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BEDROCK 3D PLA PRO1

Strong. High-Speed. Glossy Finish. Reliable and Versatile. Ideal for Big Prints.

Technical Documentation Sheet

version 1.0

Technical Data Sheet

PLA PRO1

Strong. High-Speed. Glossy-Finish. Reliable and Versatile. Ideal for Big Prints.

BEDROCK 3D PLA PRO1, one of our favorites since 2013! This is a high-performance, biobased filament designed for professionals who want both speed and strength in one material. It prints as effortless as standard PLA, while offering exceptional mechanical properties. Giving you the freedom to push for high speeds, exceptional durability, or a premium surface finish depending on your project needs.

Filament Properties		
Filament Diameter	1.75 mm	2.85 mm
Average diameter Tolerance	±0.050 mm	±0.1 mm
Average ovality	<0.050 mm	<0.050 mm
Available Spool size	750 g, 2.5 kg, 4.5 kg, 8.5 kg	750 g, 2.5 kg, 4.5 kg, 8.5 kg
Available colors	Natural White, Black, Grey	

Spool Properties				
Spool size	750 g	2.0 kg	4.0 kg	8.0 kg
Outer diameter	200 mm	300 mm	350 mm	355 mm
Inner diameter	50.5 mm	51.5 mm	51.7 mm	36 mm
Width	55 mm	103 mm	103 mm	167 mm

Recommended 3D-Print processing parameters		Used for test specimens
Printer	FFF printer	Bambu Lab X1C
Nozzle Temperature[1)]	200 – 220 °C	220 °C
Build Chamber Temperature	-	Indirect heating (cover)
Bed Temperature	50 – 70 °C	60 °C
Bed Material	Glass, PEI sheet	Bambu Textured PEI Plate

[1] Fast printing might require an additional increase of the nozzle temperature; the stated printing speed is based on current validations. As equipment and technology continues to evolve, it is possible that even higher printing speeds may be attainable in the future.

Nozzle Diameter	≥ 0.4 mm	0.4 mm
Print Speed	40 – 300 mm/s[1]	100 mm/s
Max Volumetric Speed[2)]	22 mm³/s	8 mm³/s

Please check your standard and/or high speed print profile availability for an easy start at www.bedrock3d.com.

Further Recommendations	
Drying recommendations to ensure printability and best mechanical properties[3)]	BEDROCK 3D PLA Pro1 is in a printable condition, drying is not necessary.
Support material compatibility	Single material breakaway, BEDROCK 3D BVOH
Warehousing	BEDROCK 3D PLA Pro1 filament should be stored at 15 - 25°C in its originally sealed package in a clean and dry environment. If the recommended storage conditions are observed the products will have a minimum shelf life of 12 months.

General Properties	Standard	Average Values
Filament Density[4)]	ISO 1183-1	1254 kg/m³
Poisson-Number	ISO 527	0.36

Tensile Properties[5)]	Standard	Average Values		
		XY-Direction	XZ-Direction	ZX-Direction
Tensile strength[6)]	ISO 527	45.1 MPa	-	27.2 MPa
Elongation at Break[6)]	ISO 527	9.0%	-	1.3%
Young's Modulus[7)]	ISO 527	2800 MPa	-	2500 MPa

	Standard	Average Values

[2] Based on Bambu Lab X1C with a nozzle diameter of 0.4 mm.

[3] Please note: To ensure constant material properties the material should always be kept dry.

[4] measured on filament

[5] Samples were conditioned in standard climate (23°C, 50% RH 72h)

[6] Testing speed: 5 mm/min

[7] Testing speed: 1 mm/min

Flexural Properties[6) 8)]		XY-Direction	XZ-Direction	ZX-Direction
Flexural Strength	ISO 178	74.0 MPa	85.1 MPa	42.5 MPa
Flexural Modulus	ISO 178	2610 MPa	2590 MPa	2280 MPa
Flexural Elongation at Break	ISO 178	No break	No break	2.0%

Impact Properties[6)]	Standard	Average Values		
		XY-Direction	XZ-Direction	ZX-Direction
Impact Strength Charpy (unnotched)	ISO 179-2	15.2 kJ/m^2	16.2 kJ/m^2	7.3 kJ/m^2
Impact Strength Izod (unnotched)	ISO 180	11.7 J/m	13.5 J/m	6.4 J/m

Thermal Properties[6)]	Standard	Average Values
HDT A at 1.8 MPa	ISO 75-2	57 °C
HDT B at 0.45 MPa	ISO 75-2	58 °C
Vicat softening point at 50 N	ISO 306	61 °C
Vicat softening point at 10 N	ISO 306	64 °C
Glass Transition Temperature	ISO 11357-2	63 °C
Melt Volume-Flow Rate (MVR)	ISO 1133	18.2 cm^3/10 min (210 °C, 2.16 kg)

ardness and Abrasion	Standard	Typical Values
Shore Hardness D (15s)	DIN ISO 7619-1	76

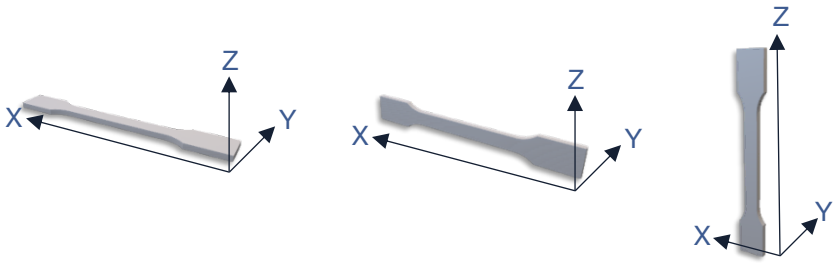
Biocompatibility	Standard	Typical Values
Cytotoxicity - Neutral Red	ISO 10993-5 (2009)	PASS

[8] Testing speed: 2 mm/min
Measured on milled specimens

In Vivo Sensitization - Local Lymph Node Assay	ISO 10993-10 (2020)	PASS
In Vitro Skin Irritation	ISO 10993-10 (2013)	PASS

Print direction explanation

The orientation of the 3D printed part in the printer is always aligned with the longest axis first. The print direction is consistently along the Z-axis.



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Please contact us for further product information, like for example REACH, RoHS, FCS.

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Process materials in a well-ventilated room,or use professional extraction systems.