



Adhesive Films and Preforms

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## TF E2214F ELECTRICALLY CONDUCTIVE FILM

### Description:

TechFilm E2214F is a high performance electrically conductive B-staged film adhesive specially formulated for bonding to gold or gold plated substrates. TechFilm E2214F is especially suited for EMI/RF grounding applications.

### Advantages and Applications:

TechFilm E2214F will cure at temperatures above 120°C. It features good chemical, heat, and moisture resistance.

### Shelf Life:

One week @ 20°C      One month @ 10°C      Three months @ -10°C      One year @ -40°C

### Cure Schedules:

Cure Schedule	60 minutes at 150°C
Alternate Cure Schedules	30 minutes at 160°C
	240 minutes at 130°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	$0.7 \times 10^{-4}$
Lap Shear Strength to Gold at 25°C, psi	ASTM D1002	1700
Lap Shear Strength to Nickel at 25°C, psi	ASTM D1002	1700
Lap Shear Strength to Aluminum at 25°C, psi	ASTM D1002	2150
Glass Transition Temperature (inflection), °C	ASTM E1356	106
Thermal Conductivity, W/m-°K	ASTM E1461	1.3
Thermal diffusivity, thickness = 1.0 mm, cm <sup>2</sup> /s-°K	ASTM E1461	0.0055
Specific Heat Capacity, J/g-°K	ASTM E1461	0.56
Alpha 1 (below Tg), x 10 <sup>-6</sup> /°C	ASTM E831	57
Alpha 2 (above Tg), x 10 <sup>-6</sup> /°C	ASTM E831	347
Weight Loss at 150°C, TGA, 20°C/min, N <sub>2</sub> , %	ASTM D3850	0.21
at 200°C	and MIL-STD-883	0.23
at 300°C	Section 3.8.5.1	0.42

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.

(Continued)

Rev. 111907 PLC

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<u>Property</u>	<u>Method</u>	<u>Value Obtained</u>
Space Simulated Outgassing, Total Mass Loss (TML), %	ASTM E595	0.228
Space Simulated Outgassing, Collected Volatiles (CVCM), %	ASTM E595	0.031
Space Simulated Outgassing, Water Vapor Recovered (WVR), %	ASTM E595	0.080
Total Ionic Conductance after 72 hour water boil, $\mu$ mhos/cm	TFTEST007	15
pH at 25°C after 72 hour water boil	TFTEST010	7.3
Ionics, IC, after 72 hour water boil, ppm	ASTM D4327	
Chloride		100
Potassium		10
Sodium		35
Fluoride		< 5
Ammonium		50
Other		< 5

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