



# CHawk Technology Intl., Inc.

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## Material Data Sheet

Material: Vespel® SP-1 Molded Polyimide

VESPEL® SP-1 provides maximum physical strength, elongation, and toughness as well as the best electrical and thermal insulation. Vespel® is a high-performance polyimide material that offers a broad combination of temperature resistance, chemical resistance, mechanical toughness, natural lubricity, wear-resistance and insulation properties.

### These are machined properties and are non-directional

Physical Properties	Test Method ASTM	Value	Units
Density	D-792	1.43	lb/in <sup>3</sup>
Water Absorption 24hrs. @73°F	D-570	0.24	%
<b>Mechanical Properties</b>			
Hardness, Rockwell E	D-785	45-60	
Tensile Strength Ultimate @ 73°F	D-1708	12,500	psi
Tensile Strength Ultimate @ 500°F	D-1708	6,000	psi
Flexural Modulus @ 73°F	D-790	450	10 <sup>3</sup> psi
Flexural Modulus @ 500°F	D-790	250	10 <sup>3</sup> 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-1695	3,600	psi
Izod Impact, Notched @ 73°	D-256	0.8	ft-lb/in
Izod Impact, Unnotched @ 73°F	D-256	14	ft-lb/in
<b>Electrical Properties</b>			
Dielectric Constant @73°F 10 <sup>2</sup> Hz	D-150	3.62	
Dielectric Strength Short Time 80 mils thick 73°F	D-149	560	Volts/mil
Dissipation Factor @ 73°F 10 <sup>2</sup> Hz	D-150	0.0018	
Arc Resistance			sec
<b>Thermal Properties</b>			
CTE 73°F - 572°F	E-228	30	10 <sup>-6</sup> in/in/°F
CTE - 80°F - 73°F	E-228	25	10 <sup>-6</sup> in/in/°F
Thermal Conductivity	E-228	2.4	BTU-in/hr-ft <sup>2</sup> °F
Maximum Service Temperature, Air			°F
Flammability, UL94			

\*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.