

## PolyCore™ PETG-1000 R85

Technical Data Sheet (Ver. 2.0, last updated: Aug, 2025)

PolyCore™ PETG-1000 R85 is a post-consumer recycled (PCR) PETG offering a stable, sustainable pellet solution with a translucent finish. It is suitable for applications such as lighting, furniture, and interior decoration. It contains a traceable 85% PCR content sourced from water bottles and features a unique translucent green color.

### Basic Properties

Property	Testing Method	Typical Value
Density (g/cm <sup>3</sup> at 21.5 °C)	ASTM D792 (ISO 1183, GB/T 1033)	1.26
Melt Index (g/10 min)	230 °C, 2.16 kg	12
Glass Transition Temperature (°C)	DSC, 10 °C/min	78
Heat Deflection Temperature (°C)	ISO 75 1.8MPa	71
	0.45MPa	67

### Mechanical Properties<sup>1</sup>

Property	Testing Method	Typical Value
Young's modulus (MPa)	ASTM D638 (ISO 527, GB/T 1040)	2458 ± 68
Tensile strength (MPa)	ASTM D638 (ISO527, GB/T 1040)	55.9 ± 0.2
Elongation at break (%)	ASTM D638 (ISO527, GB/T 1040)	>40
Bending modulus (MPa)	ASTM D790 (ISO 178, GB/T 9341)	2358 ± 110
Bending strength (MPa)	ASTM D790 (ISO 178, GB/T 9341)	83.5 ± 1.5
Charpy Impact strength (kJ/m <sup>2</sup> )-notched	ASTM D256 (ISO 179, GB/T 1043)	3.5 ± 0.3

1. Tested with injection molding specimens

### Mechanical Properties<sup>1</sup>

Property	Testing Method	Typical Value
Young's modulus (MPa) (X-Y)	ASTM D638 (ISO 527, GB/T 1040)	2483 ± 43
Tensile strength (MPa) (X-Y)	ASTM D638 (ISO527, GB/T 1040)	56.0 ± 0.3
Elongation at break (%) (X-Y)	ASTM D638	5.9 ± 1.2

	(ISO527, GB/T 1040)	
Bending modulus (MPa) (X-Y)	ASTM D790 (ISO 178, GB/T 9341)	2409 ± 96
Bending strength (MPa) (X-Y)	ASTM D790 (ISO 178, GB/T 9341)	85.3 ± 1.4
Charpy Impact strength (kJ/m <sup>2</sup> ) (X-Y)-notched	ASTM D256 (ISO 179, GB/T 1043)	2.8 ± 0.3
Young's modulus (MPa) (Z)	ASTM D638 (ISO 527, GB/T 1040)	1724 ± 23
Tensile strength (MPa) (Z)	ASTM D638 (ISO527, GB/T 1040)	28.4 ± 0.2
Elongation at break (%) (Z)	ASTM D638 (ISO527, GB/T 1040)	1.3 ± 0.4
Bending modulus (MPa) (Z)	ASTM D790 (ISO 178, GB/T 9341)	2486 ± 98
Bending strength (MPa) (Z)	ASTM D790 (ISO 178, GB/T 9341)	67.4 ± 1.8
Charpy Impact strength (kJ/m <sup>2</sup> ) (Z)	ASTM D256 (ISO 179, GB/T 1043)	4.5 ± 0.3

1. Tested with the specimens printed under following conditions:

Nozzle temperature: Zone1= 200 °C, Zone2= 210 °C, Zone3=215 °C, Zone4=220 °C,  
Nozzle diameter=9mm, Layer width = 15mm, Layer height = 3mm, Layer time = 100s,  
Room temperature =25°C ,100% solid specimens.

## Recommended Printing Conditions

Parameter	Recommended Setting
Drying temperature (°C)	60-65
Drying Time (h)	6-8
Barrel – zone 1 temperature (°C)	180 – 200
Barrel – zone 2 temperature (°C)	200 - 210
Barrel – zone 3 temperature (°C)	200 - 210
Nozzle temperature (°C)	200 - 240
Bed temperature (°C)	Room temperature - 50
Other Comments	
<ul style="list-style-type: none"> <li>● It is recommended to stop feeding and continue extruding until the extruder is fully empty, if the printing stops in a short term, such as 10-30 min.</li> <li>● It is recommended to stop feeding and continue extruding until the extruder is fully empty, then use polyethylene (PE) to clean the extruder, if the printing stop in a long term, such as several</li> </ul>	

hours. It is helpful to avoid the carbonization of material and keep extruder working in a good condition

## Recommended Printing Parameters

Thermal Index	Tr = 40°C Width=16mm Height=3mm	Tr = 40°C Width=12mm Height=3mm	Tr = 40°C Width=5mm Height=2mm	Tr = 25°C Width=16mm Height=3mm	Tr = 25°C Width=12mm Height=3mm	Tr = 25°C Width=5mm Height=2mm	Tr = 10°C Width=16mm Height=3mm	Tr = 10°C Width=12mm Height=3mm	Tr = 10°C Width=5mm Height=2mm
	Layer Time (s)	Layer Time (s)	Layer Time (s)	Layer Time (s)	Layer Time (s)	Layer Time (s)	Layer Time (s)	Layer Time (s)	Layer Time (s)
0.53	163	141	73	119	102	54	95	74	40
0.70	225	191	96	156	136	69	115	96	51
0.92	309	263	128	216	181	90	148	127	65
1.00	345	290	140	235	199	99	161	140	71
0.82	434	373	176	299	248	121	201	170	85
0.62	616	519	250	410	344	166	278	233	113
0.47	903	762	368	502	483	202	386	323	155

### 1: Definition of each concept

- Layer time: the time spent for depositing one layer of the printed part.
- Thermal index: A metric describing the quality of printing process. A value of 1 represents the optimal process, and deviations from 1 indicate suboptimal printing conditions
- Width: the cross-sectional dimension of the printed layer, perpendicular to the direction of the print nozzle's movement.
- Height: the vertical dimension of the printed object, or the layer thickness during pellet printing.
- Tr: room temperature when starting pellet printing.

2: Above data is inferred based on a melt temperature of 240 °C at nozzle exit and a 1.0 m\*1.0 m\*1.0 m square frame model.

3: The simulation condition is based on a closed room without additional air disturbances, and assumes some environment temperature increment.

4: Above data is inferred based on the thermal history simulation software, Dragon, by Helio Additive. It should be used for reference only. For a more detailed analysis, please contact Polymaker.

We recommend using the layer times within the green-highlighted range (i.e., where the thermal index approaches 1) for printing. Different printing parameters correspond to different optimal layer time ranges.

## 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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