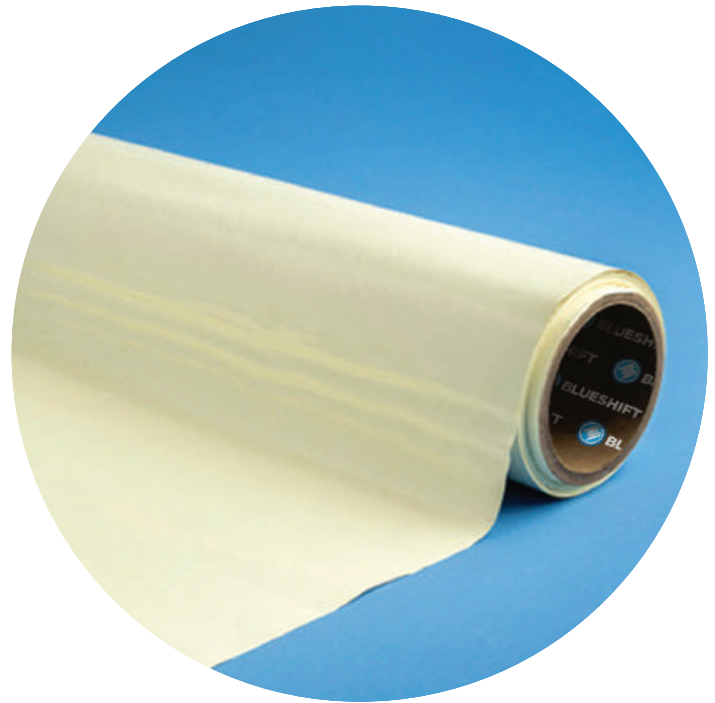


AeroZero Standard Film



Advanced Materials. Empowering Solutions.

AeroZero® film is structured air. At 85% porosity, its low thermal conductivity, wide temperature range, low density, low thickness, and ease of application make it an essential material for product developers. Customers designing products benefit from AeroZero because of its superior insulating properties and RF transparency. Customers manage hot spots with thin and lightweight AeroZero heat shields and thermal management tapes. Lose weight, save space and make your process simpler with AeroZero.

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PHYSICAL AND MECHANICAL PROPERTIES	ASTM METHOD	VALUE	UNITS
Film Thickness	In-house method	165 ± 38 (6.5 ± 1.5)	µm (mil)
Tensile Strength (23 °C)	D882-12	7.2 ± 1.5 (1.0 ± 0.3)	MPa (ksi)
Young's Modulus (23 °C)	D882-12	250 ± 75 (36 ± 11)	MPa (ksi)
Tensile Elongation at break (23 °C)	D882-12	8.0 ± 2	%
Density	In-house method	0.27 ± 0.05	g/cm ³
ELECTRICAL PROPERTIES	ASTM METHOD	VALUE	UNITS
Surface Resistivity	D257-14	2.1 x 10 ¹⁵	Ohm/sq
Volume Resistivity	D257-14	7.4 x 10 ¹⁵	Ohm-cm
THERMAL PROPERTIES	ASTM METHOD	VALUE	UNITS
Thermal Conductivity (23 °C)	C177-10	30	mW/m*K
Thermal Conductivity (-87 °C)	Cryostat 100	20	mW/m*K
OUTGASSING PROPERTIES	ASTM METHOD	VALUE	UNITS
NASA Outgassing Total Mass Loss (TML)	E595-15	0.89	%
NASA Outgassing Collected Volatile Condensable Material (CVCM)	E595-15	0.03	%
NASA Outgassing Water Vapor Recovered (WVR)	E595-15	0.61	%
THERMOMECHANICAL PROPERTIES	ASTM METHOD	VALUE	UNITS
Glass Transition Temperature (T _g DMA)	E1640 – 13	300 ± 3 (572 ± 4)	°C (°F)
Coefficient of Thermal Expansion (CTE), Machine (20 - 180°C)	E831-14	16 (8.6)	ppm/°C (ppm/°F)
Coefficient of Thermal Expansion (CTE), Cross (20 - 180°C)	E831-14	14 (7.9)	ppm/°C (ppm/°F)
Decomposition Temperature (TGA 10%)	E2550 - 17	530 (980)	°C (°F)
RF & DIELECTRIC PROPERTIES	ASTM METHOD	VALUE	UNITS
Dielectric Constant (Dk): Average 1 - 10 GHz	D2520 Part C	1.45	—
Loss Tangent (Df): Average 1 - 10 GHz	D2520 Part C	0.004	—
SOLAR OPTICAL AND THERMAL PROPERTIES	ASTM METHOD	VALUE	UNITS
Solar Absorptivity (27 °C Air Mass 0)	E908-12	0.14	—
Solar Absorptivity (27 °C Air Mass 1.5)	E908-12	0.09	—
IR Emissivity	E408-13	0.48	—