Vespel® SP-1 Material Specifications

Vespel® is one of the highest performing engineered plastics currently available. This high performance polyimide material has consistently exhibited superior performance in a variety of applications requiring low wear and long life in severe environments. Other Vespel® grades are available call or email your request.

Physical Properties	Units	Test	SP-1
Density	lb/in³ g/cm³	D792	0.051 1.43
Water Absorption	24hrs @ 73ºF (%) 48hrs @ 122ºF (%)	D570	0.24 0.72

Mechanical Properties	Units	Test	SP-1
Tensile Strength, Ultimate	@ 73ºF (psi) @500ºF (psi)	D638	12,500 6,000
Tensile Elongation, Ultimate	@ 73ºF (psi) @500ºF (psi)	D638	7.5 6.0
Flexural Strength, Ultimate	@ 73ºF (psi) @500ºF (psi)	D790	16,000 9,000
Flexural Modulus	@ 73ºF (psi) @500ºF (psi)	D790	450,000 250,000
Compressive Strength	10% strain @ 73Fº (psi)	D695	19,300
Compressive Modulus	psi	D695	350,000
Hardness Rockwell	-	D785	E45-60
Izod Impact Notched	ft-lb/in	D256	0.8
Poisson's Ratio	-	-	0.4

Thermal Properties	Units	Test	SP-1
Coefficient of Linear Thermal Expansion	X 10^{-5} in./in./°F	D696	3.0
Heat Deflection Temperature	@264 psi °F/°C	D648	680 / 360
Max. Use Temperature	ºF/ºC	-	500 / 260
Thermal Conductivity	BTU-in/ft^2-hr-°F x 10^{-4} cal/cm-sec-°C	C177	2.0 6.9
Flammability Rating	-	UL94	V-0

Electrical Properties	Units	Test	SP-1
Dielectric Strength	(V/mil) short time, 1/8" thick	D149	560
Dielectric Constant	@1 MHz	D150	3.55
Dissipation Factor	@1 MHz	D150	0.0034
Volume Resistivity	(ohm-cm) @50% RH	D257	10^{14} - 10^{15}