



# Fluoropolymer Extruded Films

## FLUOROPOLYMER FILMS FOR 2-D BAGS FOR PHARMACEUTICAL AND BIO-MEDICAL INDUSTRIES

TCI's High-Performance extruded fluoropolymer films are used for containment of fluids and suspensions during transportation, processing, sampling, incubation, storage, and cryopreservation. Our fluoropolymer films are additive-free, possess complete bio-medical and chemical inertness, and retain flexibility at cryogenic temperatures. All of these attributes make them invaluable in cryogenic blood storage, bio-processing and air and gas sample bags. TCI's fluoropolymer films are heat sealable and thermoformable which makes them well-suited for manufacturing of 2-D bags.

### TCI's Product Attributes

- Additive-free, no extractables or leachables
- Universally biologically and chemically inert
- Films conform to USP Class VI
- Heat-sealable/weldable
- Flexible and stable at cryogenic temperatures (to - 200°C)
- Optically clear, suitable for microscopy
- Up to 95% transmission of UV, visible & infrared light

			FEP PG	FEP HG	PVDF KF	PVDF 1010	ETFE PG
General Properties	Units	Test Method					
Specific Gravity		ASTM D792	2.15	2.15	1.78	1.78	1.74
Area Yield	ft <sup>2</sup> /lb/mil		90	90	108	108	110
Flammability		UL-94	V-0	V-0	V-0	V-0	V-0
Water Absorption	%		<0.01	<0.01	<0.04	<0.04	<0.03
Mechanical Properties							
Tensile Strength	psi (MPa)	ASTM D882	3,500 (24)	5,000 (35)	5,000-7,000 (35-48)	7,000 (48)	7,000 (48)
Elongation at Break	%	ASTM D882	300	350	250	20-100	300
Tensile Modulus	psi (MPa)	ASTM D882	70,000 (483)	70,000 (483)	290,000 (1,999)	320,000 (2,200)	140,000 (965)
Folding Endurance (MIT)	cycles, ave.	ASTM D2176	10,000	250,000	>25,000	>25,000	>50,000
Thermal Properties							
Continuous Use Temp	°F (°C)	UL-746 B	400 (205)	400 (205)	300 (155)	300 (155)	330 (165)
Melt Point	°F (°C)	ASTM D3418	500 (260)	520 (270)	330 (165)	338-347 (170-175)	500 (260)
Coeff. of Lin. Thermal Expansion	in/(in °F)	ASTM D696	5.5x10 <sup>-5</sup>	5.5x10 <sup>-5</sup>	7x10 <sup>-5</sup>	7x10 <sup>-5</sup>	4x10 <sup>-5</sup>
Optical Properties							
Refractive Index		ASTM D542	1.34	1.34	1.4	1.4	1.4
Solar Transmission	%	ASTM E424	96	96	90	90	90
Product Offering							
Width	inches (mm)		0.5-2 mil: up to 60" (1,524);	up to 62" (1,575)	up to 60" (1,524)	up to 60" (1,524)	up to 62" (1,575)
Thickness	mils (µm)		0.5 -10 (12.5 -	2-20 (50-500)	3-10 (75-250)	1-10 (25-250)	0.5-2 (12.5-50)
Surface Treatments Available							
Chemical Etching			•	•	•	•	•
Plasma Treatment			•	•	•	•	•

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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.textilescoated.com