

## **AeroZero® Thermal Protection Systems**

TripleZero™ TPS 300

### **Product Description**

TripleZero™ TPS 300 consists of three standard 165 micron (6.5 mil) AeroZero® polyimide aerogel films bonded 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.

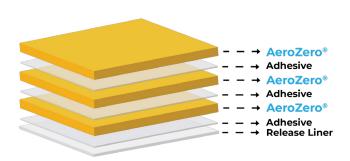
Potential substrates for bonding include carbon fiber composites, glass-reinforced composites, polymers (such as PEEK, polyimides, PET), and metals (such as aluminum, steel, titanium). Typical use is for thermal protection/insulation of battery housing and other sensitive parts exposed to high heat or very cold environments. Industries include aerospace, defense, medical and electronic devices.

## **Application**

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.

#### **Features**

- ♦ Ultra-thin thermal protection system (TPS)
- Lightweight
- Flexible application onto complex parts
- Enhances the thermal endurance of protected parts
- Easy application with permanent bonding
- ♦ Flame retardant



### **Standard Dimensions**

- Test Sample: 216 x 280 mm (8.5 x 11 in)
- ♦ Starter Roll: 304 mm x 7.62 m (1 x 25 ft)
- Standard Roll: 304 mm x 30.48 m (1 x 100 ft)
- Available as sheets cut to custom sizes.

## **Storage**

Recommended Storage Conditions:

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





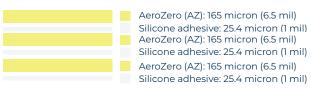
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TripleZero™ TPS 300

Physical and Mechanical Properties	Method	Value
Product Code	-	2000-03\$1-000
Thickness, µm (mil)	ASTM D374/D374M	570 (22.4)
Tensile Strength, MPa (ksi)	ASTM D882	7.1 (1.0)
Young's Modulus, MPa (ksi)	ASTM D882	200 (29)
Tensile Elongation at Break, %	ASTM D882	9.8
Density, g/cm³	ASTM D202	0.40
Basis Weight, g/m²	ASTM D202	230
Thermal Properties	Method	Value
Thermal Conductivity (25 °C), W/m·K	ASTM C518	0.036
Thermomechanical Properties	Method	Value
Glass Transition Temperature (AeroZero T <sub>g</sub> , DMA), °C (°F)	ASTM E1640	305 (580)
Decomposition Temperature (10 wt% loss, TGA), °C (°F)	ASTM E2550	400 (600)
Additional Properties	 Method	Value
Adhesive Strength:		
180 °peel/3 day-RT dwell time AZ film on 50.8 micron (2 mil) AI Foil	ASTM D3330	>250 (1.7)
N/m (Lbf/in)		
Flammability, 12 s vertical burn	FAR Part 25 Appx. F Part 1 (a) (1) (ii)	Pass
UL Flammability Rating	UL94 Vertical Burn	VO
Adhesive Type		Silicone

Data within this table are typical values for the standard TripleZero<sup>TM</sup> TPS product family.  $Product\ Code\ \#2000-03S1-000$ 

#### TripleZero™ TPS 300



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