

## *Technical Data Sheet*

# *PolyMax™ PC*

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

V5.1



**PolyMax™  
PC**

PolyMax™ PC is an engineered PC filament combining excellent strength, toughness, heat resistance and printing quality. It is the ideal choice for a wide range of engineering applications.

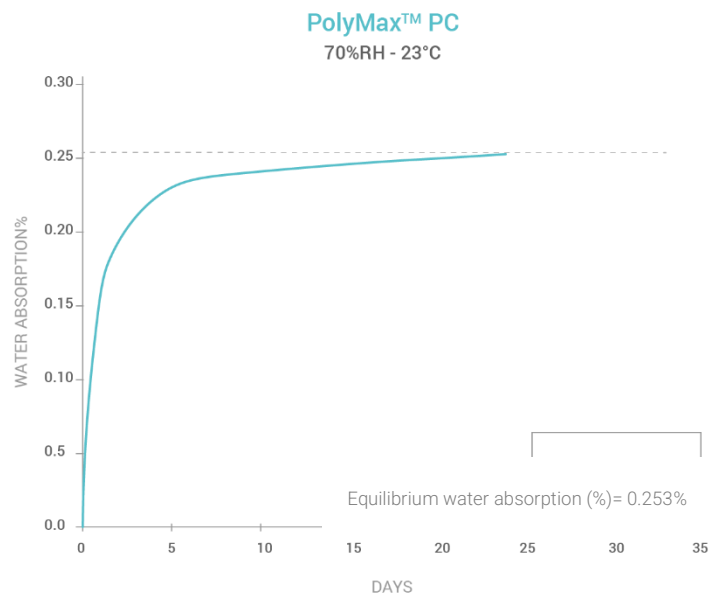
### **PHYSICAL PROPERTIES**

Property	Testing Method	Typical Value
Density	ISO1183, GB/T1033	1.19 g/cm <sup>3</sup> at 23°C
Melt index	260°C, 1.2 kg	6-8 g/10min
Light transmission	N/A	N/A
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

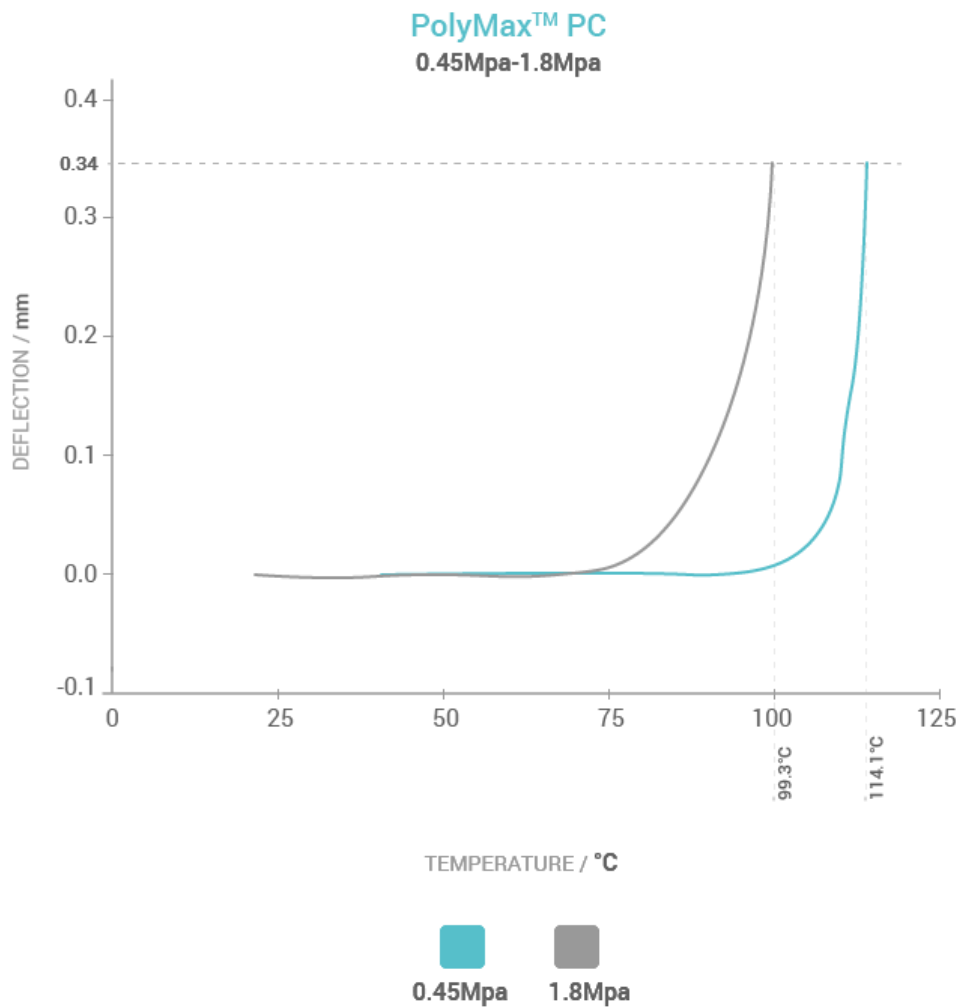
### **MOISTURE ABSORPTION CURVE**



## THERMAL PROPERTIES

Property	Testing Method	Typical Value
Glass transition temperature	DSC, 10°C/min	113 °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	116.9 °C
Heat deflection temperature	ISO 75 1.8MPa	99.3 °C
Heat deflection temperature	ISO 75 0.45MPa	114.1 °C
Thermal conductivity	N/A	N/A
Heat shrinkage rate	N/A	N/A

