

# Technical datasheet

## Tough PLA

colorFabb

Date of issue: December 13<sup>th</sup>, 2023  
Version: v2.0

### Description

colorFabb Tough PLA is a 3D printing filament featuring a great balance between material toughness and ease of 3D printing. This formulation of PLA increased the impact strength with roughly 70%, and will retain a good tensile strength.

### Typical Properties

#### Mechanical Properties – 3D Printed

	Method	Value	Unit
Youngs Modulus	Tensile, ISO 527-1A	2550	MPa
Tensile Strength	Tensile, ISO 527-1A	55	MPa
Elongation at break	Tensile, ISO 527-1A	8,6	%
Flexural Modulus	Flexural, ISO 178	N/A	MPa
Flexural Strength	Flexural, ISO 178	N/A	MPa
Impact Strength	Charpy Notch, ISO 179	5,8	kJ/m <sup>2</sup>

#### Mechanical Properties – Injection Molded

	Method	Value	Unit
Youngs Modulus	Tensile, ISO 527-1A	2850	MPa
Tensile Strength	Tensile, ISO 527-1A	58	MPa
Elongation at break	Tensile, ISO 527-1A	14,2	%
Flexural Modulus	Flexural, ISO 178	2530	MPa
Flexural Strength	Flexural, ISO 178	85	MPa
Charpy Impact Strength	Charpy Notch, ISO 179	3,41	kJ/m <sup>2</sup>
Density	ISO 1183	1,24	g/cm <sup>3</sup>

#### Thermal Properties

	Method	Value	Unit
Glass Transition Temp.	DSC, ISO 11357	N/A	°C
Melting Temp.	DSC, ISO 11357	N/A	°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	N/A	g/10 min

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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	750/2200	750/2200

### Guideline for print settings

	Unit	
Nozzle Temp.	°C	210-230
Bed Temp.	°C	50-60
Bed / surface modification	-	-
Active cooling fan	%	100
Print Speed	mm/s	40-50

### 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, 230°C nozzle temperature and 55°C bed temperature.

### 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.