

PA11 Carbon Fiber printed on Lisa X

Material's Technical Data Sheet

PA 11 Carbon Fiber is a bio-derived (castor oil) powder composite material based on Polyamide 11 enhanced with Carbon Fiber for better performance and rigidity. It features a high strength-to-weight ratio and high thermal properties. Its well-balanced profile of mechanical and thermal properties while maintaining good impact strength makes it one of the strongest and most versatile materials available on the powder market dedicated to SLS printing technology.™



Compatible with:



FEATURES

- best tensile and flexural strength
- best thermal resistance
- good impact resistance
- high stiffness
- good elongation at break
- good surface quality
- good chemical resistance

APPLICATIONS

- automotive (high performance parts, metal replacement parts)
- universities/labs (mechanical, composites)
- extreme applications (motorsports, lightweight structures, temperature)
- maintenance and Repair
- medical - prosthesis
- aerospace models



General properties**Test method**

Dedicated for	LISA X (fresh powder) ¹		
Nitrogen needed	Yes		
Colour	black		internal
Granulation	?	µm	Laser diffraction
Average granulation	?	µm	Laser diffraction
Refresh ratio ²	40	%	internal
Bulk density	540	kg/m ³	PN-EN ISO 60:2010
Printout density	1.10	g/cm ³	PN-EN ISO 845:2010
Printout water absorption	0.45	%	PN-EN ISO 62:2008

Thermal properties**Test method**

Melting temperature	197	°C	PN-EN ISO 11357
Heat deflection temperature A at 1.8 MPa	170	°C	PN-EN ISO 75-2:2013-06 / PN-EN ISO 75-2:1998
Heat deflection temperature B at 0.45 MPa	191	°C	PN-EN ISO 75-2:2013-06 / PN-EN ISO 75-2:1998

Mechanical properties**Test method**

Flexural Strength (X direction)	87.35	MPa	PN-EN ISO 178:2019
Flexural Strength (Y direction)	57.11	MPa	PN-EN ISO 178:2019
Flexural Modulus (X direction)	4517	MPa	PN-EN ISO 178:2019
Flexural Modulus (Y direction)	2917	MPa	PN-EN ISO 178:2019
Tensile Strength (X direction)	65.92	MPa	PN-EN ISO 527-1:2012
Tensile Strength (Y direction)	55.51	MPa	PN-EN ISO 527-1:2012
Tensile modulus (X direction)	4517	MPa	PN-EN ISO 527-1:2012
Tensile modulus (Y direction)	2917	MPa	PN-EN ISO 527-1:2012
Elongation at Break (X direction)	8.19	%	PN-EN ISO 527-1:2012
Elongation at Break (Y direction)	11.35	%	PN-EN ISO 527-1:2012
Impact strength X (Charpy - unnotched)	64.53	kJ/m ²	PN-EN ISO 179-1:2010
Impact strength Y (Charpy - unnotched)	73.92	kJ/m ²	PN-EN ISO 179-1:2010
Shore Hardness in scale	80		PN-EN ISO 868:2005

1. Can be used only with Sinterit Studio Advanced.

2. Refresh ratio is the amount of refreshing powder that is required to be mixed after the printing with unsintered material.

Information provided within this document are average values for reference and comparison only. Parameters presented in this specification are subject to change. Final part properties may vary based on printed part design and print orientation. All mechanical tests were carried out on samples conditioned to ISO standards only, at 23±2°C and 50±5% r. h.