VTEC™ PI Polyimide Parts & Shapes

A superior polyimide polymer that performs like a ceramic

- High temperature resistance
- Superior mechanical properties
- Excellent chemical resistance
- Extremely dimensionally stable
- Easy machining and tolerance control
- Outstanding electrical properties
- Non-abrasive to mating parts
- Very low outgassing
- Strength at elevated temperature
- Very low thermal expansion coefficient
- Extremely low moisture absorption – 1/16th of Vespel SP-1
- Equal thermal expansion in X, Y and Z directions
- Compliant without deforming under load and temperature
- Wear resistance, low friction, self-lubricating
- High compressive strength and creep resistance
- Zero metal and mineral extractables

VTEC PI PHYSICAL PROPERTIES

VTEC PI — THE CERAMIC PLASTIC™	Test Method	Unit	VTEC™ PI
Specific Gravity	D792	—	**1.41**
Hardness	D785	Durometer D	**86**
Tensile Strength	D638	psi	**12,950**
Elongation	D638	%	**6.5**
Compressive Stress (10% strain)	D695	psi	**36,400**
Compressive Modulus	D695	psi	**369,800**
Compressive Creep	D621	%	**0.20**
Flexural Strength	D790	psi	**29,675**
Flexural Modulus	D790	psi	**442,850**
Impact Strength, Izod Notched	D256	ft lb/in	**1.26**
Coefficient Of Thermal Expansion	D696	in/in °F 10^{-6}	**25**
Dimensional Stability (% change, 24 hrs@ 500°F)	—	%	**0.00**
Thermal Conductivity	Cence Fitch	btu in/hr ft^2 °F	**0.27**
Dielectric Constant (73°F, 10^6 Hz)	D150	—	**3.02**
Dielectric Constant (73°F, 10^{12} GHz)	D150	—	**2.90**
Dissipation Factor (73°F, 10^6 Hz)	D150	—	**.003**
Dissipation Factor (73°F, 10^{12} GHz)	D150	—	**.001**
Dielectric Strength (Short Time, 80 mils thick)	D149	volts/mil	**590**
Volume Resistivity	D257	ohms-m	**10^{14}-10^{15}**
Surface Resistivity	D257	ohms	**10^{15}-10^{16}**
Water Absorption	D570	%	**<0.1**
Abrasion Coefficient	Matsubara Method	$\frac{cm^3\ sec}{kg/m/hr} \times 10^5$	**2.46**
Dynamic Friction Coefficient	—	µm	**0.35**

VTEC 'CERAMIC PLASTIC' AVAILABILITIES & CAPABILITIES

• STOCK SHAPES	Rod, sheet, tube and custom shapes for machined parts
• DIRECT FORMING	Net and near-net blanks (higher volume applications)
• MACHINING	RBI offers complete CNC machining of finished VTEC parts and components
• CUSTOM COMPOUNDS	VTEC grades can be engineered based on individual service and application needs. Fillers include glass, carbon, graphite, Teflon, MoS_2, minerals, etc.

RBI, Inc. • 1517 Hill Road • Suite 5A • Reading • PA • 19602 • USA
610-236-1445 • Fax: 610-236-1446 • www.vtecpi.com • E-mail: mcd@rblaine.com