



MANUFACTURING CORPORATION

- Plastics Machining
- Spring Energized Seals
- Rotary Lip Seals

Material Data Sheet

Material: Vespel® SP-21

Polyimide

Vespel® SP-21 has graphite added to provide low wear and friction for bearings, thrust washer, and dynamic seal. It has a 15%, by weight, graphite filler. Outstanding creep resistance and possible heat excursions to 900°F.

These are machined properties and are non-directional

Physical Properties	Test Method ASTM	Value	Units
Density	D-792	1.51	lb/in ³
Water Absorption 24hrs. @73°F	D-570	0.24	%
Mechanical Properties			
Hardness, Rockwell M	D-785	25-45	
Tensile Strength Ultimate @ 73°F	D-1708	9,500	psi
Tensile Strength Ultimate @ 500°F	D-1708	5,500	psi
Flexural Modulus @ 73°F	D-790	550	10 ³ psi
Flexural Modulus @ 500°F	D-790	370	10 ³ psi
Flexural Strength Ultimate @ 73°F	D-790	16,000	psi
Flexural Strength Ultimate @ 500°F	D-790	9,000	psi
Compressive Stress @ 73°F 1% Strain	D-695	4,200	psi
Izod Impact, Notched @ 73°	D-256	0.8	ft-lb/in
Izod Impact, Unnotched @ 73°F	D-256	6	ft-lb/in
Electrical Properties			
Dielectric Constant @73°F 10 ² Hz	D-150	13.53	
Dielectric Strength Short Time 80 mils thick 73°F	D-149	250	Volts/mil
Dissipation Factor @ 73°F 10 ² Hz	D-150	0.0053	
Arc Resistance			sec
Thermal Properties			
CTE 73°F - 572°F	E-228	27	10 ⁻⁶ in/in/°F
CTE - 80°F - 73°F	E-228	19	10 ⁻⁶ in/in/°F
Thermal Conductivity	E-228	6.0	BTU-in/hr-ft ² °F
Maximum Service Temperature, Air			°F
Flammability, UL94			

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*The values shown in these and the following charts are typical, average properties. Actual values may differ due to variations in resin formulations and processing methods. These values are obtained from sources believed to be reliable, including the resin manufacturers, converters and other published sources. However, they should not be used for specification or design purposes.