

# DuPont™ Vespel® CR-4638

## Thermoplastic Parts and Shapes

### Description

Vespel® CR-4638 parts use the latest reinforced, chemically resistant, thermoplastic polymer. Custom parts molded from CR-4638 resin help provide electrical conductivity to dissipate accumulated static charges, resulting in lower particle generation. CR-4638 material also offers improved wear resistance for longer part life. Customers have reported that these characteristics are beneficial in a variety of applications,

including semiconductor wafer handling. Traditional thermoplastic processing methods can be employed to produce custom parts with CR-4638.

Data presented below are based on limited production runs and are subject to revision as new knowledge and experience are attained.

### DuPont™ Vespel® CR-4638 Thermoplastic Parts & Shapes

Mechanical Property	Temperature	Method	SI Units	Typical Values
Tensile Strength	23 °C	ISO 527	MPa	142
Tensile Modulus	23 °C	ISO 527	MPa	21,100
Strain @ Break	23 °C	ISO 527	%	1.0
Flexural Strength	23 °C	ISO 178	MPa	216
Flexural Modulus	23 °C	ISO 178	MPa	19,700
Notched Izod Impact	23 °C	ISO 180	J/m <sup>2</sup>	5,030
Un-Notched Izod Impact	23 °C	ISO 180	J/m <sup>2</sup>	20,000
Hardness	-	ASTM D785	Rockwell E Scale	40
<b>Thermal Property</b>				
Coefficient of Thermal Expansion (CTE)	23 – 150 °C	ISO 11359-1/-2	m/m °C	6.6 x 10 <sup>-6</sup> 48.5 x 10 <sup>-6</sup>
- Flow Direction				
- Transverse Direction				
Glass Transition Temperature (T <sub>g</sub> )	-	DMA	°C	154
Heat Deflection Temperature (HDT) @ 1800 kPa		ISO 75F	°C	151
Heat Deflection Temperature (HDT) @ 450 kPa		ISO 75F	°C	157
<b>Electrical Property</b>				
Surface Resistivity	-	IEC 60093	ohm/ sq	10 <sup>4</sup> – 10 <sup>5</sup>
Volume Resistivity	-	ASTM D4496	ohm-cm	10 <sup>4</sup> – 10 <sup>5</sup>
<b>Flammability</b>				
Vertical Burn Test* sample 3.2mm		UL-94	-	V-0
<b>Other Property</b>				
Specific Gravity	-	ASTM D792	-	1.42
Water Absorption, 24 hrs	23 °C	ASTM D570	% by weight	0.06

\* Not Certified

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