

Preliminary data sheet

LUVOSINT TPU X97A-1 WT

Ester based thermoplastic polyurethane TPU
Powder, white color

Physical Properties	Test Method	Specimen	Units	Typical Value
Specific Gravity	ISO 1183	Sintered part	g/cm ³	1.2
Water Absorption	23 °C, 24 h		%	< 0.5
Melt Volume Rate	MVR 190 °C/10 kg	Powder	cm ³ /10 min	46
Glass Transition Temp	ISO 6721-1		°C	4
Mechanical Properties				
at 23 °C/ 50 % rh (according to build orientation)				
Shore Hardness A	ISO 868	Sintered part	-	97
Flexural Modulus 20°C	1 Hz, 2 °C/min	ISO 6721-1	Sintered part	MPa
Flexural Modulus 60°C	1 Hz, 2 °C/min	ISO 6721-1	Sintered part	MPa
Tensile Strength (x-direction)	DIN 53504	Sintered S1-bar	MPa	26
Tensile Strength (z-direction)	DIN 53504	Sintered S1-bar	MPa	15
Elongation (x-direction)	DIN 53504	Sintered S1-bar	%	210
Elongation (z-direction)	DIN 53504	Sintered S1-bar	%	134
Abrasion Resistance (x-direction)	ISO 4649	Sintered part	mm ³	41
Abrasion Resistance (z-direction)	ISO 4649	Sintered part	mm ³	
Compression Strength (x-direction)	ISO 604	Type A	MPa	
Compression Strength (z-direction)	ISO 604	Type A	MPa	
Compression Modulus (x-direction)	ISO 604	Type B	MPa	
Compression Modulus (z-direction)	ISO 604	Type B	MPa	
Poisson ratio (Hencky)	0.2 mm/s			
Thermal Properties				
Vicat-softening Temperature	VST A	ISO 306	MPTS ISO 3167 A	°C
Melting Temperature		ISO 11357		°C
Powder Properties				
x10	Laser diff.		µm	25
x50	Laser diff.		µm	65
x90	Laser diff.		µm	110
Bulk Density			g/cm ³	
Part bed powder density			g/cm ³	

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Application Examples

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

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Recommended Processing Instructions

General

In general LUVOSINT TPU X97A-1 can be processed on conventional lasersinter machines while observing the usual technical guidelines. In contrast to conventional polyamide powders relatively low temperatures in the process chamber should be used here. Aspiration is recommended due to formation of fume.

Predrying

No predrying necessary.

Processing Parameters

Due to the large variety of machines and part geometries given process parameters can only be seen as an orientation.

Temperature Part Bed	°C	120
Temperature Feed	°C	80
Scan Speed	inch/s	750
Hatch Distance	mm	0.15
Layer Thickness	mm	0.15
Laser Power	W	82

Delivery Form & Storage

The material will be delivered as 25 kg boxes on pallets.
 Preferably storage should be effected in dry and normally temperatured rooms.

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