

PBT Optimal

TDS for Lisa X

Material's Technical Data Sheet

Polybutylene terephthalate (PBT) enables substantial cost savings in the development and low-volume production of components. It is known for its high rigidity, excellent detailing and resistance to solvents. This material not only provides the high level of detail quality but also ensures the lowest possible cost per part.



Compatible with:



FEATURES

- the most economical per print in compact SLS (Selective Laser Sintering)
- low refresh ratio, just 20%
- exceptionally high stiffness
- great reproduction of intricate details
- good mechanical properties
- high resistance to chemicals
- offers sustainable printing without any powder waste when used as intended

APPLICATIONS

- cost-effective prototyping
- production of thermoforming molds
- utilized in dental applications
- manufacturing of electrical and electronic components
- construction of electronic enclosures
- production of rigid tooling components



General properties

Material Type	PBT	-	
Nitrogen needed	No	-	
Colour	Dark Charcoal	-	internal
Refresh ratio ¹	20	%	internal
Bulk density	500-600	kg/m ³	PN-EN ISO 60:2011
Printout density	1.24-1.28	g/cm ³	PN-EN ISO 845:2010
Printout water absorption	0.12-0.49	%	PN-EN ISO 62:2008
Mean particle size D50	57	µm	ISO 13320

Mechanical properties

			Test method
Tensile Strength (X direction)	49.04	MPa	PN-EN ISO 527-1:2012
Tensile Strength (Y direction)	48.28	MPa	PN-EN ISO 527-1:2012
Tensile Modulus (X direction)	2718	MPa	PN-EN ISO 527-1:2012
Tensile Modulus (Y direction)	2663	MPa	PN-EN ISO 527-1:2012
Elongation at Break (X direction)	2.56	%	PN-EN ISO 527-1:2012
Elongation at Break (Y direction)	2.62	%	PN-EN ISO 527-1:2012
Flexural Strength (X direction)	52.08	MPa	PN-EN ISO 178:2019
Flexural Strength (Y direction)	49.18	MPa	PN-EN ISO 178:2019
Flexural Modulus (X direction)	2304	MPa	PN-EN ISO 178:2019
Flexural Modulus (Y direction)	2363	MPa	PN-EN ISO 178:2019
Impact strength X (Charpy - unnotched)	9.18	kJ/m ²	PN-EN ISO 179-1:2010
Impact strength Y (Charpy - unnotched)	11.12	kJ/m ²	PN-EN ISO 179-1:2010
Shore Hardness in D scale	77	-	PN-EN ISO 868:2005

Thermal properties

			Test method
Melting temperature	172	°C	PN-EN ISO 11357-3:2018
HDT A (X direction)	52	°C	PN-EN ISO 75-2:2013-06
HDT A (Y direction)	52	°C	PN-EN ISO 75-2:2013-06
HDT B (X direction)	81	°C	PN-EN ISO 75-2:2013-06
HDT B (Y direction)	70	°C	PN-EN ISO 75-2:2013-06
Softening point (Vicat A50)	93.2	°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.