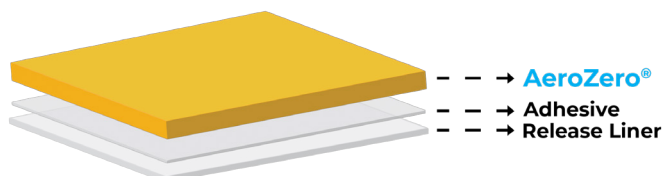




AeroZero® Thermal Protection Systems AZ-TPS Low-Outgassing Configurations

Product Description

The AZ-TPS low-outgassing thermal portfolio consists of a range of tapes that include at least one layer of 165 micron (6.5 mil) AeroZero® polyimide aerogel film with at least one low-outgassing adhesive bonding layer. The adhesive has a release layer that is peeled off before application to a substrate. Potential substrates include stainless steel, aluminum, glass, carbon fiber, and polymer substrates such as polyimides, polyether ketones, polyurethanes, and polyesters. Typical use is thermal barrier/protection of parts in the Aerospace, Defense and Electronic industries.



Standard Dimensions

- ◇ Test Sample: 216 x 356 mm (8.5 x 11 in)
- ◇ Sample Roll: 304 mm x 3.05 m (1 x 10 ft)
- ◇ Standard Roll: 304 mm x 30.5 m (1 x 100 ft)

Applications

Prior to peeling the release liner from the adhesive, ensure the surface is clean and free of loose particles. Standard application temperature is 25 °C (77 °F) and the recommended set time for optimal adhesion is 3 days prior to testing. The minimum application temperature is 10 °C (50 °F) and minimum set time is 24 hours before performing any tests. Increasing temperature and dwell time may increase adhesion strength.

Storage

Recommended Storage Conditions:

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

Features

- ◇ Ultra-thin thermal protection system (TPS)
- ◇ Flexible application onto complex parts
- ◇ Enhances thermal performance of substrates
- ◇ Easy application with permanent bonding
- ◇ Flame retardant
- ◇ Lightweight





AeroZero® Thermal Protection Systems

AZ-TPS Low Outgassing Configurations

Physical and Mechanical Properties	Method	AZ-TPS 102	AZ-TPS 104
		Value	Value
Product Code	-	2000-01A1-000	2000-01A3-000
Thickness, µm (mil)	ASTM D374/ D374M	223.5 (8.8)	190.5 (7.5)
Tensile Strength, MPa (ksi)	ASTM D882	6.5 (0.94)	7.5 (1.09)
Young's Modulus, MPa (ksi)	ASTM D882	200	250
Tensile Elongation at Break, %	ASTM D882	7.7	6.5
Density, g/cm ³	ASTM D202	0.50	0.40
Basis Weight, g/m ²	ASTM D202	105	78
Thermal Properties		Value	Value
Thermal Conductivity (25 °C), W/m•K	ASTM C518	0.041	0.037
Thermal Conductivity (25 °C, 10 ⁻⁵ Torr), W/m•K	C177	0.007	0.008
Specific Heat Capacity (25 °C), J/g•°C	ASTM C1784	1.55	1.35
Thermomechanical Properties		Value	Value
Glass Transition Temp (AZ T _g , DMA), °C (°F)	ASTM E1640	305 (580)	305 (580)
Decomposition Temp (10 wt% loss, TGA), °C (°F)	ASTM 2550	261 (501.8)	255 (491)
Additional Properties		Value	Value
Adhesive Strength:			
72 hour Peel Strength to 2 mil Aluminum Foil, N/m (Lbf/in)	ASTM D3330	>300 (1.7)	>300 (1.7)
NASA Outgassing Total Mass Loss (TML), %	ASTM E595	<1%	<1%
Collected Volatile Condensable Material, CVM	ASTM E595	<0.1%	<0.1%
Adhesive Type	-	Acrylic	Acrylic

Data within this table are typical values for the standard AeroZero® TPS product family.
Product Codes #2000-01A1-000, 2000-01A3-000

AZ-TPS 102



AZ-TPS 104

