APTIV™ FILMS XPI B105

General Information

Product Description

APTIV XPI™ Film B105 is a mineral filled semi-crystalline film made from VICTREX™ PEEK polymer. The film provides durability and reliability in the most demanding application environments by incorporating all of the outstanding properties of VICTREX™ PEEK (PolyEtherEtherKetone) polymer in a thin film format. It is typically used as high-voltage e-motor stator insulation, enabling excellent thermal management as well as high electrical performance and maximized copper fill factor, resulting in enhanced e-motor efficiency.

APTIV XPI™ Film B105 offers increased thermal conductivity and meets the requirements of high-voltage (800 V) Slot Liner applications such as:

- Long-term thermal stability in high electric field strength rotating machines
- Excellent dielectric performance for primary and secondary insulation concepts in 800+ V electric machines
- Well-engineered mechanical properties for use on automated assembly lines and processing equipment
- High compatibility to a wide range of impregnation resins
- Optimum wear resistance for impregnation resin-free electric machine concepts
- Outstanding chemical resistance and hydrolysis resistance to water, ATF, oils and cooling fluids to support all cooling concepts, from water to direct oil immersion
- Enhanced thermal conductivity upon minimum slot liner thickness for ultra-low thermal resistance

Material Properties

Physical	Nominal Value	Unit	Test Method
Density [1] (23°C)	1.45	g/cm³	ISO 1183
Water Absorption [2]			ISO 62
Equilibrium, 23°C, 0.0500 mm, 50% RH	0.080	%	
ShrinkageMD [3] (200°C, 50.0 µm)	< 0.50	%	
ShrinkageTD [3] (200°C, 50.0 µm)	< 0.50	%	
Films	**Nominal Value**	**Unit**	**Test Method**
Film Thickness - Recommended / Available	100 µm		
Tensile Modulus			ISO 527
MD : 23°C, 100 µm	4500	MPa	
TD : 23°C, 100 µm	4200	MPa	
Tensile Stress			ISO 527
MD : Break, 23°C, 100 µm	100	MPa	
TD : Break, 23°C, 100 µm	80.0	MPa	
Tensile Elongation			ISO 527
MD : Break, 23°C, 100 µm	> 100	%	
TD : Break, 23°C, 100 µm	> 10	%	
Thermal	**Nominal Value**	**Unit**	**Test Method**
Glass Transition Temperature (Onset)	143	°C	ISO 11357
Melting Temperature	343	°C	ISO 11357
CLTE - Flow [4] (0.0500 mm)	3.5E-5	cm/cm/°C	ASTM D696
Thermal Conductivity [5]	0.43	W/m/K	ASTM E1461
RTI Elec	240	°C	UL 746B

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Electrical	Nominal Value	Unit	Test Method
Volume Resistivity [6] (23°C)	1.0E+16	ohms·cm	IEC 60093
Comparative Tracking Index (23°C)	PLC 4		IEC 60112
Breakdown Voltage [7] (23°C)	16.5	kV	ASTM D149
Breakdown VoltageRetention [8] (180°C)	> 95.0	%	IEC 60243
Dielectric Constant [9] (23°C)	3.20		IEC 60250
Dissipation Factor [10]	3.0E-3		IEC 60250
Partial Discharge Inception Voltage [11]			
23°C	1187	V	
180°C	921	V	

Additional Information

Product Dimensions

APTIV XPI™ Film B105 by Victrex is offered in a standard width of 610 mm and a standard roll outer diameter of 300 mm. The standard roll length of 400 m is supplied on a 6” (152 mm) cardboard core.

For non-standard formats of APTIV XPI™ Film B105, please contact the Victrex sales team. Victrex can assist customers by referring them to our network of vendors. These vendors offer a variety of high-precision services, including slitting, coating, laminating, and other ancillary kitting solutions.

Notes

[1] Crystalline

[2] 24 hrs

[3] TM-VX-84

[4] below Tg

[5] Through Plane

[6] Tested on resin feedstock

[7] 1 kV/s

[8] 180 °C, 500 V/s

[9] 1 kHz, Tested on resin feedstock

[10] 1MHz, Tested on resin feedstock

[11] IEC 60270

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