



Adhesive Films and Preforms

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## TF E2713F ELECTRICALLY CONDUCTIVE FILM

### Description:

TechFilm E2713F is a high performance electrically conductive B-staged film adhesive specially formulated for bonding to gold or gold plated substrates. TechFilm E2713F is especially suited for EMI/RF grounding applications.

### Advantages and Applications:

TechFilm E2713F will cure at temperatures above 90°C. It features good chemical, heat, and moisture resistance.

### Shelf Life:

3 Days @ 20°C      one month @ -10°C      Three months @ -20°C      6 months @ -40°C

### Cure Schedules:

Cure Schedule	15 minutes at 165°C	
Alternate Cure Schedules	30 minutes at 150°C	120 minutes at 110°C
	10 minutes at 175°C	180 minutes at 100°C

### Cured Properties:

<u>Property</u>	<u>Method</u>	<u>Value Obtained</u>
Color	Visual	Silver
Specific Gravity	ASTMD 792	3.8
Volume Resistivity at 25°C, Ohm-cm	TFTEST004C	$1.0 \times 10^{-4}$
Volume Resistivity at 25°C, Ohm-cm after 1000 hr at 150°C	TFTEST004C	$0.7 \times 10^{-4}$
Tensile Shear Strength to Gold at 25°C, psi	ASTM D1002	1900
Tensile Shear Strength to Nickel at 25°C, psi	ASTM D1002	2710
Tensile Shear Strength to Aluminum at 25°C, psi	ASTM D1002	1900
Tensile Shear Strength to Aluminum at 25°C, psi*	ASTM D1002	1700
Tensile Shear Strength to 3/16" thick 101 Copper at 25°C, psi	ASTM D1002	3000
Tensile Shear Strength to 3/16" thick 260 Brass alloy at 25°C, psi	ASTM D1002	2500
Glass Transition Temperature (inflection), °C	ASTM E1356	107
Alpha 1 (below Tg), $\times 10^{-6}/^{\circ}\text{C}$	ASTM E831	60
Alpha 2 (above Tg), $\times 10^{-6}/^{\circ}\text{C}$	ASTM E831	350

- - using alternative cure schedule of 180 minutes at 100°C

All values reported above are typical values from the recommended cure, and are reported as a means of reference. Individual testing should be done to determine actual results, tested at specific conditions. Data should not be used for material specification purposes.

Rev. 070507 PLC

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**Cured Properties:** (continued)

<b><u>Property</u></b>	<b><u>Method</u></b>	<b><u>Value Obtained</u></b>
Weight Loss at 200°C, TGA, 20°C/min, N <sub>2</sub> , %	ASTM D3850	0.13
at 250°C	and MIL-STD-883	0.18
at 300°C	Section 3.8.5.1	0.26
Total Ionic Conductance after 52 hour water boil, µmhos/cm	TFTEST007	16
pH at 25°C after 52 hour water boil	TFTEST010	5

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