

## *Technical Data Sheet*

# *PolyLite™ PC*

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

V5.3



PolyLite™ PC is produced using a polycarbonate resin specifically engineered for 3D printing. It delivers good stiffness and heat resistance with light diffusing properties.

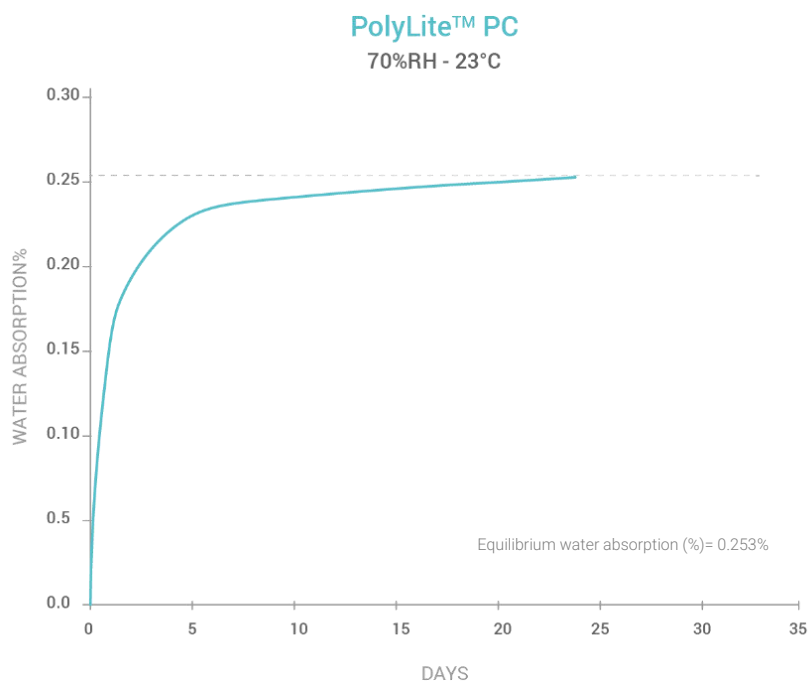
### PHYSICAL PROPERTIES

Property	Testing Method	Typical Value
Density	ISO1183, GB/T1033	1.19 g/cm <sup>3</sup> at 23°C
Melt index	260°C, 2.16kg	8-11 g/10min
Light transmission	GB/T 2410	89%
Flame retardancy	N/A	N/A

### CHEMICAL RESISTANCE DATA

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

### MOISTURE ABSORPTION CURVE

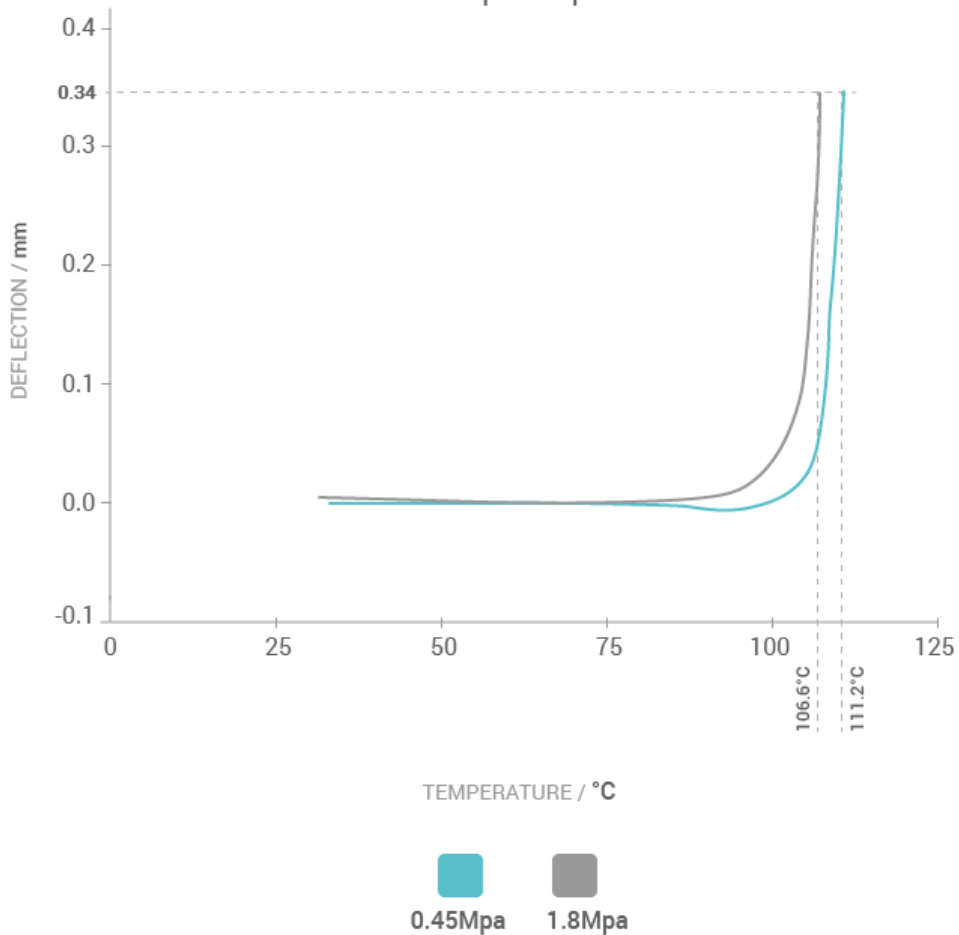


## THERMAL PROPERTIES

Property	Testing Method	Typical Value
Glass transition temperature	DSC, 10°C/min	113.4 °C
Melting temperature	DSC, 10°C/min	N/A
Crystallization temperature	DSC, 10°C/min	N/A
Decomposition temperature	TGA, 20°C/min	> 360°C
Vicat softening temperature	ISO 306, GB/T 1633	119.5 °C
Heat deflection temperature	ISO 75 1.8MPa	106.6 °C
Heat deflection temperature	ISO 75 0.45MPa	111.2 °C
Thermal conductivity	N/A	N/A
Heat shrinkage rate	N/A	N/A

