PolyWood™

PolyWood™ is a wood mimic filament without actual wood powder, which removes all risks of nozzle clogs. PolyWood™ is made entirely with PLA using a special foaming technology. It exhibits the same density and appearance as wood.

Physical Properties

Property	Testing method	Typical value
Density	ASTM D792 (ISO 1183, GB/T 1033)	0.8 (g/cm3 at 21.5˚C)
Glass transition temperature	DSC, 10 °C/min	62 (°C)
Vicat Softening temperature	ASTM D1525 (ISO 306 GB/T 1633)	60 (˚C)
Melting temperature	DSC, 10 °C/min	151 (˚C)
Crystallization temperature	DSC, 10 °C/min	116 (˚C)

Tested with 3D printed specimen of 100% infill

Mechanical Properties

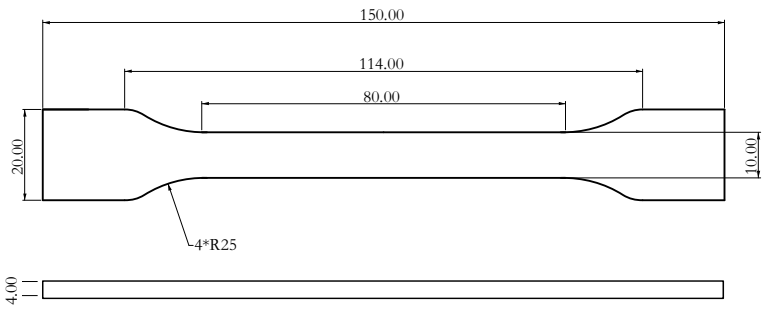
Property	Testing method	Typical value
Tensile strength (X-Y)	ASTM D638 (ISO 527, GB/T 1040)	23.2 ± 0.4 (MPa)
Elongation at break (X-Y)	ASTM D638 (ISO 527, GB/T 1040)	8.2 ± 0.9 (%)
Bending modulus	ASTMD790 (ISO 178, GB/T 9341)	2607 ± 50 (MPa)
Bending strength	ASTMD790 (ISO 178, GB/T 9341)	52.9 ± 0.3 (MPa)
Charpy impact strength	ASTM D256 (ISO 179, GB/T 1043)	2.1 ± 0.2 (kJ/m^2)

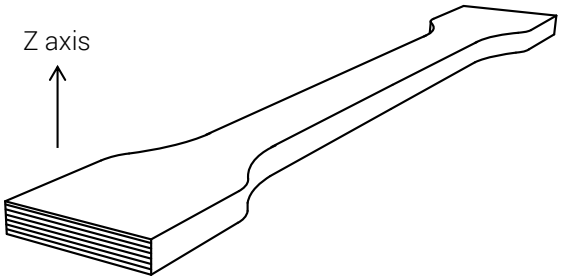
All testing specimens were printed under the following conditions:
nozzle temperature = 195 °C, printing speed = 60 mm/s, build plate temperature = 60 °C, infill = 100%
All specimens were conditioned at room temperature for 24h prior to testing

Recommended printing conditions

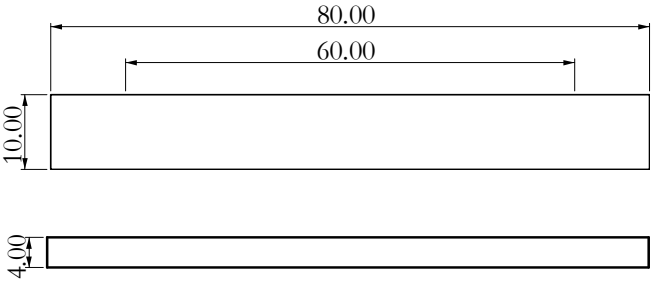
Parameter	
Nozzle temperature	190 - 210 (˚C)
Build Surface material	BuildTak®, Glass, Blue Tape
Build surface treatment	None
Build plate temperature	25 - 60 (˚C)
Cooling fan	Turned on
Printing speed	30-50 (mm/s)
Raft separation distance	0.2 (mm)
Retraction distance	2 (mm)
Retraction speed	20 (mm/s)
Recommended environmental temperature	Room temperature - 45 (˚C)
Threshold overhang angle	45 (˚)
Recommended support material	PolySupport™ and PolyDissolve™ S1

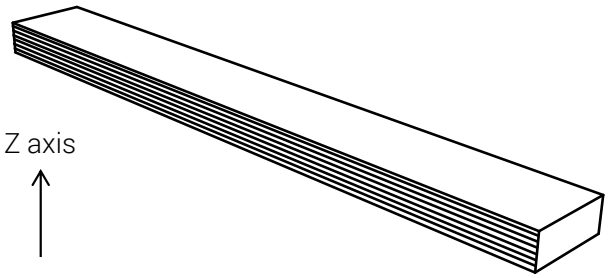
Based on 0.4 mm nozzle and Simplify 3D v.4.0. Printing conditions may vary with different nozzle diameters



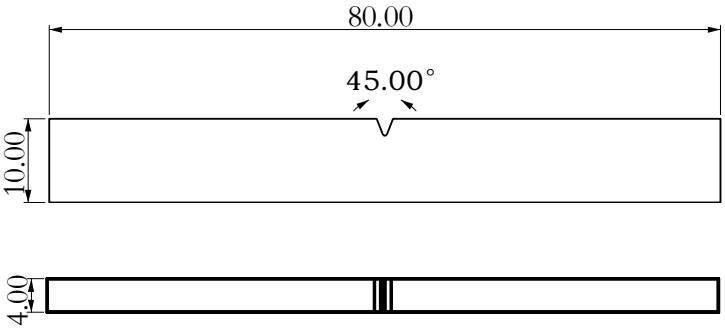


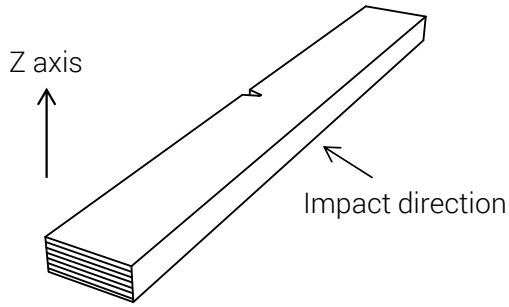
Tensile testing specimen; ASTM D638 (ISO 527, GB/T 1040)





Flexural testing specimen; ASTMD790 (ISO 178, GB/T 9341)





Impact testing specimen; ASTM D256 (ISO 179, GB/T 1043)

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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