

## AeroZero<sup>®</sup> Thermal Tape AZ-GR Tape

## **Product Description**

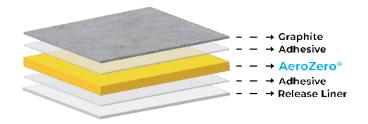
AZ-GR Tape consists of a 165 micron (6.5 mil) AeroZero® polyimide aerogel film with a 50.8 micron (2 mil) external graphite film joined with a 25.4 micron (1 mil) adhesive. The adhesive is a high-performance engineering grade silicone pressure sensitive adhesive (PSA) with a release layer that is peeled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

# **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.

### **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)



#### Uses

- ♦ Launch vehicle protection
- Supersonic munition and aircraft
- High performance race cars and boats

# **Standard Dimensions**

Standard Roll: 25 mm wide x 7.6 m long (1 in x 25 ft)

### Storage

Recommended Storage Conditions:

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



### Lighten. Protect. Perform.

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### AeroZero<sup>®</sup> Thermal Tape AZ-GR Tape

Physical and Mechanical Properties	Method	Value
Product Code	-	5020-1151-251
 Thickness, μm (mil)	In-House Method	267 (10.5)
Tensile Strength, MPa (ksi)	ASTM D882-12	4.5 (0.65)
Young's Modulus, MPa (ksi)	ASTM D882-12	415 (60)
Tensile Elongation at Break, %	ASTM D882-12	4
Density, g/cm <sup>3</sup>	In-House Method	0.70
Thermal Properties	Method	Value
Thermal Conductivity (25 °C), W/m•K	ASTM C518-10	0.053
 Specific Heat Capacity (25 °C), J/g•°C	ASTM C1784-20	1.07
IR Emissivity (Polyimide Surface)	ASTM E408-13	0.85
Thermomechanical Properties	Method	Value
Glass Transition Temp (AZ T <sub>g</sub> , DMA), °C (°F)	ASTM E1640-13	305 (580)
Decomposition Temp (10 wt% loss, TGA), °C (°F)	ASTM 2550-17	470 (878)
Additional Properties	Method	Value
Adhesive Strength:		
180 °peel/3 day-RT dwell time AZ film on 50.8 micron (2 mil) AI Foil N/m (lb/in)	ASTM D3330	>300 (1.7)
UL Flammability Rating	UL94 VTM0	VTM-0

Data within this table are typical values for the AeroZero® graphite TPS product family. *Product Code # 5020-11S1-251* 

 Graphite: 50.8 micron (2 mil)

 Silicone Adhesive (PSA): 25.4 micron (1 mil)

 AeroZero (AZ): 165 micron (6.5 mil)

 Silicone Adhesive (PSA): 25.4 micron (1 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.

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