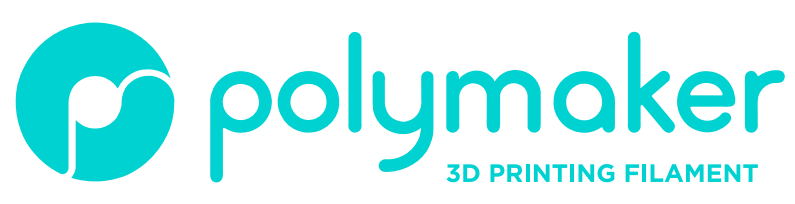


TECHNICAL DATA SHEET



V5.5



Polymaker™ PC-PBT

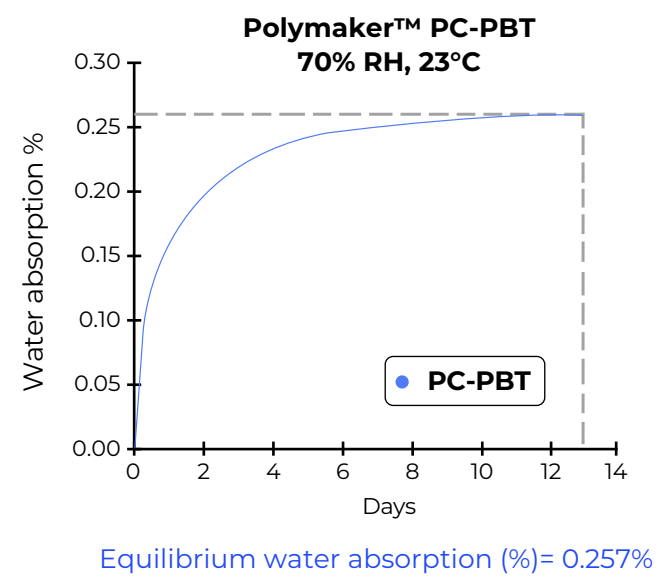
Polymaker™ PC-PBT is a PC/PBT polymer blend which offers good heat resistance and toughness at low temperature (-20 °C/-30 °C). Polymaker™ PC-PBT also features good chemical resistance.

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PHYSICAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Density	ISO1183, GB/T1033	1.2 g/cm ³ at 23°C
Melt index	210°C, 2.16kg	16-22 g/10min
Light transmission	N/A	N/A
Flame retardancy	N/A	N/A

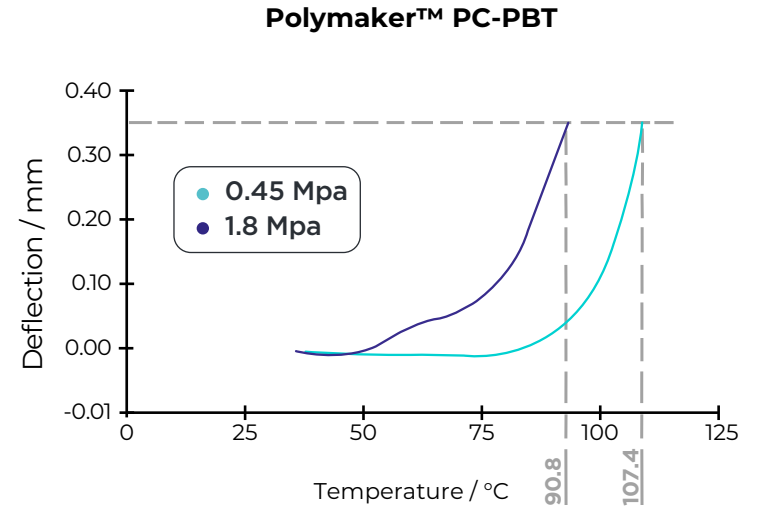
MOISTURE ABSORPTION CURVE



THERMAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Glass transition temp.	DSC, 10°C/min	140°C
Melting temp.	DSC, 10°C/min	223°C
Crystallization temp.	DSC, 10°C/min	186°C
Decomposition temp.	TGA, 20°C/min	N/A
Vicat softening temp.	ISO 306, GB/T 1633	139°C
Heat deflection temp.	ISO 75, 1.8MPa	91°C
Heat deflection temp.	ISO 75, 0.45MPa	107°C

