

# Norton® PFA Fluoropolymer Film



Norton® PFA fluoropolymer film is manufactured by Saint-Gobain Advanced Films and Fabrics from perfluoroalkoxy (PFA) polymer resin. This film offers the highest continuous use temperature 260°C (500°F) of any melt-processable fluoropolymer film. Norton PFA film offers many of the performance properties of PTFE in a clear, transparent form and can be heat sealed, thermoformed, welded, metallized, or laminated to a wide variety of materials.

Norton® PFA film offers a combination of excellent dielectric properties across a wide temperature and frequency range, the highest level of chemical and stress crack resistance, excellent clarity and weatherability. The chemical resistance of PFA provides excellent tank-lining performance.

Norton® **PFA Type WF** (mechanical grade) is an ideal economical solution for applications that don't require high aesthetic standards, such as hot melt adhesive (welding tape) application. PFA WF grade possesses all physical, mechanical, and thermal properties of PFA film while offering up to 25% savings.

## Applications

The combination of chemical resistance and high temperature resistance over a wide frequency range make Norton PFA film an ideal component for circuit board fabricators, flat cable, and electrical insulation applications. Product thickness availability from 0.0005" through 0.030" at widths up to 62" offers circuit board designers flexibility in structure design.

The high temperature resistance and non-wetting surface of Norton PFA make it an ideal material for use as a high temperature release film or bagging film for composite manufacturers. The continuous use temperature of 260°C (500°F) and a melt point 310°C (590°F) meet the needs of new resin systems requiring a 230°C (446°F) cure temperature.

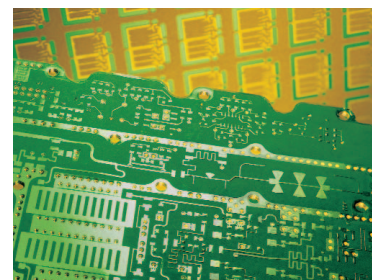
Norton® is a registered trademark.

## Features/Benefits

- Outstanding flex life and stress crack resistance
- Performance from -254°C (-425°F) to 260°C (500°F)
- Outstanding anti-stick release properties
- Excellent electrical properties
- Excellent weatherability
- Product thicknesses from 0.0005" (0.0127 mm) to 0.030" (0.76 mm)
- Width up to 62" (1575 mm) for 0.0005" to 0.010" and up to 48" for over 0.010"
- All films are manufactured and converted in class 100,000 clean room facility
- Available in cementable (surface treated) form



High temperature resistance and non-wetting surface for bagging film



High chemical and temperature resistance

## Norton® PFA Fluoropolymer Film — Typical Physical Properties\*

Property	ASTM Method	Metric Value	Metric Units	English Value	English Units
<b>General</b>					
Specific Gravity	D-792	2.12-2.18		2.12-2.18	
Yield (1 mil film)		18	m <sup>2</sup> /kg	90	ft <sup>2</sup> /lb
Water Absorption		<0.01	%	<0.01	%
<b>Mechanical</b>					
Tensile Strength @ Break	D-882	21	MPa	2250	psi
Elongation @ Break	D-882	300	%	300	%
Elastic Modulus	D-882	480	MPa	70000	psi
Initial Tear Strength, 2 mil	D-1004	4.9-5.3	N	1.1-1.2	lb <sub>f</sub>
Propagating Tear Strength, 2 mil	D-1922	2.4-2.7	N	0.55-0.60	lb <sub>f</sub>
Fold Endurance (M.I.T.)	D-2176	>600000	cycles	>600000	cycles
<b>Electrical</b>					
Dielectric Strength, 1 mil	D-149	185	kV/mm	4700	V/mil
Dielectric Constant, 1 kHz	D-150	2.1		2.1	
Dissipation Factor, 1 kHz	D-150	0.0005		0.0005	
<b>Thermal</b>					
Melt Point	D-3418	302-310	°C	575-590	°F
Continuous Service Temperature		260	°C	500	°F
Specific Heat		1172	J/(kg•°K)	0.28	Btu/(lb•°F)
Coefficient of Thermal Conductivity	D-2863	0.195	W/(m•°K)	1.35	Btu•in/(hr•ft <sup>2</sup> •°F)
Coefficient of Linear Thermal Expansion	D-696	9.9 x 10 <sup>-5</sup>	mm/(mm•°C)	5.5 x 10 <sup>-5</sup>	in/(in•°F)
Flammability	UL-94	V-0		V-0	
Limiting Oxygen Index	D-2863	95	%	95	%
<b>Optical</b>					
Refractive Index	D-542	1.35		1.35	
Solar Transmission	E-424	96	%	96	%

\*Represent typical performance properties and should not be used for specification purposes. Contact your Saint-Gobain Performance Plastics representative for appropriate values.



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