TriStar

Engineered Plastic Solutions™

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Meldin® 7021 - Vespel® SP-21 Comparison

	Method	English (Metric)	Meldin 7021 DF*	Meldin 7021 HCM**	Meldin 7021 ISO***	Vespel SP-21
General						
Specific Gravity	ASTM D792	—	1.42	1.51	1.51	1.51
Hardness	ASTM D785	—	—	25-40 [Rockwell E]	50 [Shore E]	25-45 [Rockwell E]
Water Absorption 24 hours 48 hours	ASTM D570	 % %	 0.28 0.34	 0.19 0.50	 0.2 —	 0.19 0.57
Coefficient of Friction @ 25000 PV, 250 psi x 100 fpm @ 100000 PV, 500 psi x 200 fpm	ASTM D3702	 — —	 — —	 0.23 0.12	 — —	 0.24 0.12
High Temperature Dimensional Stability @500°F	INTERNAL	% Change	0.04 MAX	—	—	—
Limiting Oxygen Index	ASTM D2863	—	—	100	—	49
Mechanical						
Tensile Strength @RT @ 230°F [110°C] @ 500°F [260°C] @ 572°F [300°C]	ASTM D638	 psi (MPa) psi (MPa) psi (MPa) psi (MPa)	 9,700 [66.9] 8,000 [55.1] 5,000 [34.5] 4,600 [31.7]	 9,500 [65.5] — 5,700 [39] —	 9,500 [65.5] — 5,500 [38] —	 9,500 [65.5] — 5,500 [38] —
Elongation @ RT @ 500°F [260°F]	ASTM D638	 % %	 5.5 5.2	 4.7 3.2	 4.5 4.3	 4.5 3.0
Flexural Strength @ RT @ 500°F [260°F]	ASTM D790	 psi (MPa) psi (MPa)	 13,000 [89.6] 7,500 [51.7]	 15,800 [109] 8,600 [59]	 15,600 [108] —	 16,000 [110.3] 9,000 [62]
Flexural Modulus @ RT @ 500°F [260°F]	ASTM D790	 psi x 10^5 (GPa) psi x 10^5 (GPa)	 4.5 [3.1] 2.6 [1.8]	 5.3 [3.7] 3.5 [2.4]	 5.7 [3.9] —	 5.5 [3.79] 3.7 [2.55]
Compressive Stress @ 1% Strain @ 10% Strain	ASTM D695	 psi (MPa) psi (MPa)	 3,400 [23] 15,300 [106]	 4,300 [30] 18,000 [124]	 3,800 [26.2] 19,300 [133]	 4,200 [29] 19,300 [133]
Compressive Modulus	ASTM D695	psi x 10^5 (GPa)	3.0 [2.1]	4.5 [3.1]	3.3 [2.3]	4.2 [2.90]
Thermal						
Coefficient of Thermal Expansion 23 – 260 ºC (73 – 500 ºF)	ASTM E831	in/in/ºF (m/m/ºC) x 10^{-5}	2.5 [4.5]	2.2 [4.0]	2.5 [4.5]	2.7 [4.9]
Thermal Conductivity	ASTM F433	BTU in/hr ft² ºF (W/mºC	3.0 [0.43	5 [0.72]	—	6.03 [0.87]
Flammability	UL94	—	V-O, 5VA	V-0, 5VA	—	—
Electrical						
Dielectric Strength Short time 2mm (.08") thick	ASTM D149	V/mil (MV/m)	—	280 [11]	104 [4.0]	255.8 [9.84]
Dielectric Constant 100 Hz 10 KHz 1 MHz	ASTM D150	 — — —	 — — —	 6.49 6.42 6.28	 — — —	 13.53 13.28 13.41
Dissipation Factor 100 Hz 10 KHz 1 MHz	ASTM D150	 — — —	 — — —	 0.003 0.007 0.011	 — — —	 0.0053 0.0067 0.0106
Surface Resistivity	ASTM D257	Ohm·sq	—	10^8-10^9	—	—
Volume Resistivity	ASTM D257	Ohm·m	—	—	—	10^{12}-10^{13}

* DF = Direct Formed ** HCM = Hot Compression Molded *** ISO = Isostatically Molded

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