PolyPlus™ PLA

Technical Data Sheet

PolyPlus™ PLA is a premium PLA designed for all desktop FDM/FFF printers. It is produced with the patented Jam-Free™ technology that ensures consistent extrusion and prevents nozzle jams.

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)	210 °C, 2.16 kg	7 - 11
Moisture content[1] (%)	Thermogravimetric	≤ 0.1%
Odor	/	Almost odorless
Solubility	/	Insoluble in water; soluble in chloroform, toluene, and tetrahydrofuran (THF)

Note:

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

Mechanical Properties[1]

Property	Testing Method	Typical Value
Young's modulus (MPa)	ASTM D638 (ISO 527, GB/T 1040)	2636 ± 330
Tensile strength (MPa)	ASTM D638 (ISO527, GB/T 1040)	46.6 ± 0.9
Elongation at break (%)	ASTM D638 (ISO527, GB/T 1040)	1.90 ± 0.21
Bending modulus (MPa)	ASTM D790 (ISO 178, GB/T 9341)	3283 ± 132
Bending strength (MPa)	ASTM D790 (ISO 178, GB/T 9341)	85.1 ± 2.9
Impact strength (kJ/m^2)	ASTM D256 (ISO 179, GB/T 1043)	2.68 ± 0.16

Note:

1. All testing specimens were printed using a MakerBot Replicator 2 under the following conditions: Printing temperature = 230 °C, printing speed = 90 mm/s, number of shells = 2, and 100% infill.

Testing Geometries

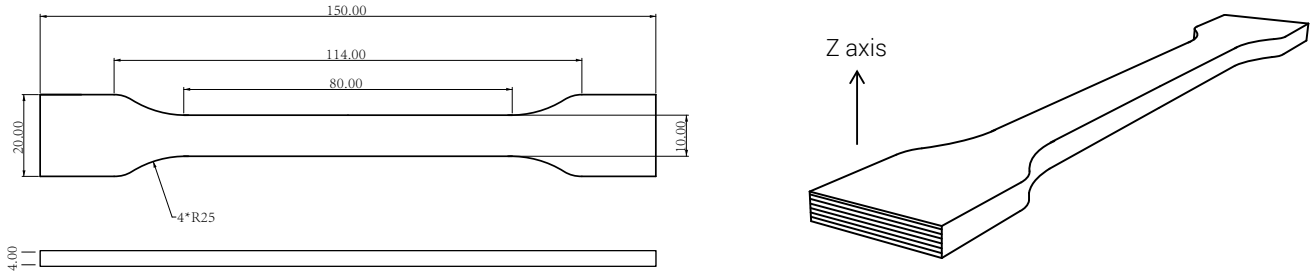

Fig 1. Tensile testing specimen

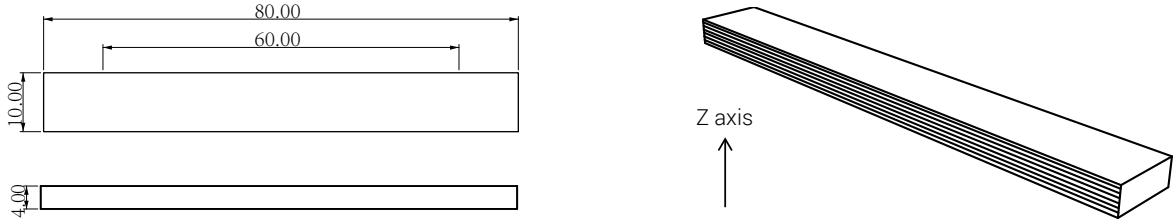

Fig 2. Flexural testing specimen

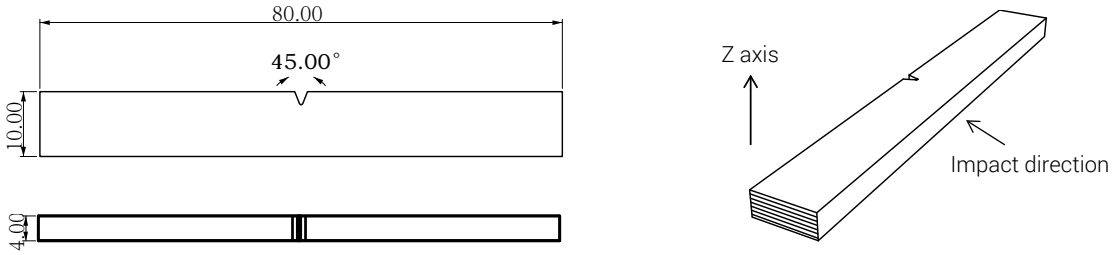

Fig 3. Impact testing specimen

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.

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