### HDT CURVE



## MECHANICAL PROPERTIES

Property	Testing Method	Typical Value
Young's modulus (X-Y)	ISO 527, GB/T 1040	2435 ± 63 MPa
Young's modulus (Z)		2149 ± 119 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	53.44 ± 0.60 MPa
Tensile strength (Z)		41.43 ± 1.50 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	4.53 ± 0.45 %
Elongation at break (Z)		2.79 ± 0.21 %
Bending modulus (X-Y)	ISO 178, GB/T 9341	2050 ± 79 MPa
Bending modulus (Z)		N/A
Bending strength (X-Y)	ISO 178, GB/T 9341	81.29 ± 1.53 MPa
Bending strength (Z)		N/A
Charpy impact strength (X-Y)	ISO 179, GB/T 1043	21.28 ± 1.69 kJ/m <sup>2</sup>
Charpy impact strength (Z)		N/A

## RECOMMENDED PRINTING CONDITIONS

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

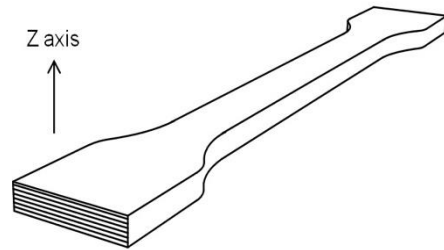
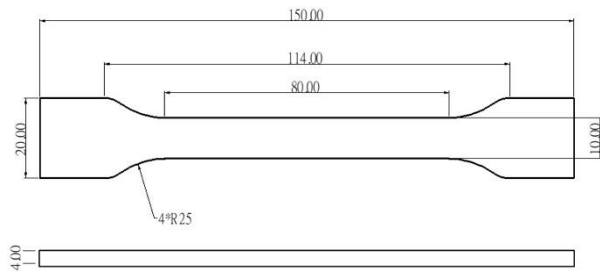
Parameter	
Nozzle temperature	250 – 270 (°C)
Build surface material	BuildTak®, Glass, PEI
Build surface treatment	Magigoo PC
Build plate temperature	90 - 105 (°C)
Cooling fan	OFF
Printing speed	30-50 (mm/s)
Raft separation distance	0.2 (mm)
Retraction distance	1 (mm)
Retraction speed	20 (mm/s)
Environmental temperature	70-100 °C (recommended)
Threshold overhang angle	50 (°)
Recommended support material	PolyDissolve™ S2

### Note:

- When printing with PolyMax™ 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

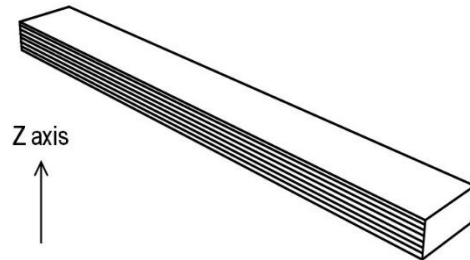
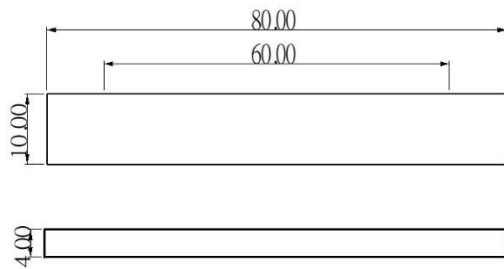
## TENSILE TESTING SPECIMEN

ISO 527, GB/T 1040



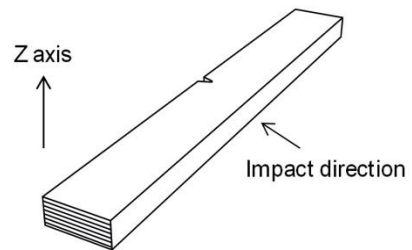
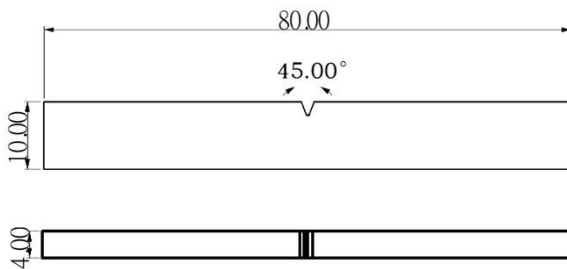
## FLEXURAL TESTING SPECIMEN

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	90°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.

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 use or application. Polymaker shall not be made liable for any damage, injury or loss induced from the use of Polymaker materials in any application.