

Victrex® WG101™ Polyaryletherketone

Category : Polymer , Thermoplastic , Polyketone

Material Notes:

Product Description: High performance thermoplastic material, PolyArylEtherKetone (PAEK), semi crystalline, black, granules for injection moulding, easy flow with wear additives. WG101 does not contain polytetrafluoroethylene (PTFE) or other halogenated additives. Typical

Application Areas: Tribological applications with thin cross sections or long flow lengths, with higher strength and stiffness. Excellent wear resistance, very low coefficient of friction and 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-WG101-Polyaryletherketone.php

Physical Properties	Metric	English	Comments
Density	1.44 g/cc	0.0520 lb/in ³	Crystalline; ISO 1183
Water Absorption	0.30 %	0.30 %	by immersion; ISO 62-1
	0.60 %	0.60 %	by immersion; ISO 62-1
Viscosity	325000 cP	325000 cP	Melt; ISO 11443
	@Temperature 400 °C	@Temperature 752 °F	
Linear Mold Shrinkage, Flow	0.00 cm/cm	0.00 in/in	390°C nozzle, 200°C tool; ISO 294-4
Linear Mold Shrinkage, Transverse	0.0050 cm/cm	0.0050 in/in	390°C nozzle, 200°C tool; ISO 294-4
Spiral Flow	13.5 cm	5.31 in	390°C nozzle, 200°C tool; Victrex
	@Thickness 1.00 mm	@Thickness 0.0394 in	

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	85	85	ISO 868
Tensile Strength at Break	55.0 MPa	7980 psi	ISO 527
	@Temperature 275 °C	@Temperature 527 °F	
	65.0 MPa	9430 psi	
	@Temperature 225 °C	@Temperature 437 °F	ISO 527
	85.0 MPa	12300 psi	ISO 527
	@Temperature 175 °C	@Temperature 347 °F	ISO 527
	125 MPa	18100 psi	ISO 527
	@Temperature 125 °C	@Temperature 257 °F	ISO 527

Mechanical Properties	Metric ^{Pa}	English ^{ksi}	Comments
	@Temperature 23.0 °C	@Temperature 73.4 °F	ISO 527
Elongation at Break	1.8 %	1.8 %	ISO 527
Tensile Modulus	19.5 GPa	2830 ksi	ISO 527
Flexural Strength	70.0 MPa	10200 psi	ISO 178
	@Temperature 275 °C	@Temperature 527 °F	
	140 MPa	20300 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	45.0 MPa	6530 psi	ISO 604
	@Temperature 250 °C	@Temperature 482 °F	
	65.0 MPa	9430 psi	ISO 604
	@Temperature 200 °C	@Temperature 392 °F	
	160 MPa	23200 psi	ISO 604
	@Temperature 120 °C	@Temperature 248 °F	
	230 MPa	33400 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)	35.0 kJ/m ²	16.7 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

Thermal Properties	85.0 μm/m-°C Metric	47.2 μm/in-°F English	Average above Tg; ISO 11359 Comments
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
Melting Point	343 °C	649 °F	ISO 11357
Deflection Temperature at 1.8 MPa (264 psi)	343 °C	649 °F	ISO 75-f
Glass Transition Temp, Tg	143 °C	289 °F	Onset; ISO 11357
	147 °C	297 °F	Midpoint; ISO 11357

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+8 ohm-cm	1.00e+8 ohm-cm	1V; IEC 60093

Processing Properties	Metric	English	Comments
Processing Temperature	<= 100 °C	<= 212 °F	Hopper Temperature
Nozzle Temperature	390 °C	734 °F	
Zone 1	370 °C	698 °F	
Zone 2	375 °C	707 °F	
Zone 3	380 °C	716 °F	
Zone 4	385 °C	725 °F	
Mold Temperature	180 - 210 °C	356 - 410 °F	normal
	<= 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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