



## AeroZero® Standard Film

### Product Description

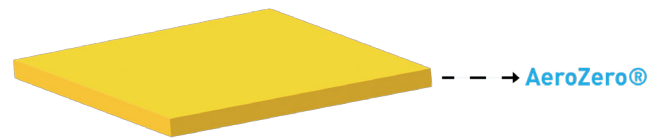
AeroZero® film is structured air. At 85% porosity, its low thermal conductivity, wide temperature range, low density, low thickness, and ease of application make it an essential material for product developers. Customers designing products benefit from AeroZero because of its superior insulating properties and RF transparency. Customers manage hot spots with thin and lightweight AeroZero heat shields and thermal management tapes. AeroZero enables product designers and engineers the freedom to imagine new and better solutions.

### Application

Ensure the application surface is clean and free of loose particles. Standard application temperature is 25 °C (77 °F) with a minimum temperature of 10 °C (50 °F).

### Features

- ◇ Flexible application onto complex parts
- ◇ Enhances thermal performance of substrates
- ◇ Easy application
- ◇ Flame retardant
- ◇ RF Transparent
- ◇ Lightweight



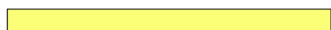
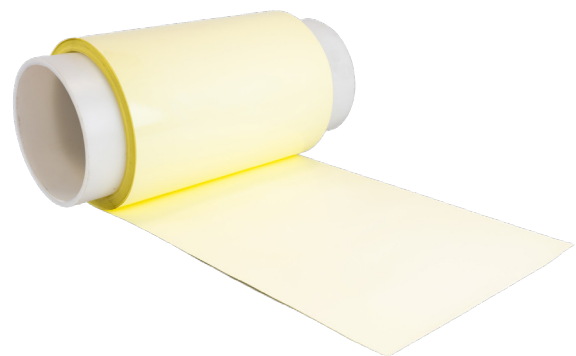
### Standard Dimensions

- ◇ Test Sample: 216 x 280 mm (8.5 x 11 in)
- ◇ Sample Roll: 1 x 3.05 m (1 x 10 ft)
- ◇ Standard Roll: 1 x 30.5 m (1 x 100 ft)

### Storage

Recommended Storage Conditions:

- ◇ Temperature: below 25 °C (77 °F)
- ◇ Relative Humidity: below 50%



AeroZero (AZ): 165 micron (6.5 mil)



Blueshift products are manufactured under a certified AS 9100D/ISO 9001:2015 Quality Management System facility. See our website for more information on Blueshift products.

*Lighten. Protect. Perform.*



Physical and Mechanical Properties	Method	Value
Product Code	-	1000-0000-000
Thickness, $\mu\text{m}$ (mil)	In-House Method	165 $\pm$ 38 (6.5 $\pm$ 1.5)
Tensile Strength, MPa (ksi)	ASTM D882-12	7.2 $\pm$ 1.5 (1.0 $\pm$ 0.3)
Young's Modulus, MPa (ksi)	ASTM D882-12	250 $\pm$ 75 (36 $\pm$ 11)
Tensile Elongation at Break, %	ASTM D882-12	6.0 $\pm$ 2
Density, $\text{g}/\text{cm}^3$	In-House Method	0.27 $\pm$ 0.05

Thermal Properties	Method	Value
Thermal Conductivity (25 °C), W/m·K	ASTM C518-21	0.034 $\pm$ 0.002
Specific Heat Capacity (25 °C), J/g·°C	ASTM C1784-20	1.02 $\pm$ 0.02
IR Emissivity (27 °C)	ASTM E408-13	0.55

Thermomechanical Properties	Method	Value
Glass Transition Temp (DMA), °C (°F)	ASTM E1640-13	305 (580)
Decomposition Temperature (10 wt% loss, TGA), °C (°F)	ASTM E2550-17	530 (980)
Coefficient of Thermal Expansion, Machine (0 - 100 °C), ppm/°C (ppm/°F)	ASTM E831-14	29 (16)

Electrical Properties	Method	Value
Surface Resistance, MOhms	IPC TM 650 2.5.17E	10 <sup>8</sup>
Volume Resistivity, MOhm-cm	IPC TM 650 2.5.17E	10 <sup>5</sup>

Outgassing Properties	Method	Value
NASA Outgassing Total Mass Loss (TML), %	ASTM E595-15	0.78
NASA Outgassing Collected Volatile Condensable Material (CVCM), %	ASTM E595-15	0.01
NASA Outgassing Water Vapor Recovered (WVR), %	ASTM E595-15	0.58

RF & Dielectric Properties	Method	Value
Dielectric Constant (Dk): 10 GHz	IPC TM 650 2.5.5.5	1.45
Dissipation Factor (Df): 10 GHz	IPC TM 650 2.5.5.5	0.004

Data within this table are typical values for the standard AeroZero® product family.  
 Product Code # 1000 - 0000 - 000

*Lighten. Protect. Perform.*