APTIV™ FILMS 1000

General Information

Product Description

APTIV 1000 series films are the unfilled 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 1000 has a unique combination of properties providing high temperature performance, light weight, mechanical strength, durability, excellent radiation, hydrolysis and chemical resistance, electrical insulation, wear and abrasion resistance, 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.

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (23°C)	1.30	g/cm³	ISO 1183
Water Absorption [1]			ISO 62
Equilibrium, 23°C, 0.0500 mm, 50% RH	0.040	%	
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	8 to 750 µm		
Tensile Modulus			ISO 527-3
MD : 23°C, 25 µm	2600	MPa	
TD : 23°C, 25 µm	2800	MPa	
MD : 23°C, 50 µm	2500	MPa	
TD : 23°C, 50 µm	2500	MPa	
MD : 23°C, 125 µm	2400	MPa	
TD : 23°C, 125 µm	2300	MPa	
MD : 23°C, 250 µm	2300	MPa	
TD : 23°C, 250 µm	2300	MPa	
Tensile Stress			ISO 527-3
MD : Break, 23°C, 25 µm	140	MPa	
TD : Break, 23°C, 25 µm	120	MPa	
MD : Break, 23°C, 50 µm	130	MPa	
TD : Break, 23°C, 50 µm	120	MPa	
MD : Break, 23°C, 125 µm	120	MPa	
TD : Break, 23°C, 125 µm	120	MPa	
MD : Break, 23°C, 250 µm	110	MPa	
TD : Break, 23°C, 250 µm	110	MPa	

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Films	Nominal Value	Unit	Test Method
Tensile Elongation			ISO 527-3
MD : Break, 23°C, 25 µm	> 150	%	
TD : Break, 23°C, 25 µm	> 150	%	
MD : Break, 23°C, 50 µm	> 150	%	
TD : Break, 23°C, 50 µm	> 150	%	
MD : Break, 23°C, 125 µm	> 150	%	
TD : Break, 23°C, 125 µm	> 150	%	
MD : Break, 23°C, 250 µm	> 150	%	
TD : Break, 23°C, 250 µm	> 150	%	
Trouser Tear Resistance [3]			ISO 6383-1
MD : 50 µm	6.00	N/mm	
TD : 50 µm	8.00	N/mm	
Thermal	**Nominal Value**	**Unit**	**Test Method**
CLTE - Flow [4] (0.0500 mm)	4.7E-5	cm/cm/°C	ASTM D696
Electrical	**Nominal Value**	**Unit**	**Test Method**
Volume Resistivity [5] (23°C, 50 µm)	4.0E+16	ohms·cm	ASTM D257
Dielectric Strength [6]			ASTM D149
23°C, 25 µm	270	kV/mm	
23°C, 50 µm	190	kV/mm	
23°C, 125 µm	120	kV/mm	
23°C, 250 µm	70	kV/mm	
Dielectric Constant (23°C, 50 µm, 10 MHz)	3.50		ASTM D150
Dissipation Factor (23°C, 50 µm, 10 MHz)	2.0E-3		ASTM D150
Dielectric Breakdown			ASTM D149
23°C, 25.0 µm	6750	V	
23°C, 50.0 µm	9500	V	
23°C, 125.0 µm	15000	V	
23°C, 250.0 µm	17500	V	
Additional Information	**Nominal Value**	**Unit**	**Test Method**
Puncture Resistance (23°C, 50.0 µm)	26.0	kJ/m^2	Internal Method

Notes

[1] 24 hrs

[2] TM-VX-84

[3] 23°C

[4] below Tg

[5] 100 V

[6] 0.25 inch electrode

Revision Date: October 2023