

W186 N11687 MORSE DRIVE GERMANTOWN, WI 53022
262-502-6610 FAX 262-502-4743

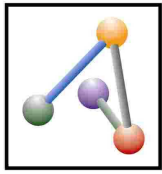
DESCRIPTION:

Resinlab™ EP1320 and EP1320LV are one part heat cure epoxy conformal coatings. They can also be used as a small mass potting compounds, structural adhesives, or insulating polymer systems where the application requires low shrinkage and excellent adhesion to a wide variety of plastics, metals and circuit board materials. These products give very good environmental protection and dielectric properties over a wide temperature range. The primary difference between the two versions is the LV version has a lower high shear viscosity (higher press flow rate) to provide easier dispensing. The amount of sag upon curing is the same.

TYPICAL PROPERTIES:

All properties given are at 25°C unless otherwise noted.

<u>PROPERTY:</u>	<u>VALUE:</u>		<u>TEST METHOD:</u>
	<u>EP1320</u>	<u>EP1320LV</u>	
Color	Black	Black	
Viscosity	100,000 cps 100,000 (mPa·s) RVT, #6 2.5 RPM	40,000 cps 40,000 (mPa·s) RVT, #5 2.5 RPM	TM R050-12
Specific Gravity	1.3	1.3	TM R050-16
Hardness Scale	85 Shore-D	85 Shore-D	TM R050-19
Water Absorption 24 hours	0.13 %	0.13 %	TM R050-35
Temperature Range **	-40 to 150°C	-40 to 150°C	
Tensile	PSI	N/mm²	PSI
			N/mm²
Yield Strength	3,000	20.7	400
Ultimate Strength	5,000	34.5	1,500
Break Strength	5,000	34.5	1,500
Elongation At Break	0-1 %		10-15 %
Modulus	700,000 PSI 4,830 N/mm ²		50,000-70,000 PSI 344.8-482.8 N/mm ²
Lap Shear Strength (2024 T3 Al Abraded / MEK Wipe)	1,300	9.0	2,300
			15.9
			TM R050-37



