LUVOSINT® TPU X92A-1 NT

LUVOSINT
Additive manufacturing solutions

Thermoplastic polyurethane
Powder, natural

Physical properties		Test method	Specimen	Units	Typical value
Specific gravity		ISO 1183-3		g/cm³	1,2
Water absorption	23°C / 24h	ISO 62	ISO 3167 A	%	< 0,5
Melt volume rate (MVR)		190°C / 2,16kg	pellet	cm³/10 min	18
Shrinkage			test prints	%	3
Mechanical properties at 23°C / 50% rh					
Shore hardness A		ISO 868	molded sample		92
Tensile strength (in-plane)		DIN 53504	sintered S1-bar	MPa	20
Tensile strength (out-of-plane)		DIN 53504	sintered S1-bar	MPa	16
Elongation (in-plane)		DIN 53504	sintered S1-bar	%	520
Elongation (out-of-plane)		DIN 53504	sintered S1-bar	%	500
Flexural modulus	DMA: 20°C, 1Hz / 2°C/min	ISO 6721-1	sintered S1-bar	MPa	27
Flexural modulus	DMA: 60°C, 1Hz / 2°C/min	ISO 6721-1	sintered S1-bar	MPa	72
Compression strength (in-plane)		ISO 604	Type A	MPa	33
Compression strength (out-of-plane)		ISO 604	Type A	MPa	40
Compression modulus (in-plane)		ISO 604	Type B	MPa	15
Compression modulus (out-of-plane)		ISO 604	Type B	MPa	20
Poisson ratio (Hencky)	0.2 mm/s				0,45
Thermal properties					
Glass transition temperature	DSC	ISO 11357	molded sample	°C	-13,6
Melting temperature	DSC	ISO 11357	molded sample	°C	160
Vicat softening temp.	VST A	DIN ISO 306	ISO 3167 A	°C	90
Other properties					
Powder d10		Laser diff.	powder	µm	25
Powder d50		Laser diff.	powder	µm	50
Powder d90		Laser diff.	powder	µm	105
Powder bulk density			powder	g/cm³	0,457
Part bed powder density			powder	g/cm³	0,6

Main features

Powder for laser sintering (additive manufacturing). Elastic parts with high strength and high abrasive resistance.

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Recommended processing parameters

General

Powder bed temp.: 94 °C,
Laser power: 2 x 55 W @ 12,5 m/s,
Fill scan spacing: 0,15 mm,
Heater output limit: 30 %

Delivery form & storage

Material will be delivered as 20 kg boxes on pallets.
Preferably storage should be effected in dry and normally temperatured rooms.

Predrying

No predrying necessary.
The powder should be de-agglomerated by using a screening process (250 microns sieve opening) before processing.

Recommended processing parameters

In general LUVOSINT TPU 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. At higher temperatures above 100 °C powder flowability and process stability will decrease. Aspiration is recommended due to formation of fume.

Additional information

Avoid part bed temperatures above 100 °C!

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