SELECTIVE LASER SINTERING (SLS) MATERIAL RANGE

Material properties (for comparative purposes only)

GENERAL PROPERTIES	METHOD	VALUE	VALUE	VALUE
		NYLON PA	NYLON GLASS-FILLED	NYLON EX
Specific gravity	ASTM D792	1.00 g/cm^3	1.49 g/cm^3	1.01 g/cm^3
SLS Moisture Absorption – 24 hours	ASTM D570	0.07%	0.22%	0.48%
Moisture Saturation	ASTM D570	N/A	N/A	1.15%
Tensile Strength, Yield	ASTM D638	N/A	27 MPa	37 MPa (5366 psi)
Tensile Strength, Ultimate	ASTM D638	43 MPa	26 MPa	48 MPa (6961 psi)
Tensile Modulus	ASTM D638	1586 MPa	4068 MPa	1517 MPa (220 ksi)
Elongation at Yield	ASTM D638	N/A	1.4%	5%
Elongation at Break	ASTM D638	14%	1.4%	47%
Flexural Strength, Yield	ASTM D790	N/A	N/A	42 MPa (6091 psi)
Flexural Strength, Ultimate	ASTM D790	48 MPa	37 MPa	46 MPa (6672 psi)
Flexural Modulus	ASTM D790	1387 MPa	3106 MPA	1310 MPa (190 ksi)
Hardness , Shore D	ASTM D2240	73	77	74
Hardness, Rockwell L	ASTM D785	N/A	N/A	69
Hardness, Rockwell M	ASTM D785	N/A	N/A	34
Impact Strength (notched Izod, 23°C)	ASTM D256	32 J/m	41 J/m	74 J/m (1.4 ft-lb/in)
Impact Strength (unnotched Izod, 23°C)	ASTM D256	336 J/m	123 J/m	1486 J/m (>27.8 ft-lb/in)
Gardner Impact	ASTM D5420	2.7 J	4.5 J	11.8 J (8.7 ft-lb)
Heat Deflection Temperature	ASTM D648			
	@ 0.45 MPa	180 °C	179 °C	188 °C (370 °F)
	@ 1.82 MPa	95 °C	134 °C	48 °C (118 °F)
Coefficient of Thermal Expansion	ASTM E831			
	@ 0 -50 °C	82.6 µm/m-°C	82.6 µm/m-°C	120 µm/m-°C (66.7 µin/in-°F)
	@ 85 -145 °C	179.2 µm/m-°C	179.2 µm/m-°C	342 µm/m-°C (190 µin/in °F)
Specific Heat Capacity	ASTM E1269	1.64 J/g -°C	1.09 J/g -°C	1.75 J/g -°C (0.418 BTU/lb-°F)
Thermal Conductivity	ASTM E1225	0.70 W/m-K	0.47 W/m-K	0.51 W/m-K (3.5 BTU-in/hr-ft-°F)
Flammability	UL94	HB	HB	HB
Volume Resistivity	ASTM D257	5.9 x 10^{13}ohm-cm	3.2 x 10^{11}ohm-cm	1.3 x 10^{13}ohm-cm
Surface Resistivity	ASTM D257	7.0 x 10^{13}ohm	3.2 x 10^{11} ohm	4.9 x 10^{12} ohm
Dissipation Factor, 1 KHz	ASTM D150	0.044	0.177	0.050
Dielectric Constant, 1 KHz	ASTM D150	2.73	6.27	4.5
Dielectric Strength	ASTM D149	17.3 kV/mm	8.7 kV/mm	18.5 kV/mm (470 kV/in)

*N.B. Not all materials available across all sites

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