

SLS Materials

TPU

* Ester based thermoplastic polyurethane TPU Powder, white color

Description

Powder for laser sintering (additive manufacturing). Elastic parts with high strength and high abrasive resistance for shoe and sports industry, pipes, sealing, prosthetics and many more applications.

Physical Properties

	Test Method	Specimen	Unit	Typical Value
Specific Gravity	ISO 1183	Sintered part	g/cm3	1.2
Water Absorption			%	< 0.5
Melt Volume Rate	ISO 1133	Powder	cm3/10min	18.0
Glass Transition Temp	ISO 6721-1	Sintered part	°C	-13.6
Shrinkage	Measured on test prints		%	3.0

Mechanical Properties

Measurement	Test Method	Specimen	Unit	Typical Value
at 23 °C/ 50 % rh (according to build orientation)				
Hardness (Shore A)	ISO 868	Sintered part	-	88
Flexural Modulus 20°C	ISO 6721-1	Sintered part	MPa	27
Flexural Modulus 60°C	ISO 6721-1	Sintered part	MPa	72
Tensile Strength (x-direction)	ISO 53504	Sintered S1-bar	MPa	20
Tensile Strength (z-direction)	ISO 53504	Sintered S1-bar	MPa	15
Elongation (x-direction)	ISO 53504	Sintered S1-bar	%	520
Elongation (z-direction)	ISO 53504	Sintered S1-bar	%	500
Abrasion Resistance (x-direction)	ISO 4649	Sintered part	mm3	31
Abrasion Resistance (z-direction)	ISO 4649	Sintered part	mm3	28
Compression Strength (x-direction)	ISO 604	Type A	MPa	33

SLS Materials

TPU

Compression Strength (z-direction)	ISO 604	Type A	Mpa	40
Compression Modulus (x-direction)	ISO 604	Type B	MPa	15
Compression Modulus (z-direction)	ISO 604	Type B	MPa	20
Poisson ratio (Hencky)				0.45

Thermal Properties

Vicat-Softening Temperature	VST A	ISO 306	°C	90
Melting Temperature	120 11357		°C	160

Powder Properties

x10	Laser diff.	20
x50	Laser diff.	50
x90	Laser diff.	105
Bulk Density		0.457
Part Bed Powder Density		0.600