufacturing educational and prototyping parts, such as anatomy or engineering models, cutaway designs printed as one piece, and manufacturing demos.



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## Recommended Print Settings <sup>1</sup>

The following print settings are provided as general guidelines to support successful FDM / FFF 3D printing with FormFutura Transparent PLA filament. These parameters are intended as a starting point to help users determine the optimal printing conditions for their specific 3D printer, hardware configuration, and application. Fine-tuning of settings may be required to achieve the desired print quality, mechanical performance, and transparency.

**Nozzle temp:** ± 190 - 225°C

**Heat bed:** ± 45 - 55°C

**Fan speed:** ± 50 - 100%

**Print speed:** ± 50 - 350 mm/s

**Nozzle:** ≥ 0.15mm

**Buildplate adhesion:** EasyFix Nr. I

**Drying:** ~4-6 hours @ ~40–50°C

**Drybox:** No

**Enclosure:** No

**Experience level:** Beginner

<sup>1</sup>The recommended printing settings for Transparent PLA filament are provided as general guidelines for FDM / FFF 3D printing. Optimal print results may vary depending on printer type, hardware configuration, nozzle size, firmware, environmental conditions, and user-defined parameters. Changes in extrusion temperature, print speed, cooling, layer height, and infill density can significantly influence print quality, mechanical performance, and optical characteristics such as transparency and surface finish.

Users are advised to perform their own testing and fine-tuning to determine the most suitable Transparent PLA filament printing settings for their specific 3D printer and application. No guarantee can be given for print results or material performance when using the suggested parameters.

## Technical Properties of FormFutura Transparent PLA

### Material properties

Density

**Typical value**

1.24 g/cm<sup>3</sup>

**Test Method**

DSC

MFI (210°C, 2,16kg)

8 g/10 min

ISO 1133

Moisture content

≤ 400 ppm

### Mechanical properties

Tensile strength

**Typical value**

50 MPa

**Test Method**

ISO 527

Tensile modulus

3500 MPa

ISO 527

Elongation at break

5%

ISO 527

Charpy notched impact strength (at 23°C)

5 KJ/m<sup>2</sup>

ISO 179

### Thermal properties

HDT B

**Typical value**

60°C

**Test Method**

ISO 75

Glass transition temperature

60°C

DSC

Melting temperature

175°C

DSC

## Buildplate Adhesion

For optimal buildplate adhesion we recommend to use our EasyFix Adhesive – Nr. I.

## Storage and Handling

Filament should be stored at room temperature in a dry and dark place with humidity below 15%.

Recommended storage temperature is ca. 18-25°C (64.4 -77.0°F). Keep out of moisture, sunlight and direct heat. When stored properly, product has a shelf life of 24 months. To obtain the best parameters of the printed object, it is recommended to dry the material prior to usage and to 3D print it directly from a dry box.



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## Product Export Information

| HS Code  | Description                  | Origin         |
|----------|------------------------------|----------------|
| 39169090 | Monofilament for 3D printing | European Union |

## Packaging and Logistics Information

FormFutura Transparent PLA filament is supplied as standard on multiple spool sizes, ranging from 1 kg up to 8 kg, to accommodate different production and printing requirements. The table below provides an overview of the number of spools per master carton and the maximum number of spools that can be shipped on a EURO pallet, supporting efficient storage, handling, and logistics planning.

| Material        | Spool weight     | Spools per master box | Spools per EURO pallet |
|-----------------|------------------|-----------------------|------------------------|
| Transparent PLA | 1,000 g (1 kg)   | 10                    | 400                    |
| Transparent PLA | 2,300 g (2.3 kg) | 5                     | 120                    |
| Transparent PLA | 4,500 g (4.5 kg) | 1                     | 90                     |
| Transparent PLA | 8,000 g (8 kg)   | 1                     | 60                     |

## Custom Colors, Spool Sizes, and Private Labeling

Transparent PLA can be made in custom colors and custom spool sizes, with configurable filament weights to meet specific customer requirements. Private labeling options are also available upon request. For further information regarding customization possibilities, pricing, and minimum order quantities (MOQs), please contact your account manager or our sales team at [sales@formfutura.com](mailto:sales@formfutura.com).

## Disclaimer

*The product and technical data provided in this datasheet are correct to the best of FormFutura BV's knowledge and are intended solely for reference and comparison purposes. Actual values may vary depending on printing conditions, model complexity, environmental factors, and other variables. Typical values are indicative only and do not constitute binding specifications.*

*All other information supplied, including that contained herein, is believed to be accurate but is provided on the express condition that the customer is responsible for making its own assessment to determine the product's suitability for a particular purpose.*

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