

Victrex® HT™ G45 Polyetherketone

Category : Polymer , Thermoplastic , Polyketone

Material Notes:

Product Description: High performance thermoplastic material, unreinforced PolyEtherKetone (PEK), semi crystalline, depth filtered granules for injection moulding, low flow, FDA food contact compliant

Typical Application Areas: Applications for higher strength and stiffness as well as good ductility at higher temperatures. Chemically resistant to aggressive environments, suitable for sterilization for medical and food contact applications.

Information provided by Victrex

Order this product through the following link:

http://www.lookpolymers.com/polymer_Victrex-HT-G45-Polyetherketone.php

Physical Properties	Metric	English	Comments
Density	1.26 g/cc	0.0455 lb/in ³	Amorphous; ISO 1183
	1.30 g/cc	0.0470 lb/in ³	Crystalline; ISO 1183
Water Absorption	0.60 %	0.60 %	by immersion; ISO 62-1
	0.070 % @Time 86400 sec	0.070 % @Time 24.0 hour	3.2 mm thick Tensile bar; ISO 62-1
Viscosity	400000 cP	400000 cP	Melt; ISO 11443
	@Temperature 400 °C	@Temperature 752 °F	
Linear Mold Shrinkage, Flow	0.010 cm/cm	0.010 in/in	415°C nozzle, 220°C tool; ISO 294-4
Linear Mold Shrinkage, Transverse	0.012 cm/cm	0.012 in/in	415°C nozzle, 220°C tool; ISO 294-4
Spiral Flow	1900 cm	748 in	415°C nozzle, 220°C tool; Victrex
	@Thickness 1.00 mm	@Thickness 0.0394 in	

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	87	87	ISO 868
Tensile Strength, Yield	115 MPa	16700 psi	ISO 527
Elongation at Break	30 %	30 %	ISO 527
Tensile Modulus	3.70 GPa	537 ksi	ISO 527
Flexural Strength	16.0 MPa	2320 psi	Result based on HT G22; ISO 178
	@Temperature 275 °C	@Temperature 527 °F	
	32.0 MPa	4640 psi	Result based on HT G22; ISO 178
	@Temperature 175 °C	@Temperature 347 °F	

Mechanical Properties	110 MPa Metric	16000 psi English	Comments Result based on HT G22; ISO 178
	@Temperature 125 °C	@Temperature 257 °F	
	185 MPa	26800 psi	Result based on HT G22; ISO 178
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Flexural Modulus	4.20 GPa	609 ksi	ISO 178
	30.0 MPa	4350 psi	Result based on HT G22; ISO 604
	@Temperature 200 °C	@Temperature 392 °F	
	90.0 MPa	13100 psi	Result based on HT G22; ISO 604
	@Temperature 120 °C	@Temperature 248 °F	
	140 MPa	20300 psi	Result based on HT G22; ISO 604
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Izod Impact, Notched (ISO)	7.00 kJ/m ²	3.33 ft-lb/in ²	ISO 180/A
Izod Impact, Unnotched (ISO)	NB	NB	ISO 180/U

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	45.0 µm/m-°C	25.0 µin/in-°F	Below Tg, Result based on HT G22; ISO 11359
	75.0 µm/m-°C	41.7 µin/in-°F	Above Tg, Result based on HT G22; ISO 11359
CTE, linear, Transverse to Flow	55.0 µm/m-°C	30.6 µin/in-°F	Average below Tg, Result based on HT G22; ISO 11359
	130 µm/m-°C	72.2 µin/in-°F	Average above Tg, Result based on HT G22; ISO 11359
Specific Heat Capacity	2.20 J/g-°C	0.526 BTU/lb-°F	DSC
Thermal Conductivity	0.290 W/m-K	2.01 BTU-in/hr-ft ² -°F	Result based on 450G; ISO/CD 22007-4
Melting Point	373 °C	703 °F	ISO 11357
Deflection Temperature at 1.8 MPa (264 psi)	163 °C	325 °F	Result based on HT G22; ISO 75-f
Glass Transition Temp, Tg	152 °C	306 °F	Onset; ISO 11357
Flammability, UL94	V-0	V-0	
	@Thickness 1.50 mm	@Thickness 0.0591 in	
Oxygen Index	24 %	24 %	Results based on 450G; ISO 4589
	@Thickness 0.400 mm	@Thickness 0.0157 in	

Thermal Properties	^{35 %} Metric	^{35 %} English	Comments
	@Thickness 3.20 mm	@Thickness 0.126 in	Results based on 450G; ISO 4589
Glow Wire Test	960 °C	1760 °F	Result based on 450G; IEC 60695-2-12
	@Thickness 2.00 mm	@Thickness 0.0787 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+9 ohm-cm	1.00e+9 ohm-cm	Results based on HT G22
	@Temperature 275 °C	@Temperature 527 °F	
	1.00e+15 ohm-cm	1.00e+15 ohm-cm	Results based on HT G22
	@Temperature 125 °C	@Temperature 257 °F	
	1.00e+16 ohm-cm	1.00e+16 ohm-cm	Results based on HT G22
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Dielectric Strength	17.0 kV/mm	432 kV/in	IEC 60243-1
	@Thickness 2.50 mm	@Thickness 0.0984 in	
Comparative Tracking Index	150 V	150 V	Result based on 450G; IEC 60112

Processing Properties	Metric	English	Comments
Processing Temperature	<= 100 °C	<= 212 °F	Hopper Temperature
Nozzle Temperature	415 °C	779 °F	
Zone 1	390 °C	734 °F	
Zone 2	395 °C	743 °F	
Zone 3	405 °C	761 °F	
Zone 4	410 °C	770 °F	
Mold Temperature	200 - 220 °C	392 - 428 °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
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Color Descriptive Properties	Natural/Beige Value	Comments
Gate	> 1mm or 0.5 x part thickness	
Runner	Die/nozzle > 3mm, manifold > 3.5mm	
Toxicity Index	0.074	CO content, NES 713
	0.15	CO ₂ , NES 712
	0.22	Total gases, NES 712

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