

# PLA

## Physical Properties

Property	Testing Method	Typical Value
Density (g/cm <sup>3</sup> at 21.5 °C)	ASTM D792 (ISO 1183, GB/T 1033)	1.17 - 1.24
Glass transition temperature (°C)	DSC, 10 °C/min	50 - 60
Softening temperature of filament (for 1.75 mm; °C)	Custom method	146 - 150
Melt index (g/10 min)	190 °C, 2.16 kg	5 - 8
Moisture content <sup>1</sup> (%)	Thermogravimetric	≤ 0.1%
Odor	/	Almost odorless
Solubility	/	Insoluble in water

Note:

1. For newly opened filaments; filaments may absorb higher levels of moisture during use.

## Mechanical Properties<sup>1</sup>

Property	Testing Method	Typical Value
Young's modulus (MPa)	ASTM D638 (ISO 527, GB/T 1040)	1879 ± 109
Tensile strength (MPa)	ASTM D638 (ISO527, GB/T 1040)	28.1 ± 1.3
Elongation at break (%)	ASTM D638 (ISO527, GB/T 1040)	1.36 ± 0.30
Bending modulus (MPa)	ASTM D790 (ISO 178, GB/T 9341)	2119 ± 60
Bending strength (MPa)	ASTM D790 (ISO 178, GB/T 9341)	48.0 ± 1.9
Impact strength (kJ/m <sup>2</sup> )	ASTM D256 (ISO 179, GB/T 1043)	12.15 ± 1.03

Note:

1. All testing specimens were printed using a MakerBot Replicator 2 under the following conditions:  
Printing temperature = 200 °C, printing speed = 90 mm/s, number of shells = 2, and 100% infill.