

T2222F

THERMALLY CONDUCTIVE FILM

TECHNICAL DATA

October, 2011

Product Description

TechFilm T2222F is a high performance thermally conductive B-staged film adhesive specially formulated for bonding to gold, nickel, and other hard to bond substrates. T2222F will cure at temperatures above 115°C and features good chemical, heat, and moisture resistance.

APPLICATIONS	FEATURES	RECOMMENDED SUBSTRATES
<ul style="list-style-type: none"> All purpose bonding Piezoelectric sensors 	<ul style="list-style-type: none"> High thermal conductivity Chemical, heat, moisture resistant B-staged film 	<ul style="list-style-type: none"> Various Nickel Hard to bond substrates

CURED PROPERTIES*		
Property	Value	Test Method
Color	Cream	Visual
Specific Gravity	2	TFTEST002B
Specific Heat Capacity, J/g-K	1.11	ASTM E1461
Glass Transition Temperature, C	112	ASTM E545
Glass Transition Temperature, C	95	ASTM E831
Thermal Diffusivity, (cm ²)/s-K	0.0034	ASTM E1461
Thermal Conductivity, W/M-K	0.75	ASTM E1461
Volume Resistivity @25C, Ohm-cm	>1.0 x 10 ¹⁵	ASTM D257
Linear Coefficient of Thermal Expansion, x 10 ⁻⁶ /C	Alpha 1 (below Tg): 42	ASTM E831
	Alpha 2 (above Tg): 176	ASTM E831
Weight Loss, TGA, 20C/min, N ₂ , %	@ 150C: 0.05	ASTM D3850 and MIL-STD-883 Section 3.8.5.1
	@ 200C: 0.15	
	@ 300C: 0.56	

TENSILE SHEAR STRENGTH*		
Property	Value	Test Method
to Aluminum @ 25C, psi	3000	ASTM D1002
to Nickel @ 25C, psi	3050	ASTM D1002*
to Gold @ 25C, psi	2950	ASTM D1002
to 316 SS @ 25C, psi	6250	ASTM D1002*
to 101 Copper @ 25C, psi	4250	ASTM D1002*
to FR4 @ 25C, psi	2700	ASTM D1002*
to PEEK @ 25C, psi	450	ASTM D1002*
to ULTEM @ 25C, psi	550	ASTM D1002*
to 260 Brass @ 25C, psi	5250	ASTM D1002*

* Tested using 0.25" thick substrates

CURE SCHEDULE*		
Property	Value	Test Method
Cure Time @ 150C, min	60	Typical Cure Schedule
Cure Time @ 160C, min	30	Alternate Cure Schedule
Cure Time @ 125C, min	120	Alternate Cure Schedule
Cure Time @ 115C, min	210	Alternate Cure Schedule

Storage: Store in dry conditions, out of sunlight and in tightly sealed containers.

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

Revision Number: 2 Date: 11 October, 2011

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CHEMICAL RESISTANCE TABLE *		
Solvent	Weight Gain (+) Loss (-) after 24hrs @ 25C, (%)	Weight Gain (+) Loss (-) after 48hrs @ 50C, (%)
Water/antifreeze	0.8	1.5
Transmission fluid	1.2	1.4
Antifreeze	0.7	1.1
Salt Water, 1.4M	0.9	0.9
Tap Water	0.7	1.2
Deionized Water	0.9	1.6
Ferric Nitrate/Water, pH2	0.9	1.3
Sodium Hydroxide / Water, pH12	1	1.2
Solution of 1 M Methanol, 1M Sulfuic Acid in Water	0.9	5.6
N-Methyl-2-pyrrolidone	Not Recommended	Not Recommended
Acetone	Not Recommended	Not Recommended
Isopropyl Alcohol	0.1	2.3
Alconox Water, Saturated solution	1	1.3
10 to 15 psi Steam, @ >100C	2.2	_____

*All samples were 0.005 to 0.007 inches thick, 1 inch wide and 3 inches long. A modified ASTM D570 testing procedure was used. Due to the thin samples, used adsorption numbers may be artificially inflated when compared to industrial standards for measuring chemical resistance.

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