

## Technical Data Sheet

# Polylite™ PLA Pro

[www.polymaker.com](http://www.polymaker.com)

V5.1



**Polylite™**  
**PLA Pro**

Polylite™ PLA Pro is a first of its kind combining high toughness and high rigidity, this professional PLA offers engineering properties with the ease of print of regular PLA.

### PHYSICAL PROPERTIES

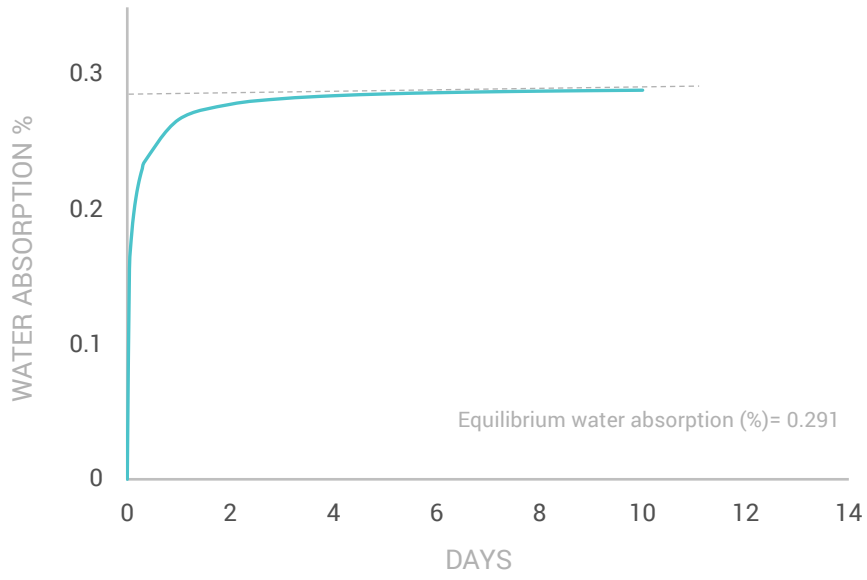
Property	Testing Method	Typical Value
Density	ISO1183, GB/T1033	1.22 g/cm <sup>3</sup> at 21.5°C
Melt index	210°C, 2.16 kg	6 g/10min
Light transmission	N/A	N/A
Flame retardancy	N/A	N/A

### CHEMICAL RESISTANCE DATA

Property	Testing Method
Effect of weak acids	Not resistant
Effect of strong acids	Not resistant
Effect of weak alkalis	Not resistant
Effect of strong alkalis	Not resistant
Effect of organic solvent	No data available
Effect of oils and grease	No data available

### MOISTURE ABSORPTION CURVE

PolyLite™ PLA Pro  
70% RH - 23 °C

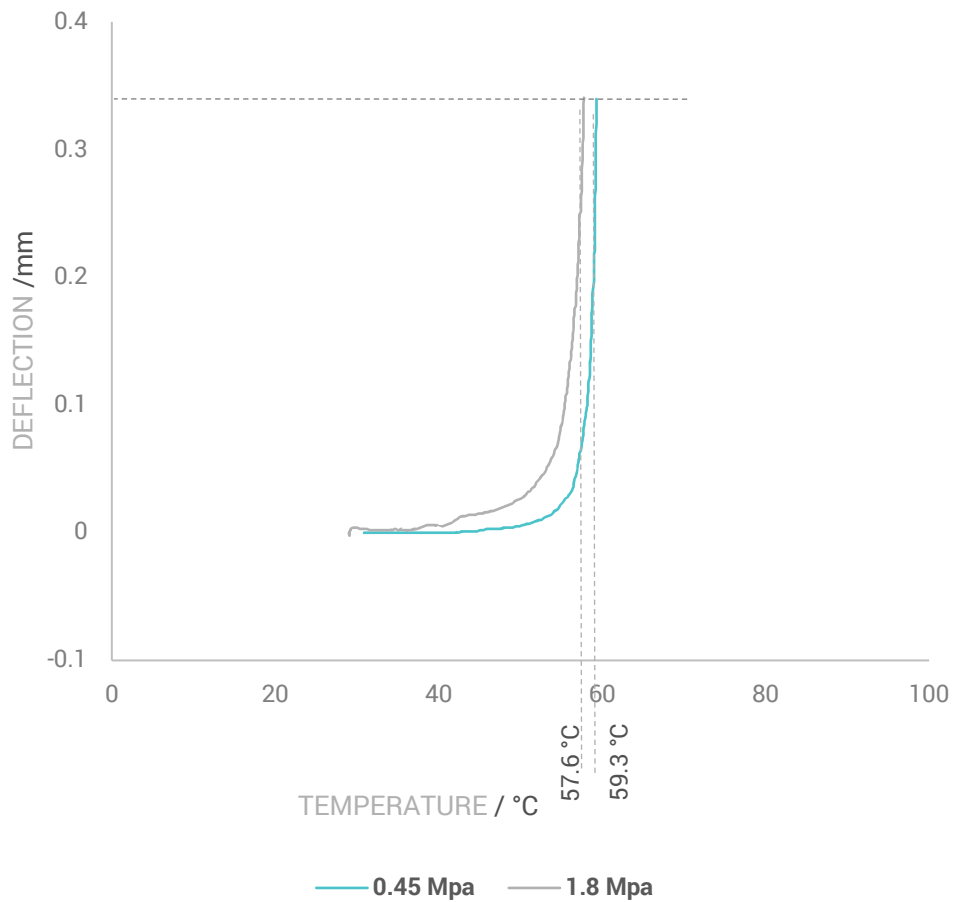


## THERMAL PROPERTIES

Property	Testing Method	Typical Value
Glass transition temperature	DSC, 10°C/min	62 °C
Melting temperature	DSC, 10°C/min	150 °C
Crystallization temperature	DSC, 10°C/min	N/A
Decomposition temperature	TGA, 20°C/min	N/A
Vicat softening temperature	ISO 306, GB/T 1633	62.7 °C
Heat deflection temperature	ISO 75 1.8MPa	57.6 °C
Heat deflection temperature	ISO 75 0.45MPa	59.3 °C
Thermal conductivity	N/A	N/A
Heat shrinkage rate	N/A	N/A

