

PRODUCT DESCRIPTION - DATA SHEET

PolyLine™ FR650 flame-retardant film is a clear, thin-gauge polycarbonate film with a velvet finish on one side and a matt finish on the other, and a UL94 V-0 listing to meet the stringent requirements in a wide range of electrical, electronic and transportation applications. PolyLine™ FR650 film offers ease of thermoforming, hydroforming, embossing, die-cutting, folding and bending and is very suitable for applications such as printed circuit board insulation, backlit aircraft in-flight panels and displays, business equipment insulation, computer rack partitions, TV and monitor insulation.

Typical Properties	ASTM Test Method	Unit	Value	ISO Test Method	Unit	Value
Mechanical Characteristics						
Tensile Strength @Yield	ASTM D882	psi	10000	ISO 527	MPa	70
@Ultimate	ASTM D882	psi	8700	ISO 527	MPa	60
Tensile Modulus	ASTM D882	psi	319000	ISO 527	MPa	2200
Tensile Elongation at Break	ASTM D882	%	100-160	ISO 527	%	100-155
Gardner Impact Strength at 0.03" (0.75 mm)	ASTM D3029	ft-lb	21	ISO 6603-1	J	28
Tear Strength (Initiation)	ASTM D1004	lb/mil	1.4-1.8		kN/m	298
Tear Strength (Propogation)	ASTM D1922	g/mil	30-55		kN/m	16
Puncture Resistance (Dynatup)	ASTM D3763	ft-lb	9		J	12
Fold Endurance (MIT) 0.010" (0.25 mm)	ASTM D2176-69	double folds	60			
Fold Endurance (MIT) 0.020" (0.50 mm)	ASTM D2176-69	double folds	20			
Thermal Characteristics						
Coefficient of Thermal Conductivity	ASTM D5470	Btu/hr/ft2/°F/in	1.35		W/m²K	0.2
Coefficient of Thermal Expansion	ASTM E831	(x10-5/°F)	3.2	ISO 11359	(x10-5/°C)	5.8
Specific Heat @40°F (4°C)	ASTM E1269	Btu/lb/°F	0.3		KJ/Kg-°C	1.25
Glass Transition Temperature	ASTM D3417 / D3418	°F	307	ISO 11357	°C	153
Vicat Softening Temperature, B	ASTM 1525-00	°F	347			175
Heat Deflection Temp. by TMA at 1.8 Mpa	modified	°F	290	ISO 75 Modified	°C	145
Shrinkage at 302°F (150°C)	ASTM D1204	%	0.02		%	0.02
Brittleness Temperature	ASTM D746	°F	-211		°C	-135
Physical Characteristics						
Density	ASTM D792	slug/ft3	2.6	ISO 1183	kg/m3	1344
Water Absorption, 24 hrs.	ASTM D570	% change	0.28	ISO 62	% change	0.28
Surface Energy(1st surface/ 2nd surface)	ASTM D5946-01	-	34/36			
Surface Tension(1st surface/ 2nd surface)	Dyne Pens	Dyne	>44/>44			
Optical Characteristics						
Refractive Index @77°F (25°C)	ASTM D542A	-	1.6			
Light Transmission	ASTM D1003	%	86.1			
Yellowness Index	ASTM D1925	%	1.3			
Haze	ASTM D1003	%	97			
Gloss over Flat Black min/max @ 60°	ASTM D523-60	-	7	ISO 2813		10

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