

# Norton® ETFE Fluoropolymer Film



## High Yield Fluoropolymer Film

Norton® ETFE fluoropolymer film is manufactured from a copolymer of ethylene and tetrafluoroethylene resin. This material offers the outstanding performance of fluoropolymer film over a temperature range from cryogenic to 165°C (330°F). The resistance to chemicals and weathering, low flammability, and stress crack resistance make this film an excellent candidate for a wide variety of applications.

## Weatherable Applications

Norton® ETFE film offers excellent mechanical properties and tear resistance. The high light transmission (> 95%) of Norton® ETFE film, when combined with its excellent mechanical and chemical properties, provides excellent performance in architectural roofing designs and greenhouses. Norton® ETFE film is also an excellent choice in solar collector applications due to its outstanding physical properties and high coverage factor resulting from its low density.

## Low Surface-energy Applications

Norton® ETFE film offers a low surface energy, making it an excellent choice for release applications up to 350°F process temperature. The low density of this material, compared to Norton® FEP film, provides greater coverage per pound for composite molding release film applications. The low surface energy of Norton® ETFE can also be utilized in applications such as wall coverings and anti-graffiti protection for high traffic areas.

## Fabrication Capabilities

Norton® ETFE film offers processors excellent dimensional stability for secondary processing such as thermoforming and welding. Products utilizing Saint-Gobain's surface treatment technologies, such as C-treatment, improve bondability characteristics for metalizing processes and adhesive coating.

Norton® is a registered trademark.

## Features/Benefits

- Superior release properties
- Excellent weatherability
- Performance from -200°C (-328°F) to 165°C (330°F)
- Excellent chemical and mechanical properties
- Thermoformable
- Product thicknesses from 0.0005" (0.0127 mm) to 0.020" (0.5 mm)
- Width up to 62" (1575 mm) for 0.0005" to 0.010" and up to 48" for 0.010"-0.020"
- Blue, red and custom colors available
- Available in cementable (surface treated) form



Excellent performance in architectural roofing designs



ETFE release film yields 19% more per pound than FEP

## Norton® ETFE Film — Typical Physical Properties\*

Property	ASTM Method	Metric Value	Metric Units	English Value	English Units
<b>General</b>					
Specific Gravity	D-792	1.70-1.76		1.70-1.76	
Yield (1 mil film)		22.5	m <sup>2</sup> /kg	110	ft <sup>2</sup> /lb
Flammability	UL-94	V-0		V-0	
Water Absorption, 24 hrs		<0.03	%	<0.03	%
<b>Mechanical</b>					
Tensile Strength @ Break	D-882	48	MPa	7000	psi
Elongation @ Break	D-882	300	%	300	%
Tensile Modulus	D-882	965	MPa	140000	psi
Propagating Tear Strength, 1 mil	D-1922	>2.9	N	0.65	lb <sub>f</sub>
<b>Electrical</b>					
Dielectric Strength, 1 mil	D-149	215	kV/mm	5500	V/mil
Dielectric Constant, 1 kHz	D-150	2.6		2.6	
Dissipation Factor, 1 kHz	D-150	<0.0008		<0.0008	
<b>Thermal</b>					
Melt Point	D-3418	250-270	°C	482-518	°F
Continuous Service Temperature		165	°C	330	°F
Specific Heat		2000	J/(kg•°K)	0.46	BTU/(lb•°F)
Coefficient of Thermal Conductivity		0.238	W/(m•°K)	1.65	BTU•in/(hr•ft <sup>2</sup> •°F)
Limiting Oxygen Index	D-2863	30	%	30	%
<b>Optical</b>					
Refractive Index	D-542	1.40		1.40	

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

Contact your Saint-Gobain Performance Plastics representative for appropriate values.



### PERFORMANCE PLASTICS

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