



ETFE Fluoropolymer Extruded Films

ETHYLENE TETRAFLUOROETHYLENE FILM FOR USE IN HIGH-PERFORMANCE APPLICATIONS

TCI's ETFE films are produced from ethylene and tetrafluoroethylene co-polymer resin by melt extrusion casting process. ETFE films can be heat-sealed, thermoformed, and laminated to various substrates. These materials are ideally suited for architectural, solar, and mold release applications.

TCI's ETFE Film Characteristics

- Thickness range from 0.0005" to 0.010" (12 to 250 μ m)
 - Standard width: 60" (1,524 mm)
 - Width up to 62" (1,575 mm) available
 - Any slit widths available upon request
 - Bondable (plasma treated or chemically etched) surfaces available
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- Broad continuous use temperature range from -328°F to 330°F (-200°C to 165 °C)
 - Short term exposure of up to 400°F (204°C)
 - Melt temperature minimum of 500°F (260°C)
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- Excellent non-stick / release properties
 - High elongation and tear resistance
 - Excellent light transmission (>90%) and clarity, high transmittance of ultraviolet and all but far infrared wavelengths
 - Superior weatherability in outdoor exposure
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- High dielectric strength, 5,500 V/mil for 1-mil film (215 kV/mm for 25 μ m film)
 - Free of plasticizers, processing aids, or additives
 - Low permeability to liquids, gases, moisture, and organic vapors



TCI's ETFE Films Are Available In Two Grades:

ETFE PG (Premium Grade)

- Manufactured from 100% virgin premium grade ETFE resin
- ETFE PG is the grade of choice for applications requiring visual perfection
- ETFE's unique combination of high light transmission, clarity, and durability make it an invaluable material for applications such as architectural roofing, front glazing of solar panels, decorative, anti-graffiti, and greenhouses

ETFE MR (Mold Release Grade)

- ETFE MR is the material of choice for a release film in high temperature composite molding due to its superior non-stick properties and high upper use temperature in static applications
- Offers 20% higher area yield than FEP and PTFE: 110 ft²/lb. for 1 mil film (22.6 m²/kg for 25 μ m film)
- High elongation and excellent conformability to complex, contoured molds
- Standard colors include red and light blue, custom colors available upon request
- Available in a variety of perforated patterns

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TEXTILES COATED INTERNATIONAL | Manufacturer of High-Performance Fluoropolymer Films, Composites, and Laminates

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			ETFE PG	ETFE MR
General Properties	Units	Test Method		
Specific Gravity		ASTM D792	1.74	
Area Yield	ft ² /lb/mil (m ² /kg/25μm)		110 (22.6)	
Flammability		UL-94	V-0	
Water Absorption	%		<0.03	
Mechanical Properties				
Tensile Strength	psi (MPa)	ASTM D882	7,000 (48)	
Elongation at Break	%	ASTM D882	300	
Tensile Modulus	psi (MPa)	ASTM D882	140,000 (965)	
Initial Tear Strength (2 mil film)	g	ASTM D1004	500	
Propagation Tear Strength (2 mil film)	g	ASTM D1922	75	
Folding Endurance (MIT)	cycles, ave.	ASTM D2176	>50,000	
Thermal Properties				
Continuous Use Temp	°F (°C)	UL-746 B	330 (165)	
Melt Point	°F (°C)	ASTM D3418	500 (260)	
Coeff. of Lin. Thermal Expansion	in/(in °F)	ASTM D696	4x10 ⁻⁵	
Electrical Properties				
Dielectric Strength (1mil film)	volts / mil	ASTM D149	5,500	n/a
Dielectric Constant 1kHz		ASTM D150	2.6	n/a
Dissipation Factor, 1kHz		ASTM D150	<0.0008	n/a
Optical Properties				
Refractive Index		ASTM D542	1.4	n/a
Solar Transmission (2-4 mil) (50 μm – 100 μm)	%	ASTM E424	94	n/a
Product Offering				
Width	inches (mm)		Up to 62" (1,575)	
Thickness	mils (μm)		0.5 - 10 (12.5 - 250)	0.5 - 2 (12.5 - 50)
Standard Colors			Clear	Blue, Red
Surface Treatments Available				
Chemical Etching			•	
Plasma Treatment			•	
Applications, Markets				
Composite Molding Process: Release Films				•
Chemical Process / Equipment			•	
Heat Sealing / Welding / Melt Adhesive			•	
Electrical / Electronics			•	
Medical			•	
Optical /Photovoltaics			•	
Protective/Decorative			•	

The above table contains typical representative values and is not to be used for product specification. Contact TCI for a formal specification.

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