BLUESHIFT

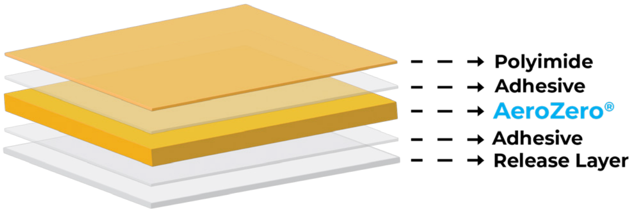
PRODUCT DATA SHEET

AeroZero® Thermal Protection Systems

AZ-TPS Polyimide 100

Product Description

AZ-TPS PI consists of a 165 micron (6.5 mil) AeroZero® polyimide aerogel film with a 25.4 micron (1 mil) external polyimide 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, 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 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)
- ◊ Lightweight
- ◊ RF transparent
- ◊ Flexibility enables use on complex parts
- ◊ Easy application with permanent bonding
- ◊ Flame retardant

*DISCLAIMER: Blueshift MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, COURSE OF PERFORMANCE, OR TRADE USAGE. All of the descriptive information, the typical performance data, and recommendations for the use of Blueshift products shall be used only as a guide and do not reflect the specification or specification range for any particular property of the product. Furnishing such information is merely an attempt to assist you after you have indicated your contemplated use and shall in no event constitute a warranty of any kind by Blueshift. All purchasers of Blueshift products shall be responsible for independently determining the suitability of the material for the purpose for which it is purchased, and for performing any additional testing that may be necessary to support purchaser's intended use. No distributor, salesman, or representative of Blueshift is authorized to give any warranty, guaranty, or make any representation in addition or contrary to the above. Blueshift, the Blueshift Logos, AeroZero, and all products unless otherwise noted, denoted with ™ or ® are trademarks or registered trademarks of Blueshift Materials, Inc. Copyright © 2025 Blueshift Materials, Inc. All rights reserved.

AeroZero® Thermal Protection Systems

AZ-TPS PI 100

Physical and Mechanical Properties	**Method**	**Value**
Product Code	-	2010-11S1-000
Thickness, µm (mil)	In-House Method	240 (9.5)
Tensile Strength, MPa (ksi)	ASTM D882-12	15 (2)
Young’s Modulus, MPa (ksi)	ASTM D882-12	450 (65)
Tensile Elongation at Break, %	ASTM D882-12	8
Density, g/cm^3	In-House Method	0.58

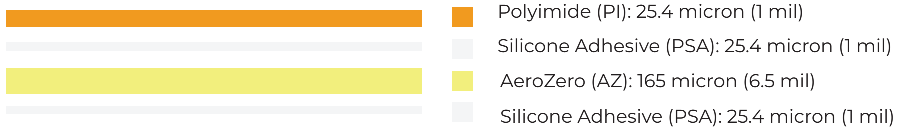
Thermal Properties	**Method**	**Value**
Thermal Conductivity (25 °C), W/m•K	ASTM C518-10	0.046
Specific Heat Capacity (25 °C), J/g•°C	ASTM C1784-20	1.22
IR Emissivity (Polyimide Surface)	ASTM E408-13	0.77

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	410 (770)

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	>200 (1.1)
UL Flammability Rating	UL94 VTM0	VTM-0
Adhesive Type	-	Silicone

Data within this table are typical values for the polyimide TPS product family.
Product Code # 2010-11S1-000

AeroZero TPS PI 100



*DISCLAIMER: Blueshift MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, COURSE OF PERFORMANCE, OR TRADE USAGE. All of the descriptive information, the typical performance data, and recommendations for the use of Blueshift products shall be used only as a guide and do not reflect the specification or specification range for any particular property of the product. Furnishing such information is merely an attempt to assist you after you have indicated your contemplated use and shall in no event constitute a warranty of any kind by Blueshift. All purchasers of Blueshift products shall be responsible for independently determining the suitability of the material for the purpose for which it is purchased, and for performing any additional testing that may be necessary to support purchaser’s intended use. No distributor, salesman, or representative of Blueshift is authorized to give any warranty, guaranty, or make any representation in addition or contrary to the above. Blueshift, the Blueshift Logos, AeroZero, and all products unless otherwise noted, denoted with ™ or ® are trademarks or registered trademarks of Blueshift Materials, Inc. Copyright © 2025 Blueshift Materials, Inc. All rights reserved.