



# PVDF Fluoropolymer Extruded Films

## POLYVINYLIDENE FLUORIDE FILM FOR USE IN HIGH-PERFORMANCE APPLICATIONS

TCI's PVDF films are produced from Polyvinylidene Fluoride resins by a melt extrusion casting process. TCI's PVDF films offer all the benefits of fluoropolymer films, such as resistance to harsh thermal, chemical, and ultra-violet environments, excellent weatherability, non-stick properties, and superior dielectric performance. PVDF films can be heat-sealed, thermoformed, and laminated to various substrates.

### Industries Served Include:

#### Chemical Processing and Liquid Storage

- Due to its superior chemical resistance to most acids and solvents, PVDF films are used as a contact surface for the production, storage, and transfer of corrosive fluids. Applications include chemical tank linings, pump diaphragms, water treatment, and chemical storage bags.

#### Gas and Liquid Sampling Bags

- PVDF films are additive-free, possess complete bio-medical and chemical inertness and very low levels of extractables. They are very flexible and easy to heat-seal. All of these attributes make them invaluable for sampling bags applications

#### Outdoor Protection

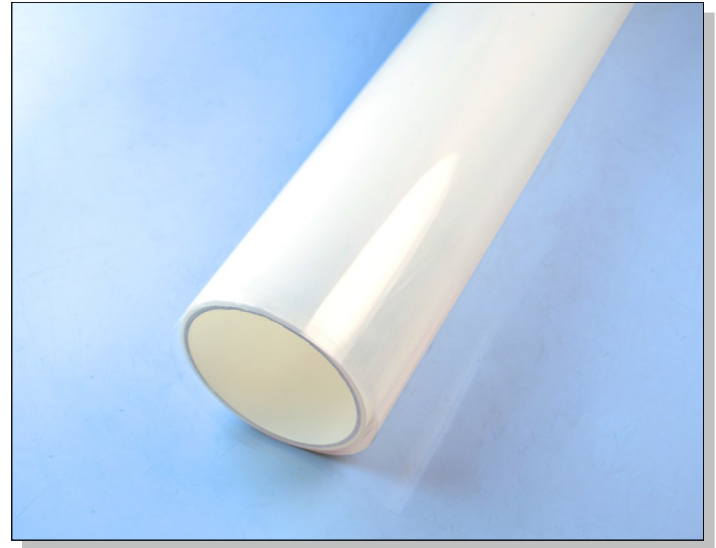
- Excellent weatherability, U-V resistance, and abrasion resistance make PVDF film very effective for over-laminating billboards, traffic signs and awnings.

#### Decorative and Anti-Graffiti Applications

- Non-stick properties and excellent solvent resistance make PVDF films invaluable for covering high traffic areas that need to be frequently cleaned with aggressive solvents and cleaning solutions.

#### Photovoltaic Panels

- Due to their excellent dielectric performance, fire resistance, and high solar transmittance, PVDF films are very well suited for use in the back sheet and front sheet glazing of PV panels. They are used extensively as an external material for the back sheet, protecting the PV Module from the external environment for an extended period of time.



### TCI's PVDF Films Characteristics

- Outstanding weatherability and resistance to UV radiation
- Chemically inert and resistant to most chemicals
- Excellent fire resistance, UL V-0 rating
- Excellent abrasion resistance
- High dielectric strength
- Thermoformable and heat sealable
- Continuous service temperature up to 150°C (300°F)
- Superior anti-stick and low friction properties of a fluoropolymer

### TCI's PVDF Films - General Availability

- Thickness range from 0.001" to 0.010" (25 to 250 μm)
- Standard width: up to 60" (1,524 mm)
- Any slit widths available upon request
- Bondable (plasma treated or chemically etched) surfaces available

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

200 Bouchard Street, Manchester, NH 03103 USA    PHONE: (603) 296-2221    FAX: (603) 296-2248    [www.textilecoated.com](http://www.textilecoated.com)



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			PVDF KF	PVDF 740
General Properties	Units	Test Method		
Specific Gravity		ASTM D792	1.78	1.78
Area Yield	ft <sup>2</sup> /lb/mil		108	108
Area Yield	m <sup>2</sup> /kg/25μ		22.2	22.2
Flammability		UL-94	V-0	V-0
Water Absorption	%		<0.04	0.01 - 0.03
<b>Mechanical Properties</b>				
Tensile Strength	psi (MPa)	ASTM D882	5000 - 7000 (35 - 48)	5000 - 8000 (35 - 55)
Elongation at Break	%	ASTM D882	250	20- 100
Tensile Modulus	psi (MPa)	ASTM D882	100,000 - 170,000 (689 - 1172)	200,000 - 335,000 (1400 - 2300)
Folding Endurance (MIT)	cycles, ave.	ASTM D2176	>25,000	>25,000
<b>Thermal Properties</b>				
Continuous Use Temp	°F (°C)	UL-746 B	300 (155)	300 (155)
Melt Point	°F (°C)	ASTM D3418	322—334 (161 - 168)	330-340 (165-170)
Coeff. of Lin. Thermal Expansion	in/(in °F)	ASTM D696	7x10 <sup>-5</sup>	7x10 <sup>-5</sup>
<b>Electrical Properties</b>				
Dielectric Strength (1mil film)	v/mil	ASTM D149	1,300 - 1,500	1,700
Dielectric Contant D150/100MHz- 100 Hz		ASTM D150	3.2 - 10.2	4.5 - 9.5
<b>Optical Properties</b>				
Refractive Index		ASTM D542	1.4	1.4
Solar Transmission	%	ASTM E424	90	90
<b>Product Offering</b>				
Width	inches (mm)		up to 60 (1,524)	up to 60 (1,524)
Thickness	mils (μm)		3 - 10 (75 - 250)	1 - 10 (25 - 250)
Standard Colors			Clear	Clear
<b>Surface Treatments Available</b>				
Chemical Etching			•	•
Plasma Treatment			•	•
<b>Applications, Markets</b>				
Chemical Process			•	•
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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