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TCI

High Performance Films

Unparalleled Customer Service - High Performance Films

As the fluoropolymer experts, TCI offers a vast knowledge of diverse fluoropolymer technologies and superior customer service. Our unrivaled expertise and willingness to provide custom solutions has made us a leading supplier of the highest quality fluoropolymer films. TCI manufactures cast PTFE and melt extruded PFA, FEP, and ETFE films for use in industries that include: composite molding, chemical processing, heat sealing, welding, electrical, and medical.

Features of TCI's high performance films include:

- **Extreme high & low temp capability: -425°F (-254°C) to 600°F (316°C)**
- **Custom thickness and color**
- **Chemical inertness**
- **Bio-compatibility**
- **Anti-stick / low energy surface**
- **Superb dielectric properties**
- **Good weatherability / UV resistant**
- **Non-flammability**
- **Low coefficient of friction**
- **High purity, no additives**
- **Heat Sealable / Thermoformability**
- **Premium grade (PG) films are produced with 100% virgin resins. Economical grades (WG) are available for heat sealing and welding applications.**

			TCI Melt Extruded Films							TCI PTFE Cast Film				
			FEP			PFA		ETFE		PTFE		PTFE MR		PTFE VB
			FEP PG	FEP WG	FEP MR	PFA PG	PFA WG	ETFE PG	ETFE MR	CF	Bondable	CF 100	CF 200	CF 300 LE
General Properties	**Units**	**Test Method**												
Specific Gravity		ASTM D792	2.15	2.15	2.15	2.15	2.15	1.74	1.74	2.15	2.15	2.15	2.15	2.15
Area Yield	ft^2/lb/mil		90	90	90	90	90	110	110	90	90	90	90	90
Flammability		UL-94	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0	V-0
Water Absoption	%		<0.01	<0.01	<0.01	<0.02	<0.02	<0.03	<0.03	<0.01	<0.01	<0.01	<0.01	<0.01
Mechanical Properties														
Tensile Strength	psi	ASTM D882	3,500	3,500	3,500	3,000	3,000	7,000	7,000	4,500	4,300	4,500	4,500	4,300
Elongation at Break	%	ASTM D882	300	300	300	300	300	300	300	400	400	400	400	550
Tensile Modulus	psi	ASTM D882	70,000	70,000	70,000	70,000	70,000	140,000	140,000	55,000	55,000	55,000	55,000	55,000
Initial Tear Strength (2 mil film)	g	ASTM D1004	550	550	550	500	500	500	500	500	500	500	500	-
Propagation Tear Strength (2 mil film)	g	ASTM D1922	250	250	250	250	250	250	250	-	-	-	-	-
Folding Endurance (MIT)	cycles	ASTM D2176	10,000	10,000	10,000	>100,000	>100,000	>50,000	>50,000					
Thermal Properties														
Continuous Use Temp	°F (°C)	UL-746 B	400 (205)	400 (205)	400 (205)	500 (260)	500 (260)	330 (165)	330 (165)	600 (316)	500 (260)	600 (316)	600 (316)	500 (260)
Melt Point	°F (°C)	ASTM D3418	500 (260)	500 (260)	500 (260)	580 (305)	580 (305)	500 (260)	500 (260)	620 (327)	620 (327)	620 (327)	620 (327)	620 (327)
Coeff. of Lin. Thermal Expansion	in/(in °F)	ASTM D696	$5.5x10^{-5}$	$5.5x10^{-5}$	$5.5x10^{-5}$	$5.5x10^{-5}$	$5.5x10^{-5}$	$4x10^{-5}$	$4x10^{-5}$	$5.5x10^{-5}$	$5.5x10^{-5}$	$5.5x10^{-5}$	$5.5x10^{-5}$	$5.5x10^{-5}$
Electrical Properties														
Dielectric Strength (1mil film)	volts / mil	ASTM D149	6,500	6,500	6,500	6,500	6,500	5,500	5,500	n/a	4,200	n/a	n/a	n/a
Dielectric Constant 1kHz		ASTM D150	2.0	2.0	2.0	2.1	2.1	2.6	2.6	n/a	n/a	n/a	n/a	n/a
Dissipation Factor, 1kHz		ASTM D150	0.0003	0.0003	0.0003	0.0005	0.0005	<0.0008	<0.0008	n/a	n/a	n/a	n/a	n/a
Surface Resistivity	ohm/sq	ASTM D257	$1x10^{15}$	$1x10^{15}$	$1x10^{15}$	$1x10^{15}$	$1x10^{15}$	$1x10^{14}$	$1x10^{14}$	n/a	$1x10^{18}$	n/a	n/a	n/a
Optical Properties														
Refractive Index		ASTM D542	1.34	1.34	1.34	1.35	1.35	1.4	1.4	n/a	n/a	n/a	n/a	n/a
Solar Transmission	%	ASTM E424	96	96	96	96	96	90	90	n/a	n/a	n/a	n/a	n/a
Product Offering														
Width	inches (mm)		0.5 - 2 mil: 1" - 60" (25-1524); 3 - 10 mil: 1" - 62" (25 - 1575)							1" - 56" (25 - 1422)				
Thickness	mils (µm)		.5 - 10 (12.5 - 250)			.5 - 10 (12.5 - 250)		.5 - 10 (12.5 - 250)		1 - 5 (25-125)		1 (25)	2 (50)	3 (75)
Standard Colors			Clear	Clear Tinted	White, Red, Violet	Clear	Clear Tinted	Clear	Blue, Red	Red, blue, white, yellow, tan		Red, white, blue		Yellow
Surface Treatments Available														
Chemical Etching			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Applications														
Aerospace/Release or Bagging Films					Y	Y			Y			Y	Y	Y
Chemical Process			Y	Y		Y	Y	Y		Y	Y			
Electrical/Electronics			Y			Y		Y		Y	Y			
Medical			Y			Y		Y		Y	Y			
Optical /Photovoltaics			Y			Y		Y						
Protective/Decorative			Y		Y	Y		Y	Y	Y	Y			

Industries Served

Chemical Industry

Due to their excellent chemical resistance at elevated temperatures, TCI high performance films are utilized in many critical chemical industry applications, such as non-metallic expansion joints, roll covers, protective face shields, rupture discs, pump diaphragms, and thermoformed packaging.

- Extruded fluoropolymer films
- FEP, PFA, ETFE
- Cast PTFE film (CF and Thermobondable)

Composite Molding Process Materials

TCI MR (mold release) and VB (vacuum bagging) films cover the high end of the composite molding process temperatures range typically employed in fabrication of high performance composite parts for the aerospace industry. Complemented by PTFE coated fiberglass release fabrics and PSA tapes, this product line offers a complete range of products for the high-end composite industry.

- Cast PTFE MR films
- Cast PTFE VB films
- FEP MR films
- ETFE MR films

Medical / Pharmaceutical Industry

Chemical & biological inertness of fluoropolymer films, combined with their bondability, is invaluable for the pharmaceutical industry in septa and vial cap liner applications.

- Cast PTFE films with bondable surface
- ETFE films

Electrical / Electronics

TCI fluoropolymer films possess a combination of excellent dielectric properties, temperature capability, chemical resistance and weldability. These properties make them invaluable for circuit board laminates and high temperature insulation tapes for wire wrapping.

- FEP and PFA films
- Cast PTFE films CF100, CF200, Thermobondable

For more information, please contact Sales at (603) 296-2221 or sales@textilescoated.com.