

PolyCore™ ABS-5022

Technical Data Sheet (Ver. 1.0, last updated: Apr., 2020)

PolyCore™ ABS-5022 is 20% Carbon fiber reinforced ABS pellets featured with good mechanical properties, size-stability and excellent printability

Physical Properties¹

Property	Testing Method	Typical Value
Density (g/cm ³ at 21.5 °C)	ASTM D792 (ISO 1183, GB/T 1033)	1.2
Melt index (g/10 min)	220 °C, 10 kg	11
Glass transition temperature (°C)	DSC, 10 °C/min	101
Vicat Softening temperature (°C)	ASTM D1525 (ISO 306 GB/T 1633)	113
Heat Deflection Temperature (°C)	ISO 75 1.8MPa	98
	0.45MPa	102

1. Tested with injection molding specimens

Mechanical Properties¹

Property	Testing Method	Typical Value
Young's modulus (MPa)	ASTM D638 (ISO 527, GB/T 1040)	11515 ± 224
Tensile strength (MPa)	ASTM D638 (ISO527, GB/T 1040)	132.2 ± 2.0
Elongation at break (%)	ASTM D638 (ISO527, GB/T 1040)	2.2 ± 0.2
Bending modulus (MPa)	ASTM D790 (ISO 178, GB/T 9341)	9574 ± 277
Bending strength (MPa)	ASTM D790 (ISO 178, GB/T 9341)	185.7 ± 3.8
Charpy Impact strength (kJ/m ²)	ASTM D256 (ISO 179, GB/T 1043)	9.5 ± 0.6

1. Tested with injection molding specimens

Mechanical Properties¹

Property	Testing Method	Typical Value
Bending modulus (MPa) (X - Y)	Modified ASTM D790 (ISO 178, GB/T 9341)	4565 ± 701
Bending strength (MPa) (X - Y)	Modified ASTM D790 (ISO 178, GB/T 9341)	82.1 ± 6.0
Bending modulus (MPa) (Z)	Modified ASTM D790 (ISO 178, GB/T 9341)	1518 ± 265
Bending strength (MPa) (Z)	Modified ASTM D790 (ISO 178, GB/T 9341)	28.2 ± 1.5
Charpy Impact strength (kJ/m ²) (Z)	Modified ASTM D256 (ISO 179, GB/T 1043)	21.9 ± 2.0

1. Tested with the specimens printed under the following conditions:
Nozzle temp=235°C, Printing speed = 10 ~ 15kg/h, Nozzle diameter: 8.0 mm, 100% solid specimens,

Recommended Printing Conditions

Parameter	Recommended Setting
Air drying temperature (°C)	80
Air drying time (h)	3 - 4
Maximum moisture content (%)	0.02
Barrel – zone 1 temperature (°C)	210 - 220
Barrel – zone 2 temperature (°C)	220 - 240
Barrel – zone 3 temperature (°C)	230 - 250
Nozzle temperature (°C)	230 - 240
Bed temperature (°C)	40 - 80
Other Comments	
<ul style="list-style-type: none"> ● 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 ● 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 hours. It is helpful to avoid the carbonization of material and keep extruder working in a good condition 	



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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