3M™ Solar Acrylic Foam Tape
2110

Product Description

3M™ Solar Acrylic Foam Tape 2110 features a general purpose adhesive on both sides of a firm, dark grey foam carrier. Typically used on various substrates, this tape has the added feature of high temperature resistance, making it often suitable for bonding prior to high temperature paint processing.

Key Benefits

- Pressure sensitive adhesive for quick application with immediate handling strength to speed assembly.
- Strength to replace liquid adhesives and mechanical fasteners in many applications.
- Neat application without the mess, ooze, and curing delay of liquid adhesives.
- Can typically tolerate differential movement in the shear plane up to 3 times its thickness.
- Bonds and seals simultaneously with durability to withstand vibration, impact, and weathering.
- Provides a clean, smooth appearance.

Slitting Tolerance

Standard slitting tolerance ±1/32 inch (±0.8 mm).

Core Size

Available on a 3 inch ID Core (76.2 mm).

UL Component Recognition

Tape 2110 is UL listed under UL 746C category QOQW2, file number MH17478.

Typical Physical Properties

Properties		Typical Values
Color		Dark Gray
Thickness	Inches (mm)	0.045 (1.1)
	Tolerance	± 10%
Adhesive Type		General Purpose Acrylic
Foam Type		Firm Closed Cell
Density lb/ft3 (kg/m3)		52 (840)
Release Liner Thickness	Type	PE Film
	Inches (mm)	0.005 (0.125)
	Color	Red

Dynamic Adhesion Performance	Unit	Value
90° Peel Adhesion	lb/in (N/100 mm)	18 (315)
Normal Tensile	lb/in² (kPa)	90 (620)
Dynamic Overlap Sheer	lb/in² (kPa)	65 (445)

90°Peel Adhesion – Based on ASTM D-3330 – To stainless steel, room temperature, jaw speed 12 in/min (305 mm/min). Average force to remove is measured.

Normal Tensile (T-Block Tensile) – ASTM D-897 – To aluminum, room temperature, 1 in² (6.45 cm²), jaw speed 2 in/min (50 mm/min.) Peak force to separate is measured.

Dynamic Overlap Shear – ASTM D-1002 – To stainless steel, room temperature, 1 in² (6.45 cm²), jaw speed 0.5 in/min (12.7 mm/min.) Peak force to separate is measured.

Static Shear		
Weight (grams) that 1/2 square inch will hold 10,000 minutes (7 days)	72°F (22°C)	1500
	150°F (66°C)	750
	200°F (93°C)	750
	250°F (121°C)	750
	350°F (177°C)	750

Temperature Tolerance	Unit	Value
Short Term (Minutes, Hours)	°F (°C)	450 (232)
Long Term (Days, Weeks)	°F (°C)	300 (149)

Static Shear – ASTM D3654 – To stainless steel, tested at various temperatures and gram loadings. 0.5 in² (3.22 cm²). Will hold listed weight for 10,000 minutes (approximately 7 days). Conversion: 1500 g/0.5 in² equals 6.6 lb/in²; 500 g/0.5 in² = 2.2 lb/in².

Short Term Temperature Tolerance – No change in room temperature dynamic shear properties following 4 hours conditioning at indicated temperature with 100 g/static load. (Represents minutes, hours in a process type temperature exposure).

Long Term Temperature Tolerance – Maximum temperature where tape supports at least 250 g load per 0.5 in² in static shear for 10,000 minutes. (Represents continuous exposure for days or weeks.

Note: All tapes should be thoroughly evaluated by the user under actual conditions with intended substrates to determine whether a specific tape is fit for a particular purpose and suitable for user's method of application, especially if expected use involves extreme environmental conditions.

Note: The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

Application Guidelines

Temperature, humidity, pressure and cleanliness can impact the adhesion characteristics.

- **Temperature:** As temperature increases, the initial adhesion will typically increase. Suggested application temperatures are 70°F to 100°F (21°C to 38°C). Minimum application temperature is 60°F (15°C).
- **Humidity:** The suggested humidity target for the application is below 90% R.H. SAFT that has a paper liner should be kept and applied below 70% R.H. There is concern that bringing cold tape or substrates into a warm humid environment can also cause condensation, which impact adhesion.
- **Pressure:** Increasing pressure can improve the adhesive to surface contact, which can increase the adhesion. Suggested pressurization is 30 psi. Minimum suggested pressurization is 15 psi at bond interface.
- **Cleanliness:** The cleanliness of the surface can also impact adhesion. Typically a thorough cleaning with a 50:50 mixture of isopropyl alcohol and water is sufficient.

The impact of these variables is very dependent on the specific substrate. Going outside of these ranges can have positive or negative impacts. Performance is dependent on the substrate.

See Application Techniques document for additional information.

Shelf Life

24 months from date of manufacture when stored at 40°F to 100°F (4°C to 38°C) and 0 to 95% relative humidity. The optimum storage conditions are 72°F (22°C) and 50% relative humidity.

Performance of tapes is not projected to change even after shelf life expires; however, 3M does suggest that 3M™ Solar Acrylic Foam Tapes are used prior to the shelf life date whenever possible.

Additional Typical Characteristics

Properties	Typical Values	
Thermal Conductivity – K-value	**Unit**	**Value**
BTU in	hr ft^2 °F (w/mK)	0.77 (0.11)

R-Value = thickness/K-value (When units of K-value are BTU-in/hr ft^2 °F and thickness is given in inches.)

Resistivity (ASTM D257)	Unit	Value
Volume Resistivity	(in ohm-cm)	1.4×10^{15}
Surface Resistance	(in ohms/square)	$>10^{16}$

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