Resinlab®

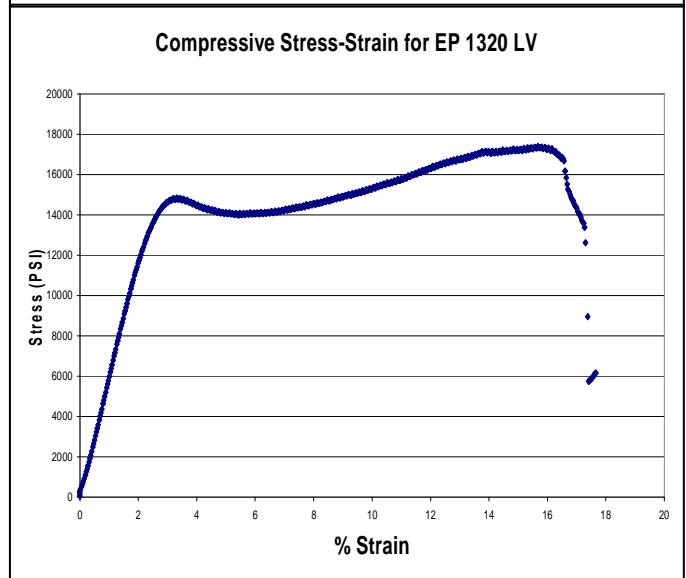
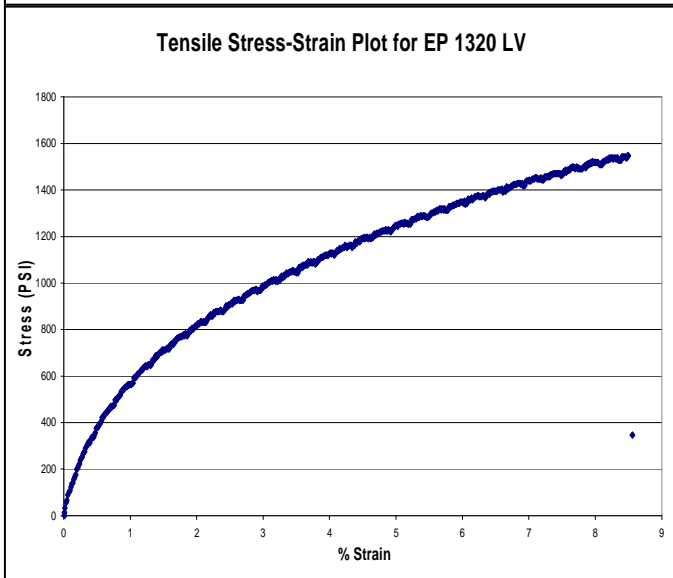
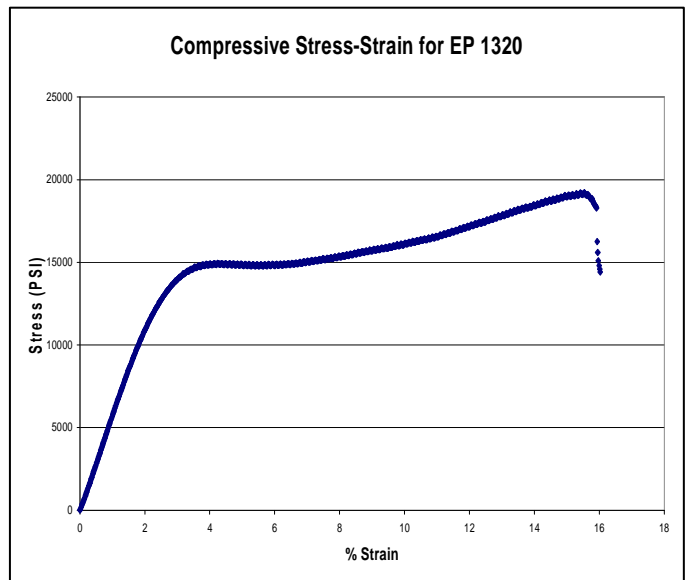
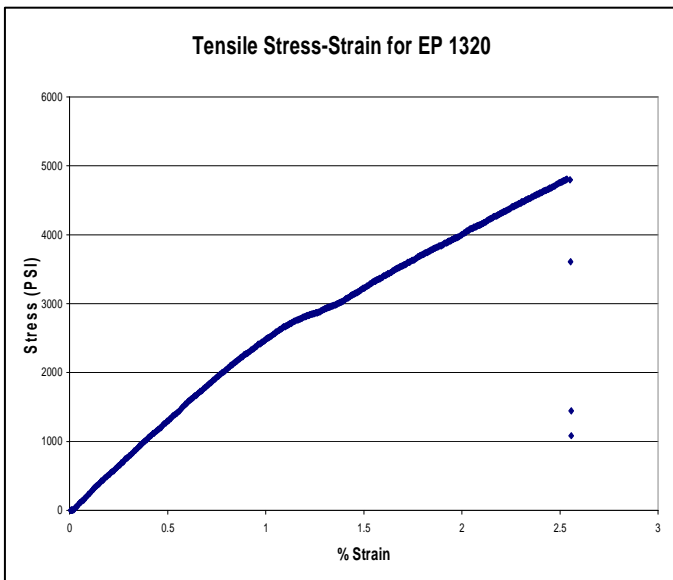
AN ELLSWORTH ADHESIVES COMPANY 

TECHNICAL DATA SHEET EP1320 & EP1320LV

03/30/2009

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	PSI	N/mm ²	PSI	N/mm ²	
Compressive					TM R050-38
Yield Strength	12,000	82.8	13,000	89.7	
Ultimate Strength	20,000	137.9	18,000	124.1	
Break Strength	18,000	124.1	16,000	110.3	
Modulus	550,000 PSI		600,000 PSI		
	3,795 N/mm ²		4,140 N/mm ²		



