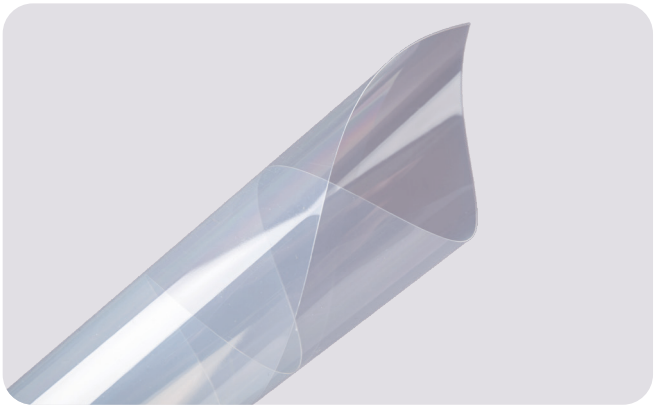
FEP Film

Flonfilm™ 500



FLONFILM™ 500 FEP film is melt extruded from Fluorinated Ethylene Propylene (FEP) and enjoys excellent chemical resistance and exceptional thermal performance. Polyflon offers two grades of FEP film:

FEP Film Type A

Our general purpose grade is suitable for applications where chemical resistance and high temperature are a concern. Type A performs well as a non-permeable barrier to aggressive fluids in tank lining applications and fuel cell/ battery assemblies. The good weatherability and optical properties of FEP film provide excellent performance in PV modules and large scale algal growth cells. Due to the ease with which Type A can be welded to itself, gas sampling bags are an effective end use.

FEP Film Type B

Our premium grade is a translucent version produced from high molecular weight resin for applications where high flex life and stress-crack resistance are required, typical products being thin film diaphragms. The high modular weight of Type B also affords this grade of FEP film very low gas diffusion through its wall and also exhibits an extremely smooth, self-cleaning surface finish.

Key features

- Excellent electrical insulator
- Very low co-efficient of friction - excellent release
- High degree of transparency
- No voids of pinholes - low permeability
- Excellent chemical resistance
- Temperature range of -254°C to +200°C (-425°F to 390°F)

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FEP Film Typical Physical Properties*

Typical Properties	Test Method	Value	Units
General			
Specific Gravity	ASTM D-792	2.12-2.17	
Yield (1 mil)		18(90)	m^2 /kg (ft^2 /lb)
Water Absorption, 24 hr.		<0.01	%
Mechanical			
Tensile Strength @ Break (RT)	ASTM D-882	24(3500)	MPa (psi)
Elongation @ Break (RT)	ASTM D-882	300	%
Tensile Modulus (RT)	ASTM D-882	480(70000)	MPa (psi)
Initial Tear Strength, 1 mil	ASTM D-1004	2.2-2.7(0.5-0.6)	N(lb_f)
Initial Tear Strength, 2 mil	ASTM D-1004	4.9-5.3(1.1-1.2)	N(lb_f)
Propagation Tear Strength, 1 mil	ASTM D-1004	1.4-1.5(.32-.33)	N(lb_f)
Propagation Tear Strength, 2 mil	ASTM D-1922	2.4-2.7 (0.55-0.60)	N(lb_f)
Fold Endurance (M.I.T)	ASTM D-2176	10000	cycles
Electrical			
Dielectric Strength, 1 mil	ASTM D-149	240(6000)	kV/mm (V/mil)
Dielectric Constant, 1 kHz	ASTM D-150	2.1	
Dissipation Factor, 1 kHz	ASTM D-150	0.0003	
Thermal			
Melt Point	ASTM D-3418	252-282(485-540)	C (F)
Continuous Service Temperature		205 (400)	C (F)
Specific Heat		1172(.28)	J/(kg· °K) (BTU/(lb·°F))
Coefficient of Thermal Conductivity	ASTM D-2863	0.195(1.35)	W/(m· °K) BTU·in/(hr·ft^2·°F)
Coefficient of Linear Thermal Expansion	ASTM D-696	$9.9x10^{-5}$ ($5.5x10^{-5}$)	Mm/(mm·°C) (in/(in·°F))
Flammability	UL-94	V-0	
Limiting Oxygen Index	ASTM D-2863	95	%
Optical			
Refractive Index	ASTM D-542	1.341-1.347	
Solar Transmission	ASTM E-424	96	%

* Represent typical performance properties and should not be used for specification purposes

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Availability of FEP Film

Polyflon offers FEP film in semi-finished form on standard rolls or converted into finish cut, thermoformed or punched parts.

Thickness		Std Roll Length
mm	inches	meters
0.0127	0.0005	362
0.0254	0.001	181
0.0508	0.002	90
0.0762	0.003	60
0.127	0.005	36
0.1905	0.0075	24
0.254	0.010	18
0.3556	0.014	13
0.508	0.020	9

Standard roll width: 1220mm (48”) @ 12kg.
Slit widths from 12.7mm (1/2”) up to max width 1625mm (64”).
Available pigmented/perforated for release applications.

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