APTIV™ FILMS 2000

General Information

Product Description

APTIV 2000 series films are the unfilled amorphous 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 2000 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.

Please note - APTIV 2000 will crystallize if taken above the Tg (143°C, 289°F) in either secondary processes or end use application. The crystallization is not reversible back to the amorphous phase without re-melting the material. Consideration of the temperature range during processing and end use application needs to be included if selecting APTIV 2000.

Material Properties

Physical	Nominal Value	Unit	Test Method
Density (23°C)	1.26	g/cm³	ISO 1183
Water Absorption [1]			ISO 62
Equilibrium, 23°C, 0.0500 mm, 50% RH	0.21	%	
Shrinkage MD [2] (200°C, 50.0 µm)	< 10	%	
Shrinkage TD [2] (200°C, 50.0 µm)	< 5.0	%	
Films	**Nominal Value**	**Unit**	**Test Method**
Film Thickness - Recommended / Available	6 to 300 µm		
Tensile Modulus			ISO 527-3
MD : 23°C, 25 µm	1800	MPa	
TD : 23°C, 25 µm	1800	MPa	
MD : 23°C, 50 µm	1800	MPa	
TD : 23°C, 50 µm	1800	MPa	
MD : 23°C, 100 µm	1600	MPa	
TD : 23°C, 100 µm	1600	MPa	
Tensile Stress			ISO 527-3
MD : Break, 23°C, 25 µm	130	MPa	
TD : Break, 23°C, 25 µm	130	MPa	
MD : Break, 23°C, 50 µm	120	MPa	
TD : Break, 23°C, 50 µm	120	MPa	
MD : Break, 23°C, 100 µm	120	MPa	
TD : Break, 23°C, 100 µm	120	MPa	
Tensile Elongation			ISO 527-3
MD : Break, 23°C, 25 µm	> 200	%	
TD : Break, 23°C, 25 µm	> 200	%	
MD : Break, 23°C, 50 µm	> 200	%	
TD : Break, 23°C, 50 µm	> 200	%	
MD : Break, 23°C, 100 µm	> 200	%	
TD : Break, 23°C, 100 µm	> 200	%	

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Films	Nominal Value	Unit	Test Method
Trouser Tear Resistance [3]			ISO 6383-1
MD : 50 µm	6.00	N/mm	
TD : 50 µm	6.00	N/mm	
Puncture Resistance (23°C, 50.0 µm)	40	kJ/m²	Internal Method
Thermal	**Nominal Value**	**Unit**	**Test Method**
Glass Transition Temperature (Onset)	143	°C	ISO 11357
CLTE - Flow [4] (0.0500 mm)	6.0E-5	cm/cm/°C	ASTM D696
Electrical	**Nominal Value**	**Unit**	**Test Method**
Volume Resistivity [5] (23°C, 50 µm)	2.0E+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, 100 µm	120	kV/mm	
Dielectric Constant (23°C, 50 µm, 10 MHz)	3.3		ASTM D150
Dissipation Factor (23°C, 50 µm, 10 MHz)	3.0E-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	

Notes

[1] 24 hrs

[2] TM-VX-84

[3] 23°C

[4] below Tg

[5] 100 V

[6] 0.25 inch electrode

Revision Date: November 2026

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