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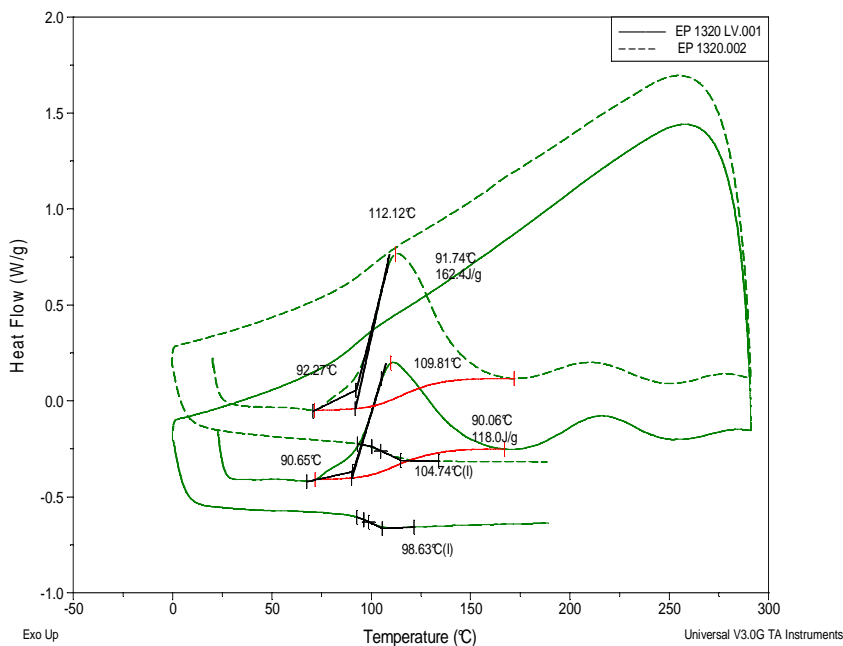
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<u>PROPERTY:</u>	<u>VALUE:</u>		<u>TEST METHOD:</u>
	<u>EP1320</u>	<u>EP1320LV</u>	
Linear Coefficient of Thermal Expansion	48 ppm/°C *	48 ppm/°C *	
Thermal Conductivity	0.21 BTU/(hr-ft·°F) * 0.36 W/m° K *	0.21 BT U/(hr-ft·°F) * 0.36 W/m° K *	
Dielectric Constant (25°C, 100Hz)	3.5 *	3.5 *	
Dielectric Strength	440 V/mil * 17.3 kV/mm *	440 V/mil * 17.3 kV/mm *	
Volume Resistivity ohm-cm	8 x 10 ¹⁴ *	8 x 10 ¹⁴ *	
Glass Transition Temp	105°C	98°C	TM R050-25
Exothermic Energy	162.4 J/g	118.0 J/g	
Onset Temp	92°C	90°C	
(by DSC)			





