

FEP FILMS

FEP

FLUOROPOLYMER FILM

NORGARD® FEP Fluoropolymer Film is manufactured by **Saint-Gobain®** Performance Plastics Corporation, Tape Solutions business, and comes with fluorinated ethylene propylene (FEP) resin in four grades.

FEP TYPE FG 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. FEP FG 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 FEP FG film provide excellent performance in environmental growth chambers and solar collectors.

FEP TYPE FS 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 TYPE RF is a clear or pigmented film intended for release applications. The non-stick surface, chemical resistance, and 205°C (400°F) usage temperature make FEP RF an ideal release film for release for composite molding over a wide range of resin systems. High elongation and a smooth, low-gel film surface allows FEP RF to conform to complex mold contours and produce a smooth part finish. Perforated film is available to control outgassing and resin bleed. Pigmented films increase visibility to speed removal from parts and mold and reduces the risk of downstream foreign object contamination.

FEP Type WF (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. FEP WF film possesses all physical, mechanical, and thermal properties of FEP FG grade, while offering up to 15% savings.

Previously known as **CHEMFILM® FEP*

*Pictures shown are for illustration purpose only.



FEATURES AND BENEFITS

- Outstanding anti-stick release properties
- Performance from -254°C (-425°F) to 205°C (400°F)
- Exceptional chemical resistance and electric properties

AVAILABILITY

- Product thickness from 0.0005" (0.013 mm) to 0.030" (0.76 mm)
- Width up to 60" (1,524 mm) for 0.0005" to 0.010" and up to 48" for over 0.010" thick
- Optically transparent and pigmented
- Available in cementable (surface treated) form

TYPICAL PROPERTIES

General	Value	Unit	Test Method
Standard Widths	1219, 1524	mm	-
	48, 60	inches	
Specific Gravity	2.12 - 2.17	-	ASTM D-792
Yield (1 mil)	18	m ² /kg	-
	90	ft ² /lb	
Water Absorption, 24 hr.	<0.01	%	-

Mechanical	Value	Unit	Test Method
Tensile Strength	24	MPa	ASTM D-882
	3,500	psi	
Elongation, Ultimate	300	%	ASTM D-882
Tensile Modulus (RT)	480	MPa	ASTM D-882
	70,000	psi	
Initial Tear Strength, 1 mil	2.2 - 2.7	N	ASTM D-1004
	0.5 - 0.6	lb _f	
Initial Tear Strength, 2 mil	4.9 - 5.3	N	ASTM D-1004
	1.1 - 1.2	lb _f	
Propagating Tear Strength, 1 mi	1.4-1.5	N	ASTM D-1922
	0.32 - 0.33	lb _f	
Propagating Tear Strength, 2 mi	2.4 - 2.7	N	ASTM D-1922
	0.55 - 0.60	lb _f	
Fold Endurance (M.I.T) Type FG only	10,000	cycles	ASTM D-2176

Electrical	Value	Unit	Test Method
Dielectric Strength, 1 mil	240	kV/mm	ASTM D-149
	6,000	V/mil	
Dielectric Constant, 1 kHz	2.1	-	ASTM D-150
Dissipation Factor, 1 kHz	0.0003	-	ASTM D-150

The values presented are typical values and should not be used for specification purposes. Contact your **Saint-Gobain** Tape Solutions representative for more information.

Thermal	Value	Unit	Test Method
Melting Point	252 - 282	°C	ASTM D-3418
	485 - 540	°F	
Continuous Service Temperature	205	°C	-
	400	°F	
Specific Heat	1172	J/(kg·°K)	-
	0.28	BTU/(lb·°F)	
Coefficient of Thermal Conductivity	0.195	W/(m·°K)	-
	1.35	BTU-in/(hr·ft ² ·°F)	
Coefficient of Linear Thermal Expansion	9.9×10 ⁻⁵	Mm/(mm·°C)	ASTM D-696
	5.5×10 ⁻⁵	in/(in·°F)	
Flammability	V-0	-	UL-94
Limiting Oxygen Index	95	%	ASTM D-2863

Optical	Value	Unit	Test Method
Refractive Index	1.341 - 1.347	-	ASTM D-542
Solar Transmission	96	%	ASTM E-424



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For more information, please visit
tapesolutions.saint-gobain.com

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