



Rapid Product Solutions, Inc.

2240 Celsius Avenue, Unit D, Oxnard, CA 93030, 805.485.7234, Rapid-Products.com

RPS Selective Laser Sintering (SLS) Materials						
Properties	ASTM Method	RPS Nylon PA*	RPS HST Composite	RPS Glass Filled Nylon	RPS Flame Retardant Nylon 12	RPS EX-Flex
Tensile Strength (PSI)	D 638	6,237	7,050-7,350	3,916	6,010	5,366
Tensile Modulus (KSI)	D 638	230	795-831	590	296	220
Elongation at Break (%)	D 638	14	4.5	1.4	5.9	5.0
Flexural Strength (PSI)	D 790	6,962	12,000-12,900	5,366	8,940	6,091
Flexural Modulus (KSI)	D 790	201	638-660	590	257	190
Impact Strength (Ft-lbs/in), Notched	D 256	0.6	0.7	0.8	0.5	1.4
Gardner Impact	D 5420	2.0 ft-lb	3.7 ft-lb	3.3	—	8.7
Heat Deflection Temperature (°F)	D 648 @ 66 PSI, @ 264 PSI	356, 203	363, 355	354, 273	356, 201	370, 118
Coefficient of Thermal Expansion (µm/in-°F)	E 831 0-50 °C, 85-145 °C	45.9, 99.6	76.8, 148.4	34.6, 69.2	78, 78	66.7, 190
Specific Heat Capacity (BTU/lb-°F)	E 1269	0.392	0.392	0.261	0.33-0.60	0.418
Thermal Conductivity (BTU-IN/HR-FT2)	E 1225	4.86	0.359	3.26	1.53	3.5
Flame Classification	UL 94	HB	HB	HB	UL 94 (See page 2)	HB
Color(s)	—	Beige	Beige	Beige	White	White, Black
Hardness, Shore D	D 2240	73	75	77	76	74
Electrical Properties	ASTM Method	Value Range	Value Range	Value Range	Value Range	Value Range
Volume Resistivity (ohm-cm)	D 257	5.9x10 <sup>13</sup>	6.7x10 <sup>15</sup>	3.2x10 <sup>11</sup>	2.35x10 <sup>14</sup>	1.3x10 <sup>13</sup>
Dielectric Constant, 1 KHz	D 150	2.73	3.14	6.27	3.0	4.5
Surface Resistivity (ohm)	D 150	7.0x10 <sup>12</sup>	5.2x10 <sup>15</sup>	3.2x10 <sup>11</sup>	2.56x10 <sup>13</sup>	4.9x10 <sup>12</sup>
Dissipation Factor, 1 KHz	D 150	0.044	0.028	0.177	0.038	0.05
Dielectric Strength, (kV/in)	D 149	439	470	221	575	470 V/mil

\*PA — Compliance with USP Class-VI Testing for medical applications.

For more information about advanced prototyping and product solutions, contact us at 805.485.7234 or sales@rapid-products.com.

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Flammability Properties		
Measurement	Condition	U.S.
FAR 25.583 (a) and Appendix F Part I (b)(4), (in)	60 Seonds	0.16
FAR 25.583 (a) and Appendix F Part I (a)(1)(ii), (in)	12 Seconds	0.08
AITM 2.0007B Smoke Density		
Flaming Mode	12 Seconds	Pass
Non Flaming Mode	3 Seconds	Pass
AITM 3.0005 Combustion Toxicity		
Flaming Mode	—	Pass
Non Flaming Mode	—	Pass
AITM 2.0006 (kW/m <sup>2</sup>   BTU/s ft <sup>2</sup> )		
Maximum Heat Release Rate (HHR)	—	12.44
Total Heat Release (HR)	2 Minutes	9.26
Flammability (UL File #E494541)		
V2 @ 5.0 mm (0.2")	—	Pass
HB @ 1.5 mm (0.06")	—	Pass

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