

Technical datasheet

PLA/PHA

colorFabb

Date of issue: September 13th, 2023
Version: v1.0

Description

PLA/PHA is a tougher and less brittle material than the generic PLA grades, thanks to the addition of Polyhydroxy Alkenoate (PHA). PHA is a bio-polyester, produced by fermentation processes within bacteria, is also 100% biodegradable, leading to a more eco-friendly filament. This 3D filament is available in a nude color, as well as a large variety of colors.

Typical Properties

Mechanical Properties – 3D Printed

	Method	Value	Unit
Youngs Modulus	Tensile, ISO 527-1A	3070	MPa
Tensile Strength	Tensile, ISO 527-1A	64	MPa
Elongation at break	Tensile, ISO 527-1A	4	%
Flexural Modulus	Flexural, ISO 178	2500	MPa
Flexural Strength	Flexural, ISO 178	98	MPa
Impact Strength	Charpy Notch, ISO 179	3.7	kJ/m ²

Mechanical Properties – Injection Molded*

	Method	Value	Unit
Youngs Modulus	Tensile, ISO 527-1A	2960	MPa
Tensile Strength	Tensile, ISO 527-1A	62	MPa
Elongation at break	Tensile, ISO 527-1A	11	%
Flexural Modulus	Flexural, ISO 178	3300	MPa
Flexural Strength	Flexural, ISO 178	89	MPa
Charpy Impact Strength	Charpy Notch, ISO 179	2.8	kJ/m ²
Density	ISO 1183	1.2	g/cm ³

Thermal Properties*

	Method	Value	Unit
Glass Transition Temp.	DSC, ISO 11357	N/A	°C
Melting Temp.	DSC, ISO 11357	>155	°C
Decomposition Temp.	TGA, ISO 11358	N/A	°C
Heat Deflection Temp.	HDT-B, ISO 75	N/A	°C
Melt Flow Index	MFI, (210°C/2.16 kg), ISO 1133-A	N/A	g/10min
Melt Flow Index	MFI, (190°C/1.16 kg), ISO 1133-A	3.0-5.0	g/10 min

*These results are obtained from the information provided by the supplier of the raw material.

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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	195-220
Bed Temp.	°C	50-60
Bed / surface modification	-	**
Active cooling fan	%	0-100%
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, 210 °C nozzle temperature and 55°C bed temperature.

**The PLA/PHA performs amply on both heated and non-heated build platforms. When working on a cold build platform, it is advised to use masking tape to the area. The rough surface of the tape will provide sufficient adhesion for the first layer to stick, and print with limited to no warping.

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.