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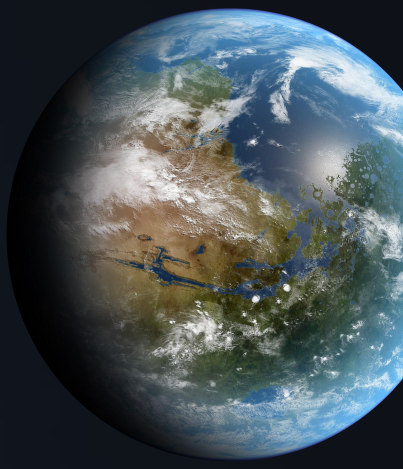
Provisional Technical Data Sheet

RapidPrint PA6

Modified Polyamide 6 with 10% Carbon Fiber



- Easy and High Speed Printing (50-250 mm/s)
- High Strength & Stiffness
- Excellent Surface Finish
- Broadened Printer Compatibility

Mechanical Information

Low Print Speed at 50 mm/s:

Property	Method	XZ Orientation	ZX Orientation
Tensile Modulus	ISO 527-2 Type 1BA	6.7 GPa	3 GPa
Tensile Strength at Yield	ISO 527-2 Type 1BA	114.3 MPa	49.7 MPa
Tensile Strength at Break	ISO 527-2 Type 1BA	114.4 MPa	49.7 MPa
Strain at Yield	ISO 527-2 Type 1BA	2.3%	3.2%
Strain at Break	ISO 527-2 Type 1BA	3.9%	6.8%
Impact Data IZOD*	ISO 180	23.3 kJ/m^2	44.0 kJ/m^2

Medium Print Speed at 150 mm/s:

Property	Method	XZ Orientation	ZX Orientation
Tensile Modulus	ISO 527-2 Type 1BA	7.4 GPa	3 GPa
Tensile Strength at Yield	ISO 527-2 Type 1BA	114.3 MPa	55.5 MPa
Tensile Strength at Break	ISO 527-2 Type 1BA	114.3 MPa	55.5 MPa
Strain at Yield	ISO 527-2 Type 1BA	2.0%	3.1%
Strain at Break	ISO 527-2 Type 1BA	3.4%	6.0%

*Impact Data IZOD (ISO 180) was measured at 200 mm/s
XZ Orientation (on edge) = 23.5 kJ/m^2;| ZX Orientation (upright) = 44.2 kJ/m^2

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High Print Speed at 250 mm/s:

Property	Method	XZ Orientation	ZX Orientation
Tensile Modulus	ISO 527-2 Type 1BA	6.7 GPa	3.9 GPa
Tensile Strength at Yield	ISO 527-2 Type 1BA	100.3 MPa	44.4 MPa
Tensile Strength at Break	ISO 527-2 Type 1BA	100.3 MPa	44.4 MPa
Strain at Yield	ISO 527-2 Type 1BA	2.1%	2.2%
Strain at Break	ISO 527-2 Type 1BA	4.1%	3.7%

Thermal & Physical Properties

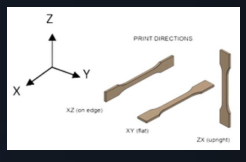
Property	Method	Value
Glass Transition Temperature (Tg)	ISO 11357-2	60°C
Melting Temperature (Tm)	ISO 11357-3	200°C
Density	ISO 1183-1	1.06 g/cm^3
Filament Diameter (+/- 0.05 mm)	-	1.75 mm

Recommended Processing Conditions

Category	Description
Drying Instruction for Filament	80 °C for 6-8 hours before printing
Nozzle Temperature	Recommended 280°C (280°C - 310°C)
Bed Temperature	Recommended 110°C (90°C - 120°C)
Chamber Temperature	Recommended 90°C (23°C - 90°C) ambient temp. possible
Bed Material	Glass, PEI Sheet, Carbon Plate
Adhesion Powder	Magigoo PA
Nozzle Diameter	≥ 0.6mm, hardened steel nozzle
Print Speed	50 - 250 mm/s
Max Volumetric Speed	27 mm^3/s at 250 mm/s print speed
Annealing	Post print annealing is not required

Print Information

RapidPrint PA6 samples were printed at 50mm/s, 150 mm/s, and 250 mm/s on a Cosmyx NOVA HT printer. The chamber temperature was maintained at 90°C. XZ and ZX bars were cut out of 3D printed plates on edge and in Z-direction for testing mechanical properties.



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