

Victrex® WG102™ Polyaryletherketone

Category : Polymer , Thermoplastic , Polyketone

Material Notes:

Product Description: High performance thermoplastic material, PolyArylEtherKetone (PAEK), semi crystalline, granules for injection moulding, standard flow, FDA food contact compliant WG102 does not contain polytetrafluoroethylene (PTFE) or other halogenated additives
Typical Application Areas: Higher temperature tribological applications for high strength and stiffness. Excellent wear resistance, low coefficient of friction, low coefficient of thermal expansion. Chemically resistant to aggressive environments. Information provided by Victrex

Order this product through the following link:

http://www.lookpolymers.com/polymer_Victrex-WG102-Polyaryletherketone.php

Physical Properties	Metric	English	Comments
Density	1.44 g/cc	0.0520 lb/in ³	Crystalline; ISO 1183
Viscosity	575000 cP @Temperature 400 °C	575000 cP @Temperature 752 °F	Melt; ISO 11443
Linear Mold Shrinkage, Flow	0.0010 cm/cm	0.0010 in/in	410°C nozzle, 190°C tool; ISO 294-4
Linear Mold Shrinkage, Transverse	0.0060 cm/cm	0.0060 in/in	410°C nozzle, 190°C tool; ISO 294-4
Spiral Flow	36.0 cm @Thickness 3.00 mm	14.2 in @Thickness 0.118 in	410°C nozzle, 190°C tool; Victrex
	85.0 cm @Thickness 1.00 mm	33.5 in @Thickness 0.0394 in	410°C nozzle, 190°C tool; Victrex

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	86	86	ISO 868
Tensile Strength at Break	55.0 MPa @Temperature 275 °C	7980 psi @Temperature 527 °F	ISO 527
	85.0 MPa @Temperature 175 °C	12300 psi @Temperature 347 °F	ISO 527
	130 MPa @Temperature 125 °C	18900 psi @Temperature 257 °F	ISO 527
	195 MPa @Temperature 23.0 °C	28300 psi @Temperature 73.4 °F	ISO 527
Elongation at Break	2.0 %	2.0 %	ISO 527

Mechanical Properties	Metric	English	Comments
Flexural Strength	75.0 MPa	10900 psi	ISO 178
	@Temperature 275 °C	@Temperature 527 °F	
	145 MPa	21000 psi	ISO 178
	@Temperature 175 °C	@Temperature 347 °F	
	220 MPa	31900 psi	ISO 178
	@Temperature 125 °C	@Temperature 257 °F	
	290 MPa	42100 psi	ISO 178
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Flexural Modulus	17.0 GPa	2470 ksi	ISO 178
Compressive Strength	55.0 MPa	7980 psi	ISO 604
	@Temperature 250 °C	@Temperature 482 °F	
	75.0 MPa	10900 psi	ISO 604
	@Temperature 200 °C	@Temperature 392 °F	
	145 MPa	21000 psi	ISO 604
	@Temperature 120 °C	@Temperature 248 °F	
	250 MPa	36300 psi	ISO 604
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Izod Impact, Notched (ISO)	6.00 kJ/m ²	2.86 ft-lb/in ²	ISO 180/A
Izod Impact, Unnotched (ISO)	40.0 kJ/m ²	19.0 ft-lb/in ²	ISO 180/U
Charpy Impact Unnotched	3.50 J/cm ²	16.7 ft-lb/in ²	ISO 179/1eA
Charpy Impact, Notched	0.500 J/cm ²	2.38 ft-lb/in ²	ISO 179/1U

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	9.00 µm/m-°C	5.00 µin/in-°F	Below Tg; ISO 11359
	10.0 µm/m-°C	5.56 µin/in-°F	Above Tg; ISO 11359
CTE, linear, Transverse to Flow	35.0 µm/m-°C	19.4 µin/in-°F	Average below Tg; ISO 11359
	90.0 µm/m-°C	50.0 µin/in-°F	Average above Tg; ISO 11359
Thermal Conductivity	1.30 W/m-K	9.02 BTU-in/hr-ft ² -°F	Average; ISO/CD 22007-4
	2.20 W/m-K	15.3 BTU-in/hr-ft ² -°F	Along flow; ISO 22007-4

Thermal Properties	Metric	English	Comments
Deflection Temperature at 1.8 MPa (264 psi)	367 °C	693 °F	ISO 75-f
Glass Transition Temp, Tg	152 °C	306 °F	Onset; ISO 11357
	180 °C	356 °F	Midpoint; ISO 11357

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+7 ohm-cm	1.00e+7 ohm-cm	1V; IEC 60093

Processing Properties	Metric	English	Comments
Processing Temperature	<= 100 °C	<= 212 °F	Hopper Temperature
Nozzle Temperature	410 °C	770 °F	
Zone 1	390 °C	734 °F	
Zone 2	395 °C	743 °F	
Zone 3	400 °C	752 °F	
Zone 4	405 °C	761 °F	
Mold Temperature	190 - 215 °C	374 - 419 °F	
	<= 250 °C	<= 482 °F	
Dry Time	3 hour	3 hour	
	@Temperature 150 °C	@Temperature 302 °F	
	5 hour	5 hour	
	@Temperature 120 °C	@Temperature 248 °F	

Descriptive Properties	Value	Comments
Color	Black	
Gate	> 2mm or 0.5 x part thickness	
Runner	Die/nozzle > 3mm, manifold > 3.5mm	

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