T2521P

THERMALLY CONDUCTIVE ADHESIVE

TECHNICAL DATA

Product Description
TechFilm T2521P is a high performance, thermally conductive adhesive. Features good chemical, heat, and moisture resistance. Also features, a relatively low coefficient of thermal expansion, high glass transition temperature and good adhesion to various substrates. T2521P will cure at temperatures above 130C.

APPLICATIONS
- Lid sealing
- Automotive

FEATURES
- High thermal conductivity
- Chemical, heat, moisture resistant
- All purpose adhesive

RECOMMENDED SUBSTRATES
- Various
- Copper

UNCURED PROPERTIES		
Property	**Value**	**Test Method**
Viscosity @ 25C, TD @ 1 RPM, cP	195,000	QPTEST001
Viscosity @ 25C, TD @ 10 RPM, cP	80,000	
Percent Volatiles	15	N/A

CURED PROPERTIES		
Property	**Value**	**Test Method**
Color	Cream	Visual
Specific Gravity	2.10	QPTEST002
Glass Transition Temperature, C	130	N/A
Thermal Conductivity, W/M-K	0.45	N/A
Volume Resistivity @25C, Ohm-cm	>2.0 x 10^{14}	N/A
Linear Coefficient of Thermal Expansion, x 10^(-6)/C	Alpha 1 (below Tg): 48	N/A
	Alpha 2 (above Tg): 267	N/A
Weight Loss, TGA, 20C/min, N_2, %	@ 150C: 0.21	N/A
	@ 200C: 0.30	N/A
	@ 300C: 0.62	N/A

TENSILE SHEAR STRENGTH		
Property	**Value**	**Test Method**
to Aluminum @ 25C, psi	2100	N/A
to Nickel @ 25C, psi	1632	N/A
to Gold @ 25C, psi	1200	N/A
to 316 SS @ 25C, psi	1880	N/A
to 101 Copper @ 25C, psi	2680	N/A
to 260 Brass @ 25C, psi	1940	N/A

* Tested using 0.188" thick substrates

CURE SCHEDULE		
Property	**Value**	**Test Method**
Cure Time @ 130C, min	120	N/A
Cure Time @ 140C, min	90	N/A
Cure Time @ 150C, min	60	N/A
Cure Time @ 150C plus 180C, min	15 plus 15	N/A
Cure Time @ 165C, min	30	N/A

Storage: Store in dry conditions, out of sunlight and in tightly sealed containers.
Shelf Life: One month @ 20C Three months @ 10C Six months @ -10C One year @ -40C

Revision Number: 3 Date: 20 September, 2016

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Resin Designs, LLC

TECHFILM PRODUCT LINE
Adhesive Films and Preforms

T2521P

TECHNICAL DATA

B-Stage Procedures:

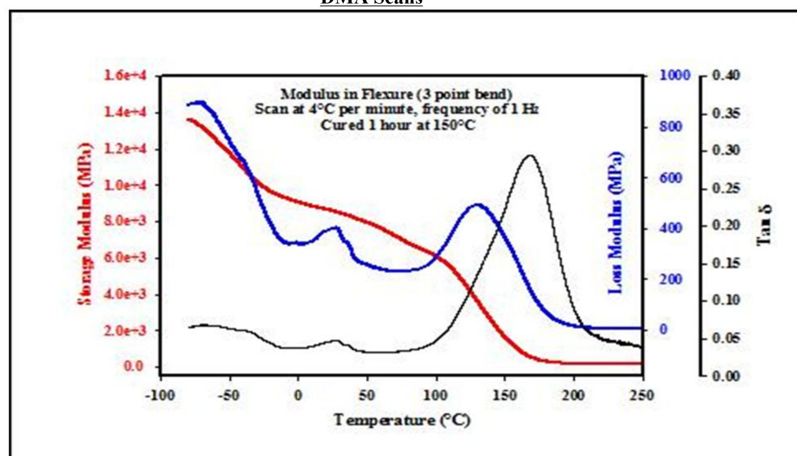
T2521P contains solvent. In order to properly use the material, it should be applied to the surface of a substrate and then b-staged. During the b-staging process most of the solvent is driven off, resulting in a material that is dry to the touch at room temperature, while still being capable of reflow during the assembly process (see cure conditions on page 1). It is recommended that all b-staging processes be performed in a forced convection oven. The use of a gravity convection oven may result in improper b-staging of the material, resulting in a non-uniform coating. B-Stage procedures are dependent on the thickness of the material. Some typical b-stage procedures are listed below.

Initial b-stage thickness (mils)	Final b-stage thickness (mils)	B-stage time/temperature (minutes/ ℃)
6	4	35/ 100
4	2.5	25/ 100
3	2	15/100

CHEMICAL RESISTANCE TABLE*		
Solvent	**Weight Gain (+) Loss (-) after 24hrs @ 25C, (%)**	**Weight Gain (+) Loss (-) after 48hrs @ 50C, (%)**
Water/antifreeze	0.6	1.5
Transmission fluid	0.6	0.6
Antifreeze	0.6	0.4
Salt Water, 1.4M	0.6	0.7
Tap Water	0.7	0.8
Deionized Water	0.7	0.9
Ferric Nitrate/Water, pH2	0.8	1
Sodium Hydroxide / Water, pH12	0.7	0.9
Solution of 1 M Methanol, 1M Sulfuic Acid in Water	0.7	3
N-Methyl-2-pyrrolidone	0.5	19
Acetone	1	5.8
Isopropyl Alcohol	0.1	0.3
Alconox Water, Saturated solution	0.8	0.9
10 to 15 psi Steam, @ >100C	1.4	______

*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.

DMA Scans



MODULUS DATA*				
Property	**Temperature**			
	-80C	**-40C**	**25C**	**100C**
Storage Modulus, Mpa	13500	11,000	8,920	6080
Loss Modulus, Mpa	890	660	340	290
Tan δ	0.065	0.061	0.039	0.047

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