



**RPS**  
Rapid Product Solutions, Inc.

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

RPS Fused Deposition Modeling (FDM) Materials						
Properties	ASTM Method	RPS ABS	RPS ABS-M30	RPS PC-ABS	RPS PC	RPS Ultem*
Tensile Strength (PSI)	D 638	5,400	5,200	4,250	9800	10,400
Tensile Modulus (KSI)	D 638	278	350	260	330	322
Elongation at Break (%)	D 638	4.4	4.0	5.0	5.0	6.0
Flexural Strength (PSI)	D 790	8,980	8,800	8,500	15,100	16,700
Flexural Modulus (KSI)	D 790	278	336	250	324	363
Impact Strength (Ft-lbs/in), Notched	D 256	1.8	2.6	4.0	1.0	2.0
Heat Deflection Temperature (°F)	D 648 @ 66 PSI, @ 264 PSI	188, 163	204, 180	230, 205	280, 261	307
Rockwell Hardness	D 785	R 108	R 110	R 110	R 115	—
Coefficient of Thermal Expansion	D 696	6.7 <sup>-06</sup> in/in/°F	4.9 <sup>-06</sup> in/in/°F	4.1 <sup>-05</sup> in/in/°F	3.8 <sup>-05</sup> in/in/°F	3.67 <sup>-05</sup> in/in/°F
Flame Classification	—	UL 94	UL 94	UL 94	UL 94	UL 94 V-O
Color(s)	—	Natural, Amber, Red	Ivory, White, Black, Dark Grey, Blue, Red	Black	White	Tan Black
Electrical Properties	ASTM Method	Value Range	Value Range	Value Range	Value Range	Value Range
Volume Resistivity	D 257	6.1x10 <sup>10</sup> -1.5x10 <sup>9</sup> ohms	4.0x10 <sup>14</sup> -5.0x10 <sup>13</sup> ohms	3.7 <sup>15</sup> -1.8 <sup>16</sup> ohms	2.0x10 <sup>14</sup> -6.0x10 <sup>13</sup> ohms	2.0x10 <sup>14</sup> -6.0x10 <sup>13</sup> ohms
Dielectric Constant	D 150-98	3.6-3.4	2.9-2.7	2.78-2.83	3.0-2.8	3.2-3.0
Dissipation Factor	D 150-98	0.15-0.12	.0052-.0049	.0048-.0054	.0006-.0005	.0027-.0026
Dielectric Strength	D 149-09	320-100 V/mil	370-71 V/mil	320 V/mil	360-80 V/mil	290-110 V/mil

\*Ultem — FAA certified for flammability requirements per FAR 25.853 (Method A/B). For test results, see page two attached.

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

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FAA Approved Material — Ultem Test Results		
	Test Method	Value
Oxygen Index	ASTM D2863	0.49
Vertical Burn	FAR 25.853 (Test a [60s], Passes at)	2 Seconds
FAA Flammability	FAR 25.853 (Method A/B)	< 5
OSU Total Heat Release (5 Minute Test)	FAR 25.853	36 kW/m <sup>2</sup>
OSU Total Heat Release (2 Minute Test)	FAR 25.853	16 kW min/m <sup>2</sup>
UL File Number	—	E345258
Outgassing		
Total Mass Loss (TML)	ASTM E595	0.41% (1.00% Maximum)
Collected Volatile Condensable Material (CVCM)	ASTM E595	-0.1% (0.10% Maximum)
Water Vapor Recovered (WVR)	ASTM E595	-0.37% (Report)
Fungus Resistance (Method 508.6)	MIL-STD-810G	Passed
Burn Testing		
Vertical Burn (60 Seconds)	FAR 25.853	Passed (0.040" -0.250" Thick)
Heat Release 65/65	FAR 25.853	Passed (<40HR Peak, 0.060" Thick)
NBS Smoke Density (Flaming)	ASTM F814/E662	Passed
NBS Smoke Density (Non-Flaming)	ASTM F814/E662	Passed

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