

Technical Data Sheet

Spectrum Filaments SILK PLA

Identification	
Trade name	Spectrum SILK PLA
Chemical name	Polylactic Acid
Use	Additive Manufacturing
Origin	Spectrum Group Sp. z o.o.

Filament Specification	
Diameter 1.75	1.75 ± 0.05 mm
“Verify your spool” option	YES



Material properties		
Melt Flow Rate ¹	6 g/10 min	ASTM D1238
Melt temperature	150-180°C	-
Density	1.24 g/cm ³	ASTM D792
Glass transition temperature	55-60°C	ASTM E2092
Water solubility	insoluble	-
Odor	odorless	-
Storage	at temperatures not exceeding 50°C	-



¹Test conditions: T = 210°C; m = 2.16 kg



Guideline for print settings*	
Nozzle temperature	185-215°C
Bed temperature	0-45°C
Active cooling fan	YES (up to 100%)
Layer height**	0.05 - 0.35 mm
Shell thickness**	0.40 – 2.4 mm
Print speed**	40 – 150 mm/s

*Settings are based on a 0,4 mm nozzle.

** The range depends on the geometrical complexity

Mechanical properties	Tensile test		Test Method ASTM D638	
	Printed vertical (Z-axis)		Printed horizontal (X, Y-axis)	
Infill	50 %	100 %	50 %	100 %
Tensile strength (MPa)	12,6	16,2	15,8	23,8
Force at break (MPa)	12,6	16,2	15,7	23,6
Elongation at max force (%)	4,0	3,9	8,8	5,3
Elongation at break (%)	4,0	3,9	11,0	13,3
E modulus (MPa)	313,3	428,7	307,8	453,8
<p>All specimens were printed using the BLIXET B100 Multi 3D printer using following parameters: Nozzle temperature: 210°C Bed temperature: 60°C Printing speed: 45mm/s Number of shells: 4 Infill type: lattice Infill under: 45°</p>				
				

Mechanical properties	Impact test		Test Method ISO 179	
	Charpy - Printed vertical (Z-axis)		Charpy - Printed horizontal (X, Y-axis)	
Infill	50%	100%	50%	100%
Impact strength (J/cm ²)	2,59	4,61	1,38	1,70
Impact energy (mJ)	1000	1900	600	700
<p>All specimens were printed using the BLIXET B100 Multi 3D printer using following parameters: Nozzle temperature: 210°C Bed temperature: 60°C Printing speed: 45mm/s Number of shells: 4 Infill type: lattice Infill under: 45°</p>				
				

Mechanical properties	Flexural test		Test Method ISO 178	
	Printed vertical (Z-axis)		Printed horizontal (X, Y-axis)	
Infill	50%	100%	50%	100%
Flexural modulus (MPa)	1429	1490	1682	2157
Maximum bending stress (MPa)	2,39	23,48	43,75	63,64
Deflection (mm)	0,8	11	1,5	10,5
<p>All specimens were printed using the BLIXET B100 Multi 3D printer using following parameters: Nozzle temperature: 210°C Bed temperature: 60°C Printing speed: 45mm/s Number of shells: 4 Infill type: lattice Infill under: 45°</p>				

Preparation date: 08-05-2019

All shown data are typical properties. Users should confirm results by their own tests.