PRELIMINARY DATASHEET

LUVOSINT® PP 9703 L WT

Polypropylene (Random-Copolymer PP-R) unreinforced, white

LUVOSINT®
Additive manufacturing solutions

Physical properties		Test method	Specimen	Units	Value
Specific gravity		ISO 1183-3	ISO 1183	g/cm³	0.91
Water absorption	23°C/24h	ISO 62	ISO 1110	%	<0.2
Melt viscosity rate (MFR)	230 °C/2.16 kg	ISO 1133-1		g/10min	28
Shore hardness D			Molded sample		
Mechanical properties, Injection molded					
Tensile strength	dry, @50 mm/min	ISO 527	ISO 3167 A	MPa	23
Tensile modulus	dry, @1 mm/min	ISO 527	ISO 3167 A	GPa	0.8
Elongation @Fmax.	dry, @50 mm/min	ISO 527	ISO 3167 A	%	11.7
Elongation @Break	dry, @50 mm/min	ISO 527	ISO 3167 A	%	269
Impact strength	dry	ISO 179 1eU	80x10x4 mm	kJ/m²	4.7
Mechanical properties, Laser sintered					
Tensile strength (in-plane)		DIN 53504	ISO 527-1A	MPa	22
Tensile strength (out-of-plane)		DIN 53504	ISO 527-1A	MPa	21
Tensile modulus (in-plane)		ISO 527	ISO 527-1A	GPa	0.8
Tensile modulus (out-of-plane)		ISO 527	ISO 527-1A	GPa	0.8
Tensile elongation (in-plane)		DIN 53504	ISO 527-1A	%	40
Tensile elongation (out-of-plane)		DIN 53504	ISO 527-1A	%	25
Flexural modulus (in-plane)		ISO 178	ISO 3167 A	GPa	
Flexural modulus (out-of-plane)		ISO 178	ISO 3167 A	GPa	
Impact strength (in-plane)		ISO 179 1eU	80x10x4 mm	kJ/m²	
Impact strength (out-of-plane)		ISO 179 1eU	80x10x4 mm	kJ/m²	
Thermal properties					
Melting temperature	DSC	ISO 11357	Molded sample	°C	149
Onset melting temperature	DSC	ISO 11357	80x10x4 mm	°C	127
Onset crystallization temperature	DSC	ISO 11357	80x10x4 mm	°C	108
Vicat-softening Temperature	VST A50	ISO 306	ISO 3167 A	°C	118
Heat distortion temperature	HDT A	ISO 75-2		°C	
Powder properties					
Powder d10		Laser diff.	powder	µm	33
Powder d50		Laser diff.	Powder	µm	76
Powder d90		Laser diff.	Powder	µm	127
Powder bulk density			Powder	g/cm³	0.36
Powder tap density			powder	g/cm³	0.45

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Recommended processing parameters

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

Due to the large variety of machines and part geometries given process parameters can only be seen as an orientation.
Feed temperature: 75 °C
Piston heater temperature: 108 °C
Part Cylinder temperature: 78 °C
Part heater temperature: 130 °C
Part Heater PID Output Limit: 35 %
Layer thickness: 0.12 mm
Fill laser: 30 W
Outline laser: 8 W
Scan spacing: 0.22 mm
Fill laser speed: 6000 mm/s

Scale Factors: X 1.020 / Y 0.945 / Z 1.060

Additional Information

Partbed powder is fully reusable.

Main features

Powder for laser sintering (additive manufacturing). 3D-printing of light-weight parts with high toughness for automotive, robotics and many more applications. Very high chemical resistance. Suitable for food applications. No fogging, suitable for automotive interior parts. Part bed powder and even near shape powder is fully re-usable. Dye coloring is possible. Vapor smoothing is hardly possible due to high chemical resistance.

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