

Teflon® FEP Film

Perfluoroethylene Propylene Copolymer
DuPont Fluoropolymers

Message:

DuPont FEP film is a transparent, thermoplastic film that can be heat sealed, thermoformed, vacuum formed, heat bonded, welded, metalized, laminated - combined with dozens of other materials, and can also be used as an excellent hot-melt adhesive.

General Information			
Features	Good Chemical Resistance		
	Good Electrical Properties		
	Good Impact Resistance		
	Good Tear Strength		
	Good Weather Resistance		
	Heat Sealable		
	Low Friction		
	Low Moisture Absorption		
	Non-Stick		
Uses	Adhesives		
	Laminates		
Appearance	Clear/Transparent		
Forms	Film		
Processing Method	Laminating		
	Thermoforming		
	Vacuum Forming		
Physical	Nominal Value	Unit	Test Method
Density	2.15	g/cm ³	ASTM D1505
Dimensional Stability			ASTM D1042
Across Flow, Shrinkage, 150°C	2.2	%	
Flow, Expansion, 150°C	0.72	%	
Water Absorption (24 hr)	< 0.010	%	
Mechanical	Nominal Value	Unit	Test Method
Coefficient of Friction (vs. Steel - Dynamic)	0.10 to 0.30		ASTM D1894
Films	Nominal Value	Unit	Test Method
Film Thickness - Tested	25	µm	
Tensile Strength - MD			ASTM D882
Yield, 25 µm	12.0	MPa	
Break, 25 µm	21.0	MPa	

Tensile Elongation - MD (Break, 25 µm)	300	%	ASTM D882
Flexural Modulus - MD (25 µm)	480	MPa	ASTM D882
Elmendorf Tear Strength - MD (25 µm)	130	g	ASTM D1922
Graves Tear (25.0 µm)	3	N	ASTM D1004
Impact Strength (25.0 µm)	77.0	J/cm	Internal Method
Burst Strength - Mullen (25.0 µm)	0.0760	MPa	ASTM D774
MIT Folding Endurance - film (25.0 µm)	1.0E+4	Cycles	ASTM D2176
Permeability			
Gas: Carbon Dioxide	25900	cm ³ /m ² /atm/24 hr	ASTM D1434
Gas: Hydrogen	34100	cm ³ /m ² /atm/24 hr	ASTM D1434
Gas: Nitrogen	5000	cm ³ /m ² /atm/24 hr	ASTM D1434
Gas: Oxygen	11600	cm ³ /m ² /atm/24 hr	ASTM D1434
Vapor: Acetic Acid	6.3	g/m ² /24 hr	ASTM E96
Vapor: Acetone	15	g/m ² /24 hr	ASTM E96
Vapor: Benzene	9.9	g/m ² /24 hr	ASTM E96
Vapor: Carbon Tetrachloride	4.8	g/m ² /24 hr	ASTM E96
Vapor: Ethyl Alcohol	11	g/m ² /24 hr	ASTM E96
Vapor: Hexane	8.7	g/m ² /24 hr	ASTM E96
Vapor: Water	7.0	g/m ² /24 hr	ASTM E96
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ASTM D648
0.45 MPa, Unannealed, 0.0250 mm	70.0	°C	
1.8 MPa, Unannealed, 0.0250 mm	51.0	°C	
Peak Melting Temperature	260 to 280	°C	ASTM D3418
Specific Heat (25°C)	1170	J/kg/°C	
Thermal Conductivity (25°C)	0.20	W/m/K	Internal Method
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity ¹	> 1.0E+16	ohms	ASTM D257
Volume Resistivity ²	> 1.0E+18	ohms·cm	ASTM D257
Dielectric Strength			ASTM D149
23°C, 0.0250 mm, Air	260	kV/mm	
23°C, 5.00 mm, Air	70	kV/mm	
Dielectric Constant			ASTM D150
1 kHz ³	1.93 to 2.02		
25°C ⁴	2.00		
Dissipation Factor			ASTM D150
1 kHz ⁵	2.0E-4		
1 MHz ⁶	5.0E-4		
25°C ⁷	2.0E-4 to 7.0E-4		
Arc Resistance ⁸ (0.0250 mm)	> 165	sec	ASTM D495
Insulation Resistance ⁹			Internal Method
100°C	3.5E+11	ohms	

150°C	2.5E+11	ohms	
200°C	6.5E+10	ohms	
Flammability	Nominal Value	Unit	Test Method
Flame Rating (0.0250 mm)	VTM-0		UL 94
Oxygen Index (0.0250 mm)	95	%	ASTM D2863
Optical	Nominal Value	Unit	Test Method
Refractive Index	1.341 to 1.347		ASTM D542
Transmittance (25.0 μm)	96.0	%	ASTM E424
NOTE			
1.	-40 to 240°C		
2.	-40 to 240°C		
3.	-40 to 225°C		
4.	100Hz to 1MHz		
5.	-40 to 225°C		
6.	-40 to 240°C		
7.	100Hz to 1MHz		
8.	Samples melted in arc did not track.		
9.	Based upon 0.2 MF wound capacitor sections, using single laer, Teflon® 50A Film.		

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