

# FEP Film

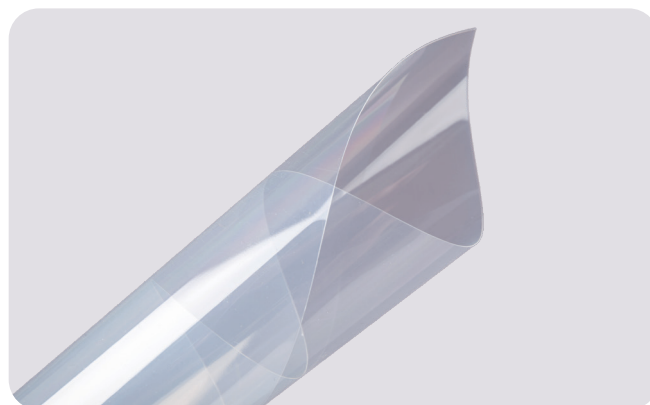
Flonfilm™ 500

FLONFILM™ 500 FEP film is manufactured from fluorinated ethylene propylene (FEP) resin in four grades.







**FEP Film Type A** has low dielectric constant and dissipation over a wide range of temperatures and frequencies for low signal distortion and attenuation in flexible printed circuit and flat cable applications. The high surface and volume resistivity minimizes current leakage and provides excellent insulation in wire and cable applications. Type A also has excellent chemical and thermal resistance to withstand aggressive environments, making it an ideal candidate for diaphragms, gaskets, protective linings, sample bags, and containers. Fabricated shapes and contours can be produced via heat sealing and thermoforming. The outstanding weatherability and optical properties of Type A film provide excellent performance in environmental growth chambers and solar collectors.

**FEP Film Type B** is a translucent film made from high molecular weight resin for applications where high flex life and stress-crack-resistant performance are required, such as tank linings and diaphragms.

**FEP Film Type C** is a clear or pigmented film designed for release applications. The non-stick surface, chemical resistance, and 205°C (400°F) usage temperature make Type C an ideal release film for release for composite moulding over a wide range of resin systems. High elongation and a smooth, low-gel film surface allows Type C to conform to complex mould contours and produce a smooth part finish. Perforated film is available to



## Key features

-  Excellent electrical insulator
-  Very low co-efficient of friction - excellent release
-  High degree of transparency
-  No voids or pinholes - low permeability
-  Excellent chemical resistance
-  Temperature range of -254°C to 205°C (-425°F to 400°F)

control outgassing and resin bleed. Pigmented films increase visibility to speed removal of parts from mould and reduces the risk of downstream foreign object contamination.

**FEP Film Type W** (mechanical grade) film is an ideal economical solution for applications that don't require high aesthetic standards, such as hot melt adhesive (welding tape) application. Type W film possesses all physical, mechanical, and thermal properties of Type A grade, while offering up to 15% savings.

## FEP Film Typical Physical Properties\*

Typical Properties	Test Method	Value	Units
<b>General</b>			
Standard Widths		1219 (48), 1524 (60)	mm (inches)
Specific Gravity	ASTM D-792	2.12-2.17	
Yield (1 mil)		18(90)	m <sup>2</sup> /kg (ft <sup>2</sup> /lb)
Water Absorption, 24 hr.		<0.01	%
<b>Mechanical</b>			
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 <sub>f</sub> )
Initial Tear Strength, 2 mil	ASTM D-1004	4.9-5.3(1.1-1.2)	N(lb <sub>f</sub> )
Propagation Tear Strength, 1 mil	ASTM D-1922	1.4-1.5(.32-.33)	N(lb <sub>f</sub> )
Propagation Tear Strength, 2 mil	ASTM D-1922	2.4-2.7 (0.55-0.60)	N(lb <sub>f</sub> )
Fold Endurance (M.I.T) - Type FG only	ASTM D-2176	10000	cycles
<b>Electrical</b>			
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	
<b>Thermal</b>			
Melting 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		0.195(1.35)	W/(m·°K) (BTU·in/(hr·ft <sup>2</sup> ·°F))
Coefficient of Linear Thermal Expansion	ASTM D-696	9.9x10 <sup>-5</sup> (5.5x10 <sup>-5</sup> )	Mm/(mm·°C) (in/(in·°F))
Flammability	UL-94	V-0	
Limiting Oxygen Index	ASTM D-2863	95	%
<b>Optical</b>			
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

## 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 (1219mm width)
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: 1219mm (48") @ 12kg.
- 1524mm (60") also available on request.
- Slit widths from 12.7mm (1/2").
- Optically transparent and pigmented
- Available in cementable (surface treated) form.