

Technical datasheet

Light Weight PLA (LW-PLA)

colorFabb

Date of issue: November 28th, 2023
Version: v1.0

Description

colorFabb Light Weight PLA (LW-PLA) is a high quality expanding PLA 3D printing filament. This specialized PLA filament uses an active foaming technology to achieve low weight, low density PLA prints. The foaming agent is activated at temperature of $\pm 230^{\circ}\text{C}$, and can increase the relative volume of the PLA up to 3 times its original size. By decreasing the flow to 65%, light weight parts can be achieved. By using big layer heights, or single extra thick perimeter, the expanding properties can effectively reduce print time.

Typical Properties

Mechanical Properties – 3D Printed

	Method	Value @ foaming		Unit
		200°C; 100%	250°C; 45%	
Youngs Modulus	Tensile, ISO 527-1A	3350	860	MPa
Tensile Strength	Tensile, ISO 527-1A	43	10	MPa
Elongation at break	Tensile, ISO 527-1A	8,1	12,8	%
Flexural Modulus	Flexural, ISO 178	N/A	N/A	MPa
Flexural Strength	Flexural, ISO 178	N/A	N/A	MPa
Impact Strength	Charpy Notch, ISO 179	N/A	3.7	kJ/m ²

Mechanical Properties – Injection Molded*

	Method	Value	Unit
Youngs Modulus	Tensile, ISO 527-1A	3500	MPa
Tensile Strength	Tensile, ISO 527-1A	45	MPa
Elongation at break	Tensile, ISO 527-1A	≤ 5.0	%
Flexural Strength	Flexural, ISO 178	N/A	MPa
Charpy Impact Strength	Charpy Notch, ISO 179	≤ 5.0	kJ/m ²
Density	ISO 1183	1,2	g/cm ³

Thermal Properties*

	Method	Value	Unit
Glass Transition Temp.	DSC, ISO 11357	55-60	°C
Melting Temp.	DSC, ISO 11357	150-160	°C
Decomposition Temp.	TGA, ISO 11358	N/A	°C
Heat Deflection Temp.	HDT-B, ISO 75	60	°C
Melt Flow Index	MFI, (210°C/2.16 kg), ISO 1133-A	6	g/10min
Melt Flow Index	MFI, (190°C/1.16 kg), ISO 1133-A	3	g/10 min

*These results are obtained from the information provided by the supplier of the raw material, and are based on UNFOAMED material data.

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Filament Specifications

	Unit		
Diameter	mm	1.75	2.85
Max. roundness deviation	mm	± 0.05	± 0.1
Net. Filament weight	g	750	750

Guideline for print settings

	Unit	
Nozzle Temp.	°C	195-260
Bed Temp.	°C	50-60
Bed / surface modification	-	-
Active cooling fan	%	-
Print Speed	mm/s	40-100

Notes

The reported properties are an average of a batch of 3D specimens.

The specimens have been printed in XY plane, using 0.15 mm layer height, 100% infill, 0,4 mm nozzle, 200-250 °C nozzle temperature and 50°C bed temperature.

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Disclaimer

The product- and technical information provided in this datasheet is correct to the best of our knowledge. The information given is provided as a guidance for good use, handling and processing, and is not to be considered as a quality specification. The information only relates to the specific product and the material properties.