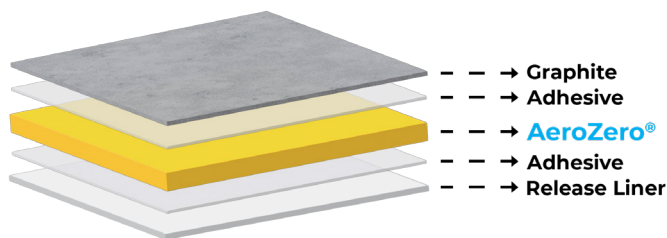




AeroZero® Thermal Protection Systems AZ-TPS Graphite 100

Product Description

AZ-TPS Graphite consists of a 165 micron (6.5 mil) AeroZero® polyimide aerogel film with a 50.8 micron (2 mil) external graphite film joined with a 25.4 micron (1 mil) adhesive. The adhesive is a high-performance engineering grade silicone pressure sensitive adhesive (PSA) with 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 280 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)

Application

Prior to peeling the release liner from the adhesive, ensure the substrate is clean and free of loose particles. Standard application temperature is 25 °C (77 °F) and the recommended set time for optimal adhesion is three 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.

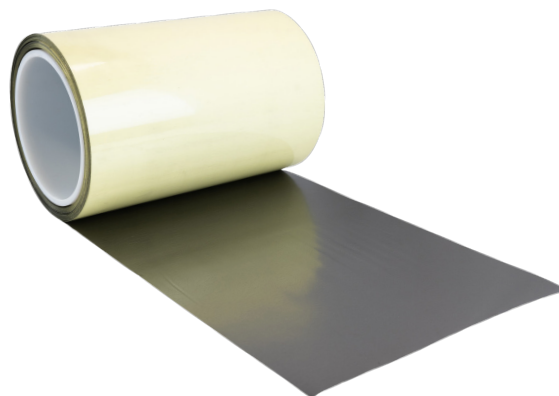
Storage

Recommended Storage Conditions:

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

Features

- ◇ Ultra-thin thermal protection system (TPS)
- ◇ Excellent thermal insulator and heat spreader
- ◇ Lightweight
- ◇ Easy application with permanent bonding
- ◇ Flame retardant
- ◇ High heat resistance > 1000 °F (538 °C)





AeroZero® Thermal Protection Systems AZ-TPS GR 100 Data

Physical and Mechanical Properties	Method	Value
Product Code	-	2020-11S1-000
Thickness, μm (mil)	ASTM D374	267 (10.5)
Tensile Strength, MPa (ksi)	ASTM D882	4.5 (0.65)
Young's Modulus, MPa (ksi)	ASTM D882	415 (60)
Tensile Elongation at Break, %	ASTM D882	4
Density, g/cm^3	ASTM D202	0.70
Thermal Properties	Method	Value
Thermal Conductivity (25 °C), $\text{W}/\text{m}\cdot\text{K}$	ASTM C518	0.053
Specific Heat Capacity (25 °C), $\text{J}/\text{g}\cdot^\circ\text{C}$	ASTM C1784	1.07
IR Emissivity (Graphite Surface)	ASTM E408	0.29
Thermomechanical Properties	Method	Value
Glass Transition Temp (AZ T_g , DMA), °C (°F)	ASTM E1640	305 (580)
Decomposition Temp (10 wt% loss, TGA), °C (°F)	ASTM 2550	470 (878)
Additional Properties	Method	Value
Adhesive Strength:		
180 °peel/3 day-RT dwell time AZ film on 50.8 micron (2 mil)	ASTM D3330	>300 (1.7)
Al Foil, N/m (lb/in)		
UL Flammability Rating	UL94 VTM0	TM-0
Adhesive Type	-	Silicone

Data within this table are typical values for the graphite TPS product family.
Product Code #2020-11S1-000

AZ-TPS GR 100

