TECHNICAL DATA SHEET

V1.1

FIBERON
By polymaker

FIBERON™ PPS-GF20

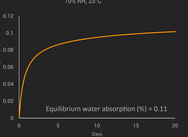
Fiberon™ PPS-GF20 is a 20% glass fiber-reinforced polyphenylene sulfide engineered to deliver enhanced mechanical strength and dimensional stability. This advanced material maintains electrical insulation properties while achieving UL94 V0 FR (1.5mm). Its inherent chemical resistance ensures reliable performance in demanding automotive, electronics, and industrial environments.

WWW.FIBERON3D.COM

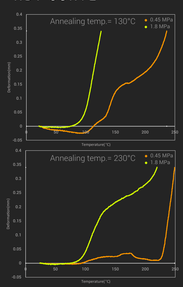
PHYSICAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Density	ISO1183, GB/T1033	1.36 g/cm³ at 23°C
Melt index	300°C, 5 kg	27 g/10min
Flame retardancy	UL 94, 1.5mm	V0
Surface Resistivity (Ω)	ANSI ESD S11.11	OL, >10^{13} Ω

MOISTURE ABSORPTION CURVE



HDT CURVE



THERMAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Glass transition temp.	DSC, 10°C/min	95.0 °C
Melting temperature	DSC, 10°C/min	279.6 °C
Crystallization temp.	DSC, 10°C/min	225.8 °C
Decomposition temp.	TGA, 20°C/min	440.2 °C
Vicat softening temp.	ISO 306, GB/T 1633	272.5 °C
Heat deflection temp.	ISO 75 1.8MPa	125.8 °C
Heat deflection temp.	ISO 75 0.45MPa	236.3 °C

*The HDT test specimens were annealed by 130°C. If the annealing temperature is increased to 230°C, the HDT (0.45MPa/1.8MPa) is increased to 248.9°C/219.6°C. However, this will result in a deeper coloration of the material.

MECHANICAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Young's modulus (X-Y)	ISO 527, GB/T 1040	4552.0 ± 54.6 MPa
Young's modulus (Z)		2557.2 ± 101.2 MPa
Tensile strength (X-Y)	ISO 527, GB/T 1040	64.1 ± 2.1 MPa
Tensile strength (Z)		22.9 ± 0.8 MPa
Elongation at break (X-Y)	ISO 527, GB/T 1040	2.0 ± 0.2%
Elongation at break (Z)		1.1 ± 0.1 %
Bending modulus (X-Y)	ISO 178, GB/T 9341	4110.7 ± 124.9 MPa
Bending modulus (Z)		2605.7 ± 101.8 MPa
Bending strength (X-Y)	ISO 178, GB/T 9341	102.3 ± 3.7 MPa
Bending strength (Z)		45.7 ± 1.1 MPa
Charpy impact strength (X-Y) notched	ISO 179, GB/T 1043	7.3 ± 0.2 kJ/m²
Charpy impact strength (X-Y)un-notched		27.3 ± 1.1 kJ/m²
Charpy impact strength (Z) un-notched		4.3 ± 0.3 kJ/m²

*All specimens were annealed at 130°C for 10h.

ELECTRICAL PROPERTIES

PROPERTY	TESTING METHOD	TYPICAL VALUE
Dielectric Strength	IEC 60243-1:2013	6.05 kV/mm
Dielectric Constant (1kHz)	IEC 60243-1:2013	2.62
Dielectric Constant (1MHz)	IEC 60243-1:2013	2.71

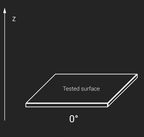
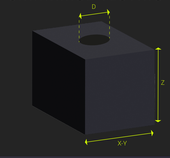


Diagram of test specimen

SHRINKAGE TESTING



	MODEL SIZE	AFTER PRINTING	AFTER ANNEALING
X-Y	40mm	39.86mm	39.81mm
Z	40mm	39.76mm	39.56mm
Diameter	10mm	9.95mm	9.89mm

*Model infill 30%

RECOMMENDED PRINTING CONDITIONS

Nozzle temperature	310-350 °C	Printing speed	Up to 250mm/s
Build plate temperature	80-90 °C	Drying temp. and time	100 °C/10H
Chamber temperature	Room temp.	Annealing temp. and time	130 °C/10H
Cooling fan	OFF		

PolySupport™ for PA12

Recommended support material

NOTE

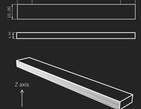
Abrasion of the brass nozzle happens frequently when printing Fiberon™ PPS-GF20. A wear-resistance nozzle, such as hardened steel and ruby nozzle, is highly recommended to be used with Fiberon™ PPS-GF20.
Fiberon™ PPS-GF20 should always be stored and used under dry conditions (relative humidity below 20%).

HOW TO MAKE SPECIMENS

Printing temperature	330-350 °C	Infill	100%
Bed temperature	90 °C	Shell	2
Top & bottom layer	3	Cooling fan	OFF

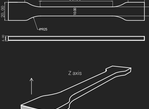
FLEXURAL TESTING SPECIMEN

ASTM D638 (ISO 527, GB/T 1040)



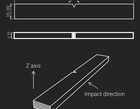
TENSILE TESTING SPECIMEN

ASTM D638 (ISO 527, GB/T 1040)



IMPACT TESTING SPECIMEN

ASTM D638 (ISO 179, GB/T 1043)



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.

FIBERON

MATERIALS COMPARISON

Heat resistance - Stiffness