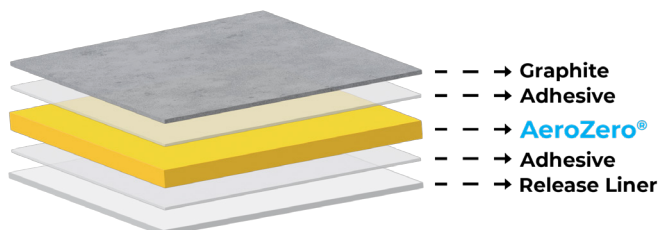




AeroZero® Thermal Tape AZ-Graphite Tape

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.



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%

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)





AeroZero® Thermal Tape AZ-Graphite Tape

| Physical and Mechanical Properties | Method | Value |
|---|-----------------|---------------|
| Product Code | - | 5020-11S1-251 |
| 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^3 | In-House Method | 0.70 |
| | | |
| Thermal Properties | Method | Value |
| Thermal Conductivity (25 °C), $\text{W}/\text{m}\cdot\text{K}$ | ASTM C518-10 | 0.053 |
| Specific Heat Capacity (25 °C), $\text{J}/\text{g}\cdot^\circ\text{C}$ | ASTM C1784-20 | 1.07 |
| IR Emissivity (Polyimide Surface) | ASTM E408-13 | 0.85 |
| | | |
| Thermomechanical Properties | Method | Value |
| Glass Transition Temp (AZ T_g , 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) Al Foil N/m (Lbf/in) | ASTM D3330 | >300 (1.7) |
| UL Flammability Rating | UL94 VTM0 | VTM-0 |
| Adhesive Type | - | Silicone |

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

AZ-Graphite Tape