## HDT CURVE

PolyLite™ PLA Pro  
0.45Mpa-1.8Mpa



## MECHANICAL PROPERTIES

Property	Testing Method	Typical Value
Young's modulus (X-Y)	ISO 527, GB/T 1040	2681 ± 215 MPa
Young's modulus (Z)		2551 ± 335 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	35.65 ± 0.93 MPa
Tensile strength (Z)		39.66 ± 0.60 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	2.45 ± 0.61 %
Elongation at break (Z)		6.02 ± 2.43 %
Bending modulus (X-Y)	ISO 178, GB/T 9341	2700 ± 154 MPa
Bending modulus (Z)		N/A
Bending strength (X-Y)	ISO 178, GB/T 9341	68.08 ± 2.21 MPa
Bending strength (Z)		N/A
Charpy impact strength (X-Y)	ISO 179, GB/T 1043	13.44 ± 1.17 kJ/m <sup>2</sup>
Charpy impact strength (Z)		N/A

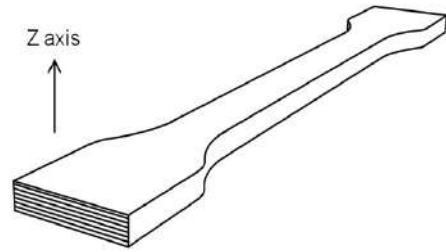
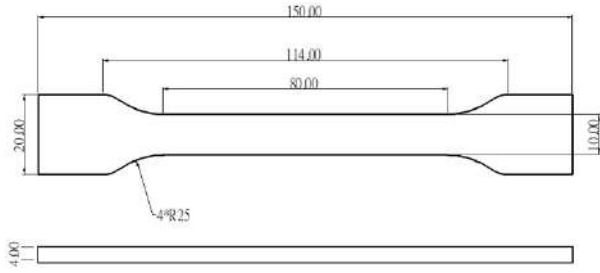
## RECOMMENDED PRINTING CONDITIONS

Parameter	
Nozzle temperature	190 – 220 (°C)
Build surface material	BuildTak®, Glass, Blue Tape
Build surface treatment	Glue or Magigoo
Build plate temperature	30 - 60 (°C)
Cooling fan	ON
Printing speed	30-70 (mm/s)
Raft separation distance	0.2 (mm)
Retraction distance	1 - 3 (mm)
Retraction speed	30 - 60 (mm/s)
Environmental temperature	0 - 40 (°C)
Threshold overhang angle	60 (°)
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

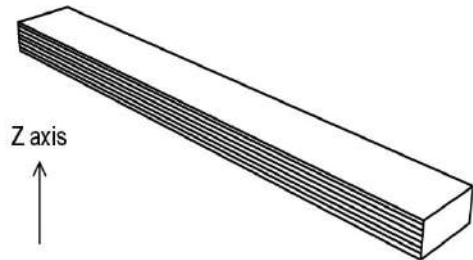
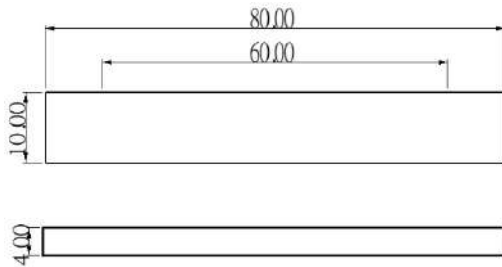
## TENSILE TESTING SPECIMEN

ISO 527, GB/T 1040



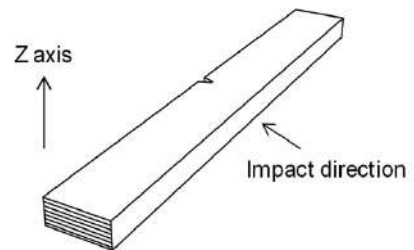
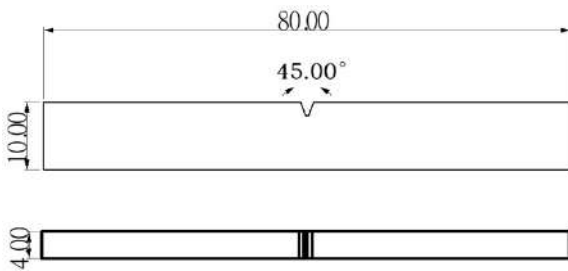
## FLEXURAL TESTING SPECIMEN

ISO 178, GB/T 9341



## IMPACT TESTING SPECIMEN

ISO 179, GB/T 1043



## HOW TO MAKE SPECIMENS

Printing temperature	210 °C
Bed temperature	25 °C
Shell	2
Top & bottom layer	4
Infill	100 %
Environmental temperature	25 °C
Cooling fan	ON

\*All specimens were conditioned at room temperature for 24h prior to testing

## 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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