HDT CURVE



MECHANICAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Young's modulus (X-Y)	ISO 527, GB/T 1040	1940.2 ± 76.5 MPa
Young's modulus (Z)		1743.4 ± 66.2 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	50.4 ± 0.6 MPa
Tensile strength (Z)		37.9 ± 0.3 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	4.6 ± 0.7%
Elongation at break (Z)		3.8 ± 0.5%
Bending modulus (X-Y)	ISO 178, GB/T 9341	1950.3 ± 142.6 MPa
Bending modulus (Z)		N/A
Bending strength (X-Y)	ISO 178, GB/T 9341	77.3 ± 0.3 MPa
Bending strength (Z)		N/A
Notched Charpy impact strength (X-Y)	ISO 179, GB/T 1043	33.0 ± 0.3 kJ/m ²
Notched Charpy impact strength (Z)		N/A
Low temperature impact strength (X-Y)	ISO 179-1, 1eA:2010, -30°C	13 ± 2 kJ/m ²
Low temperature impact strength (Z)	ISO 179-1, 1eA:2010, -30°C	1.5 ± 0.2 kJ/m ²

CHEMICAL RESISTANCE DATA

PROPERTY	TYPICAL VALUE
Effect of weak acids	Good
Effect of strong acids	Poor
Effect of weak alkalis	Fair
Effect of strong alkalis	Poor
Effect of oils and grease	Good

Good:
Material may get minor attack after long periods of storage with chemical at ambient temperature

Fair:
Material can be used for short time contact with chemicals at ambient temperature

Poor:
Material becomes unstable on contact with chemical at ambient temperature

RECOMMENDED PRINTING CONDITIONS

Build plate temperature	25-60°C
Build surface treatment	Textured PEI
Cooling fan	OFF
Closure chamber	Needed (100-110°C)
Printing Speed	50-250mm/s

Drying temp. and time	75°C/6H
Annealing setting	90°C/2H
Retraction distance	1-3 (mm)
Retraction Speed	20-40 (mm/s)

*Based on 0.4mm nozzle. Printing conditions may vary with different nozzle diameters.

NOTE:
-When printing with Polymaker™ PC-PBT 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



PolyBox™ or PolyDryer™ Box

NOTE

It is highly recommended to use the PolyBox™ or PolyDryer™ Box when printing or storing Polymaker™ PC-PBT.

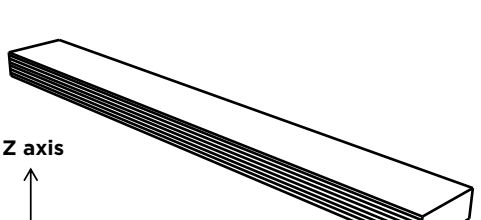
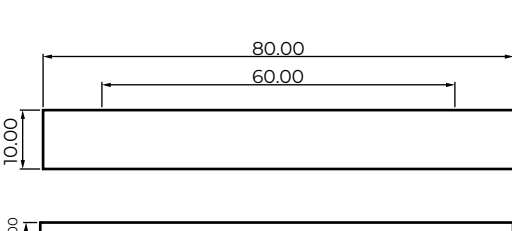
HOW TO MAKE SPECIMENS

Printing temperature	230°C
Bed temperature	50°C
Top & bottom layer	3
Environmental Temperature	Ambient

Infill	100%
Shell	2
Cooling fan	ON

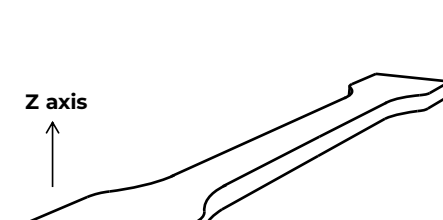
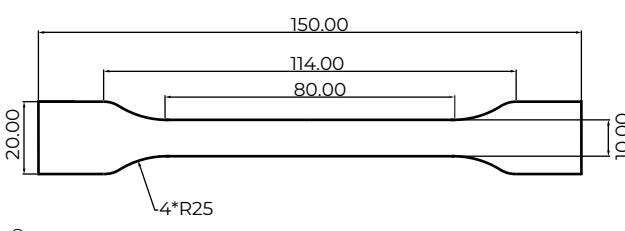
FLEXURAL TESTING SPECIMEN

ISO 178, GB/T 9341



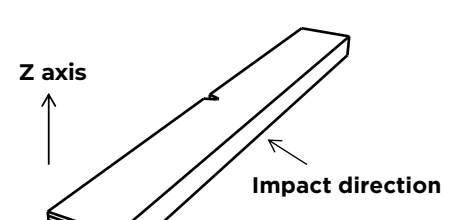
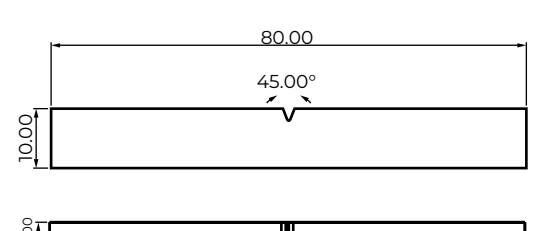
TENSILE TESTING SPECIMEN

ISO 527, GB/T 1040



IMPACT TESTING SPECIMEN

ISO 179, GB/T 1043



*Based on testing with Polymaker™ PC-PBT Black (SKU: PC05001)

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.