PLA

Technical Data Sheet

This material is a modified grade of PLA designed for improved printability and mechanical performance."It offers enhanced toughness, strong layer adhesion, and a smooth surface finish while remaining easy to print. PLA strikes a reliable balance between strength, rigidity, and impact resistance, making it well-suited for functional components, conceptual models, and rapid prototyping. Being FDA-approved and environmentally friendly, it provides a safe and sustainable option for diverse 3D printing applications.

Basic Information		
Characteristics	• Good toughness • High-speed printing • Strong impact resistance	• Easy to print • High durability • Smooth printed surface
Applications	• Prototyping • Cosplay	• Decoration models • Other mechanical parts
Forming Method	• Filament	
Processing Method	• 3D Printing, FDM Print	

Physical Properties	Testing Method	Data
Density	GB/T 1033	1.23 g/cm³
Melt Flow Index	GB/T 3682	5 (190°C/2.16kg)

Thermal Properties	Testing Method	Data
Heat distortion Temperature	GB/T 1634	53°C (0.45Mpa)
Glass Transition Temperature	IEC 60216	N/A
Continuous Service Temperature		N/A
Maximum (short term) Use Temperature		N/A

Electrical Properties	Testing Method	Data
Insulation Resistance	DIN IEC 60167	N/A
Surface Resistance	DIN IEC 60093	N/A

Mechanical Properties	Testing Method	Data
Tensile Strength (X-Y)	GB/T 1040	53.34 Mpa
Tensile Strength (Z)	GB/T 1040	31.2 MPa
Elongation at Break (X-Y)	GB/T 1040	4.11 %
Elongation at Break (Z)	GB/T 1040	2.6 %
Flexural Strength (X-Y)	GB/T 9341	81.16 MPa
Flexural Strength (Z)	GB/T 9341	59.8 MPa
Flexural Modulus (X–Y)	GB/T 9341	2888.22 MPa
Flexural Modulus (Z)	GB/T 9341	26884.19 MPa
IZOD Impact Strength (X–Y)	GB/T 1843	5.5 KJ/m²
IZOD Impact Strength (Z)	GB/T 1843	2.51 KJ/m²

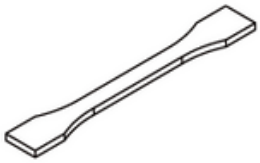
Chemical Properties	Data
Acid and Alkali Resistance	NO
Grease Resistance	N/A
UV Resistance	NO
Water Repellency	N/A

Recommended printing parameters	Data
Drying Preparation	50°C >8H
Nozzle Size	0.2, 0.4, 0.6, 0.8 mm
Nozzle Temperature	210–230°C
Build Platform Type	PEI
Build Platform Temperature	45–60°C
Fan Speed	100%
Printing Speed	<300mm/s

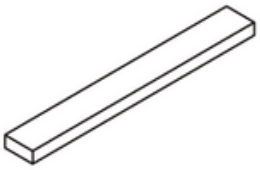
Printing Tips

- For optimal results, enable Z-seam alignment and starting point alignment during slicing.
- Disable Z-axis lift during travel moves to minimize unnecessary movement and prevent the nozzle from crossing the outer shell.
- Optimize the printing path and slightly reduce the printing speed to achieve consistent surface quality and better dimensional accuracy.

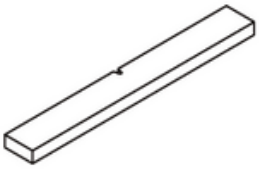
Test Conditions of Mechanical Properties



Tensile testing specimen GB/T 1040



Flexural testing specimen GB/T 9341



Impact testing specimen GB/T 1043

The filament performance data is derived from standard test samples printed under eSUN's controlled conditions. Actual results may vary depending on factors such as printer configuration, parameter settings, and the surrounding print environment.

Print Test Conditions:

Extruder Temperature	220°C
Build Platform Temperature	60°C
Outer Layer Number	2
Top / Bottom Layer Number	3
Infill Density	100%
Fan Speed	100%

Test performed using a 0.4 mm nozzle with Simplify3D v4.1.2. Printing parameters may vary based on nozzle size, material type, and machine configuration.

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