APTIV™ FILMS 1103

General Information

Product Description

APTIV 1100 series films are the mineral filled semi-crystalline films made from VICTREX™ PEEK polymer. The film provides a material solution for engineers in ultra-high performance applications.

APTIV films are a comprehensive range of versatile, high-performance films, the use of which can facilitate reduced systems costs, improved performance and enhanced design freedom.

APTIV 1100 has a unique combination of properties providing high temperature performance, mechanical strength, durability, excellent radiation, hydrolysis and chemical resistance, electrical insulation, excellent barrier properties with high purity, good flammability without the use of flame retardants, low toxicity of combustion products, and low moisture absorption in a film format. Inherently halogen free and ease of processing makes APTIV films a technology enabler for our customers and end users. APTIV 1100 series provides a higher modulus and lower coefficient of linear thermal expansion over the APTIV 1000 series.

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (23°C)	1.54	g/cm³	ISO 1183
Water Absorption [1]			ISO 62
Equilibrium, 23°C, 0.0500 mm, 50% RH	0.090	%	
Shrinkage [2]			
MD : 200°C, 50.0 µm	< 0.50	%	
TD : 200°C, 50.0 µm	< 0.50	%	
Films	**Nominal Value**	**Unit**	**Test Method**
Film Thickness - Recommended / Available	12 to 125 µm		
Tensile Modulus			ISO 527-3
MD : 23°C, 25 µm	5500	MPa	
TD : 23°C, 25 µm	4500	MPa	
MD : 23°C, 50 µm	5500	MPa	
TD : 23°C, 50 µm	4500	MPa	
MD : 23°C, 100 µm	5000	MPa	
TD : 23°C, 100 µm	4500	MPa	
Tensile Stress			ISO 527-3
MD : Break, 23°C, 25 µm	70.0	MPa	
TD : Break, 23°C, 25 µm	70.0	MPa	
MD : Break, 23°C, 50 µm	90.0	MPa	
TD : Break, 23°C, 50 µm	90.0	MPa	
MD : Break, 23°C, 100 µm	90.0	MPa	
TD : Break, 23°C, 100 µm	90.0	MPa	
Tensile Elongation			ISO 527-3
MD : Break, 23°C, 25 µm	> 10	%	
TD : Break, 23°C, 25 µm	< 10	%	
MD : Break, 23°C, 50 µm	> 10	%	
TD : Break, 23°C, 50 µm	< 10	%	
MD : Break, 23°C, 100 µm	> 5.0	%	
TD : Break, 23°C, 100 µm	< 10	%	

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Films	Nominal Value	Unit	Test Method
Trouser Tear Resistance [3]			ISO 6383-1
MD : 50 µm	5.00	N/mm	
TD : 50 µm	6.00	N/mm	
Puncture Resistance (23°C, 50.0 µm)	4	kJ/m^2	Internal Method
Thermal	**Nominal Value**	**Unit**	**Test Method**
CLTE - Flow [4] (0.0500 mm)	1.8E-5	cm/cm/°C	ASTM D696
Thermal Conductivity			ASTM E1461
-- [5]	0.61	W/m/K	
-- [6]	1.3	W/m/K	
Electrical	**Nominal Value**	**Unit**	**Test Method**
Volume Resistivity [7] (23°C, 50 µm)	1.0E+16	ohms·cm	ASTM D257
Dielectric Strength [8] (23°C, 50 µm)	200	kV/mm	ASTM D149
Dielectric Constant (23°C, 50 µm, 10 MHz)	3.5		ASTM D150
Dissipation Factor (23°C, 50 µm, 10 MHz)	1.0E-3		ASTM D150

Notes

[1] 24 hrs

[2] TM-VX-84

[3] 23°C

[4] below Tg

[5] Through Plane

[6] In-Plane

[7] 100 V

[8] 0.25 inch electrode

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