Product Comparison

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Technical Data

Product Description

VICTREX WG™ POLYMER 101	High performance thermoplastic material, PolyArylEtherKetone (PAEK), reinforced with wear additives, semi crystalline, granules for injection moulding, easy flow, FDA food contact compliant, colour black. WG101 does not contain polytetrafluoroethylene (PTFE) or other halogenated additives or talc. 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.
Generic PAEK	This data represents typical values that have been calculated from all products classified as: Generic PAEK This information is provided for comparative purposes only.

General	VICTREX WG™ POLYMER 101	Generic PAEK
Manufacturer / Supplier	• Victrex plc	• Generic
Generic Symbol	• PAEK	• PAEK
Material Status	• Commercial: Active	• Commercial: Active
Search for UL Yellow Card	• Victrex plc	--
Availability	• Africa & Middle East • Asia Pacific • Europe • Latin America • North America	• Africa & Middle East • Asia Pacific • Europe • Latin America • North America
Additive	• Unspecified Additive	--
Agency Ratings	• FDA Food Contact	--
Appearance	• Black	--
Forms	• Granules	--
Processing Method	• Injection Molding	--

Physical	VICTREX WG™ POLYMER 101	Generic PAEK	Unit	Test Method
Density / Specific Gravity				
--	--	1.29 to 1.33		ASTM D792
Crystalline	1.44	--	g/cm³	ISO 1183
Spiral Flow [2]	5.31	--	in	Internal Method
Molding Shrinkage [3]				ISO 294-4
Across Flow	0.50	--	%	
Flow	0.0	--	%	
Water Absorption				
24 hr	--	0.022 to 0.21	%	ASTM D570
Saturation, 73°F	0.30	--	%	ISO 62
Water Absorption - Saturation (212°F)	0.60	--	%	ISO 62

Mechanical	VICTREX WG™ POLYMER 101	Generic PAEK	Unit	Test Method
Tensile Modulus				
--	--	421000 to 643000	psi	ASTM D638
--	--	363 to 2.87E+6	psi	ISO 527-1
73°F	2.83E+6	--	psi	ISO 527-1

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Mechanical	VICTREX WG™ POLYMER 101	Generic PAEK	Unit	Test Method
Tensile Stress				
Yield	--	12600 to 14000	psi	ISO 527-2
Break, 73°F	28300	--	psi	ISO 527-2
Break, 257°F	18100	--	psi	ISO 527-2
Break, 347°F	12300	--	psi	ISO 527-2
Break, 437°F	9430	--	psi	ISO 527-2
Break, 527°F	7980	--	psi	ISO 527-2
--	--	12200 to 24500	psi	ASTM D638
Tensile Elongation				
Break	--	0.90 to 41	%	ASTM D638 ISO 527-2
Break, 73°F	1.8	--	%	ISO 527-2
Flexural Modulus				
--	--	435000 to 518000	psi	ASTM D790
--	--	435000 to 2.51E+6	psi	ISO 178
73°F	2.47E+6	--	psi	ISO 178
Flexural Strength				
--	--	18000 to 30700	psi	ASTM D790
--	--	10200 to 42100	psi	ISO 178
73°F	42100	--	psi	ISO 178
257°F	31900	--	psi	ISO 178
347°F	20300	--	psi	ISO 178
527°F	10200	--	psi	ISO 178
Compressive Stress				ISO 604
73°F	36300	--	psi	
248°F	25400	--	psi	
392°F	10200	--	psi	
482°F	7250	--	psi	

Impact	VICTREX WG™ POLYMER 101	Generic PAEK	Unit	Test Method
Charpy Notched Impact Strength (73°F)	2.4	--	ft·lb/in²	ISO 179/1eA
Charpy Unnotched Impact Strength (73°F)	17	--	ft·lb/in²	ISO 179/1U
Notched Izod Impact				
--	--	0.075 to 1.9	ft·lb/in	ASTM D256
--	--	2.8 to 3.6	ft·lb/in²	ISO 180
73°F	2.9	--	ft·lb/in²	ISO 180/A
Unnotched Izod Impact Strength (73°F)	17	--	ft·lb/in²	ISO 180