### HDT CURVE

PolyLite™ PC  
0.45Mpa-1.8Mpa



## MECHANICAL PROPERTIES

Property	Testing Method	Typical Value
Young's modulus (X-Y)	ISO 527, GB/T 1040	2497 ± 154 MPa
Young's modulus (Z)		2371 ± 55 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	69.1 ± 3.0 MPa
Tensile strength (Z)		52.8 ± 1.7 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	4.8 ± 0.9 %
Elongation at break (Z)		2.7 ± 0.1 %
Bending modulus (X-Y)	ISO 178, GB/T 9341	2640 ± 47 MPa
Bending modulus (Z)		N/A
Bending strength (X-Y)	ISO 178, GB/T 9341	106.1 ± 1.6 MPa
Bending strength (Z)		N/A
Charpy impact strength (X-Y)	ISO 179, GB/T 1043	4.1 ± 0.9 kJ/m <sup>2</sup>
Charpy impact strength (Z)		N/A

\* Specimens printed on Raise 3D E2 with 0.4mm nozzle.

## RECOMMENDED PRINTING CONDITIONS

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

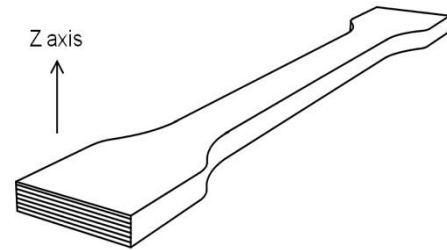
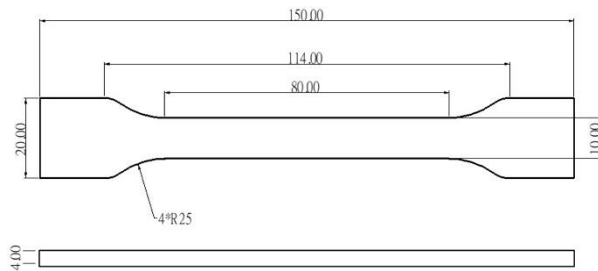
Parameter	
Nozzle temperature	250 – 270 (°C)
Build surface material	BuildTak®, Glass, PEI
Build surface treatment	Magigoo
Build plate temperature	90 - 105 (°C)
Cooling fan	OFF
Printing speed	30-50 (mm/s)
Raft separation distance	0.2 (mm)
Retraction distance	1 (mm)
Retraction speed	20 (mm/s)
Environmental temperature	70-80 (°C) (Recommended)
Threshold overhang angle	50 (°)
Recommended support material	PolyDissolve™ S2

### Note:

- When printing with PolyLite™ PC, it is recommended to use an enclosure. For large part, it is recommended to use a heated chamber.
- It is recommended to anneal the printed part right after the printing process to release the residual internal stress. Annealing settings: 90°C for 2h

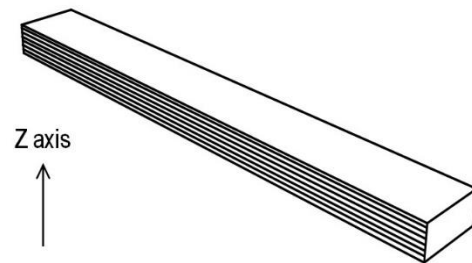
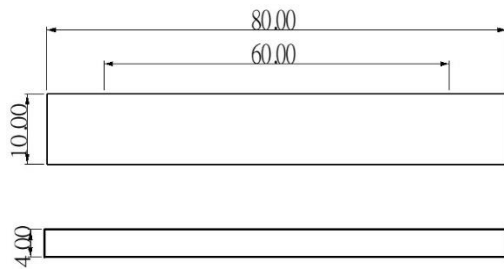
## TENSILE TESTING SPECIMEN

ISO 527, GB/T 1040



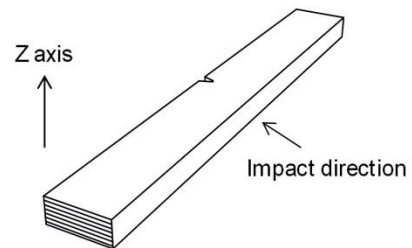
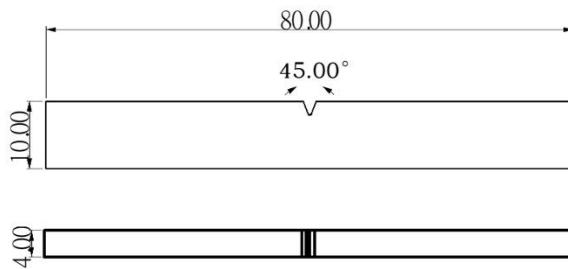
## FLEXURAL TESTING SPECIMEN

ISO 178, GB/T 9341



## IMPACT TESTING SPECIMEN

ISO 179, GB/T 1043



## HOW TO MAKE SPECIMENS

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

Printing temperature	255 °C
Bed temperature	100 °C
Shell	2
Top & bottom layer	4
Infill	100%
Environmental temperature	80°C
Cooling fan	OFF

**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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