

PA11 Carbon Fiber

TDS for 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
- medical - prosthesis
- aerospace models



General properties**Test method**

Software	Sinterit Studio Advanced		
Nitrogen needed	Yes	-	
Colour	black	-	Internal procedure
Refresh ratio ¹	40	%	Internal procedure
Bulk density	540	kg/m ³	PN-EN ISO 60:2010
Printout density	1.1	g/cm ³	PN-EN ISO 845:2010
Printout water absorption	0.45	%	PN-EN ISO 62:2008
Particle size	30-110	µm	ISO 13320

Mechanical properties**Test method**

Tensile Strength (X direction)	65.93	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)	8.23	%	PN-EN ISO 527-1:2012
Elongation at Break (Y direction)	11.35	%	PN-EN ISO 527-1:2012
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)	3565	MPa	PN-EN ISO 178:2019
Flexural Modulus (Y direction)	2020	MPa	PN-EN ISO 178:2019
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 D scale	80		PN-EN ISO 868:2005

Thermal properties**Test method**

Melting temperature	197	°C	PN-EN ISO 11357-3:2018
HDT A (X direction)	167	°C	PN-EN ISO 75-2:2013-06
HDT A (Y direction)	87	°C	PN-EN ISO 75-2:2013-06
HDT B (X direction)	190	°C	PN-EN ISO 75-2:2013-06
HDT B (Y direction)	185	°C	PN-EN ISO 75-2:2013-06
Softening point (Vicat A50)	183	°C	PN-EN ISO 306:2014-02

1. 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. All tests were performed with print samples from Lisa X printed from the fresh powder. Parameters presented in this specification are subject to change without notice. Final part properties may vary based on printed part design, print orientation, and material handling. All mechanical tests were carried out on samples conditioned to ISO standards at (23 ± 2)°C and (50 ± 5)% r. h.