Hardness	VICTREX WG™ POLYMER 101	Generic PAEK	Unit	Test Method
Shore Hardness (Shore D, 73°F)	85	--		ISO 868

Thermal	VICTREX WG™ POLYMER 101	Generic PAEK	Unit	Test Method
Deflection Temperature Under Load				ISO 75-2/Af
264 psi, Unannealed	649	--	°F	

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Thermal	VICTREX WG™ POLYMER 101	Generic PAEK	Unit	Test Method
Glass Transition Temperature				ISO 11357-2
Onset	289	--	°F	
Midpoint	297	--	°F	
Melting Temperature	649	--	°F	ISO 11357-3
CLTE				ISO 11359-2
Flow : < 289°F	5.0E-6	--	in/in/°F	
Flow : > 289°F	5.6E-6	--	in/in/°F	
Transverse : < 289°F	1.9E-5	--	in/in/°F	
Transverse : > 289°F	4.7E-5	--	in/in/°F	
Specific Heat	--	0.280 to 0.478	Btu/lb/°F	ASTM C351
Thermal Conductivity				
--	--	1.5 to 1.7	Btu·in/hr/ft²/°F	ASTM C177
73°F [4]	9.0	--	Btu·in/hr/ft²/°F	ISO 22007-4
73°F [5]	15	--	Btu·in/hr/ft²/°F	ISO 22007-4

Electrical	VICTREX WG™ POLYMER 101	Generic PAEK	Unit	Test Method
Volume Resistivity [6] (73°F)	1.0E+6	--	ohms·cm	IEC 60093
Dielectric Constant	--	3.06 to 3.13		ASTM D150
Dissipation Factor	--	1.0E-3 to 4.1E-3		ASTM D150

Fill Analysis	VICTREX WG™ POLYMER 101	Generic PAEK	Unit	Test Method
Melt Viscosity				
--	--	235 to 245	Pa·s	ASTM D3835
752°F	325	--	Pa·s	ISO 11443

Injection	VICTREX WG™ POLYMER 101	Generic PAEK	Unit
Drying Temperature	248 to 302	275 to 356	°F
Drying Time	3.0 to 5.0	--	hr
Hopper Temperature	< 212	--	°F
Rear Temperature	698	670 to 716	°F
Middle Temperature	707 to 716	689 to 717	°F
Front Temperature	725	698 to 717	°F
Nozzle Temperature	734	705 to 716	°F
Mold Temperature	356 to 410	325 to 401	°F

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Injection Notes	
VICTREX WG™ POLYMER 101	Runner: Die / nozzle >3mm, manifold >3.5mm Gate: >2mm or 0.5 x part thickness Important notes: 1) Processing conditions quoted in our datasheets are typical of those used in our processing laboratories • Data for mould shrinkage should be used for material comparison. Actual mould shrinkage values are highly dependent on part geometry, mould configuration, and processing conditions. • Mould shrinkage differs for along flow and across flow directions. “Along flow” direction is taken as the direction the molten material is travelling when it exits the gate and enters the mould. • Mould shrinkage is expressed as a percent change in dimension of a specimen in relation to mould dimensions. 2) Data are generated in accordance with prevailing national, international and internal standards, and should be used for material comparison. Actual property values are highly dependent on part geometry, mould configuration and processing conditions. Properties may also differ for along flow and across flow directions. Detailed data available on our website www.victrex.com or upon request.
Generic PAEK	This data represents typical values that have been calculated from all products classified as: Generic PAEK This information is provided for comparative purposes only.

Notes

[1] Typical properties: these are not to be construed as specifications.

[2] Mold Temperature: 392°F, Melt Temperature: 734°F, 0.0394 in

[3] 390°C nozzle, 200°C tool

[4] Average

[5] Along flow

[6] 1V