

PolyMax™ PLA

Technical Data Sheet

PolyMax™ PLA is 3D printing material with excellent mechanical properties and printing quality. PolyMax™ PLA has an impact resistance significantly higher than regular PLA, and better overall mechanical properties than ABS.

Physical Properties

Property	Testing Method	Typical Value
Density (g/cm ³ 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 ¹ (%)	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 Properties¹

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 ²)	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.

Testing Geometries

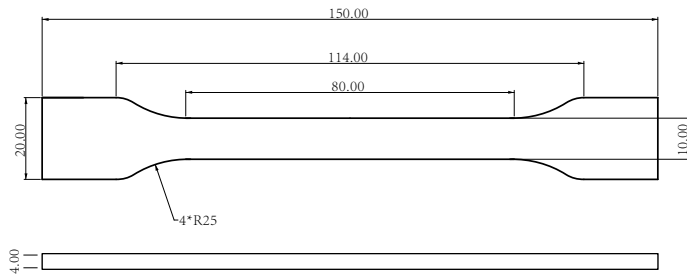


Fig 1. Tensile testing specimen

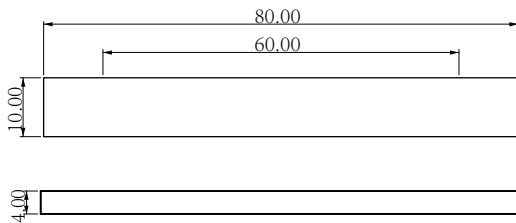
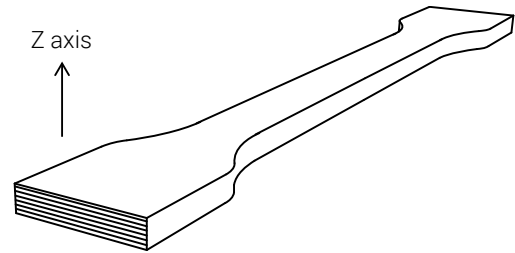


Fig 2. Flexural testing specimen

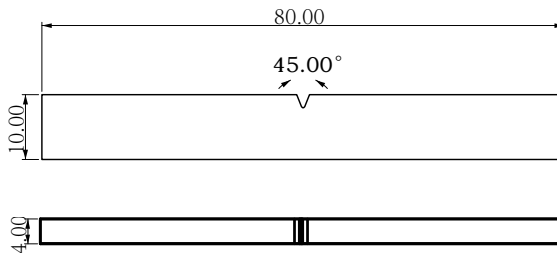
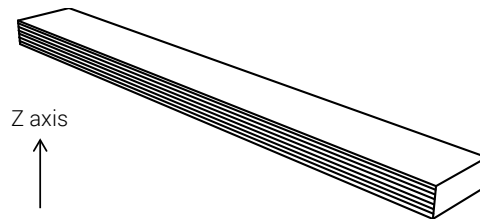
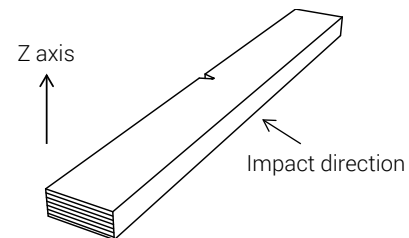


Fig 3. Impact testing specimen



Disclaimer

The typical values presented in this data sheet are intended for reference and comparison purposes only. They should not be used for design specifications or quality control purposes. Actual values may vary significantly with printing conditions. End-use performance of printed parts depends not only on materials, but also on part design, environmental conditions, printing conditions, etc. Product specifications are subject to change without notice.

Each user is responsible for determining the safety, lawfulness, technical suitability, and disposal/recycling practices of Polymaker materials for the intended application. Polymaker makes no warranty of any kind, unless announced separately, to the fitness for any particular use or application. Polymaker shall not be made liable for any damage, injury or loss induced from the use of Polymaker materials in any particular application.