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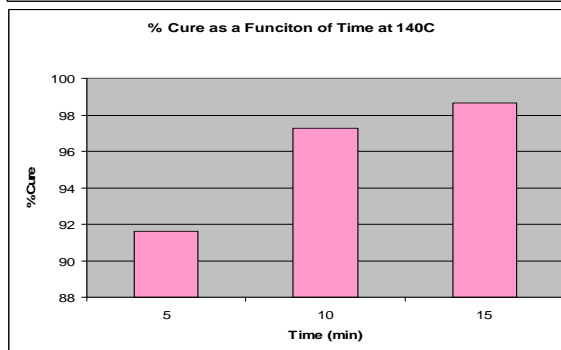
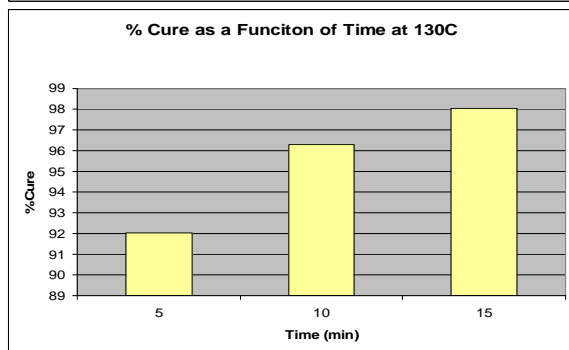
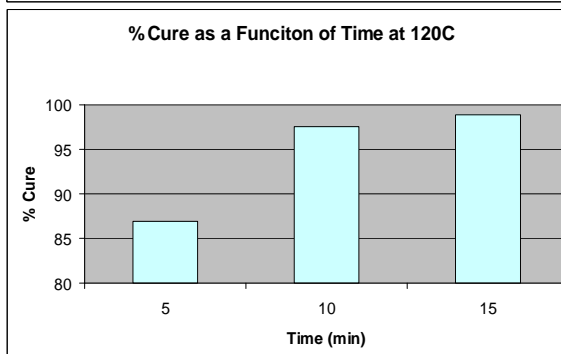
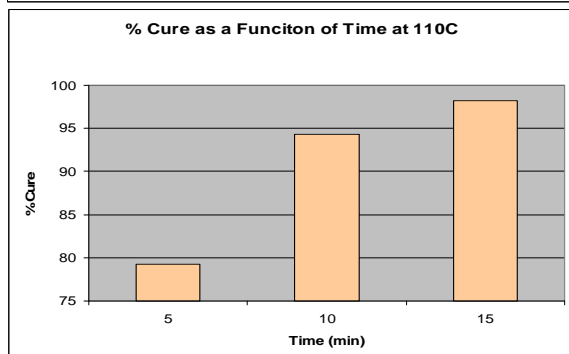
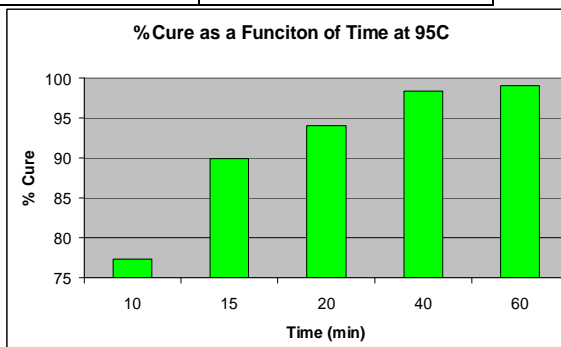
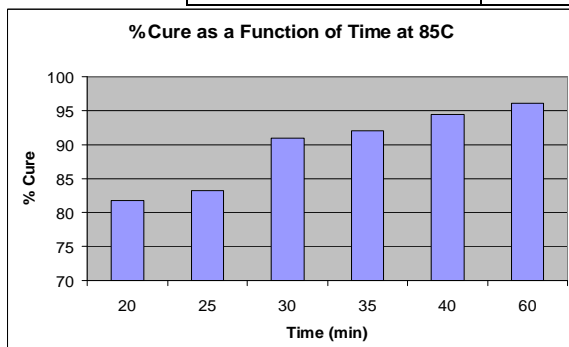
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Approximate time to 90 or 95% cure at various temperatures by DSC

<u>Temperature</u>	<u>90% cure</u>	<u>95% cure</u>
85°C	30 minutes	50 minutes
95°C	15 minutes	30 minutes
110°C	5-10 minutes	10-15 minutes
120°C	5-10 minutes	5-10 minutes
130°C	< 5 minutes	5-10 minutes
140°C	< 5 minutes	5-10 minutes
150°C	< 5 minutes	5-10 minutes



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Cure Schedule:

5 - 10 minutes @ 150°C
or 15 minutes @ 120°C
or 30 minutes @ 110°C

INSTRUCTIONS:

1. Bring to room temperature prior to use.
2. Apply heat to cure.
3. Clean up uncured resin with suitable organic solvent such as MEK, acetone or other organic solvent.

* Asterisk denotes values considered typical to associated resin systems or extrapolated from other test results.

** Temperature Rating is based on average design requirements and is not intended as a guarantee of suitability for all applications operating at that temperature.

Notes:

Values presented above are considered to be typical properties, not to be used for specification purposes. Contact our Technical Department for further information.

Many epoxy resin systems are prone to crystallization as epoxy resin is a super-cooled fluid. This condition may give the product a gritty or grainy appearance (or hazy in clear products). Products in this state will not usually cure to normal and expected properties. In extreme cases it may appear solid and cured. Fluctuating temperatures (within 5 to 50°C) aggravate this phenomena. Heating the individual component to 120 to 140F while stirring can usually restore products to original state. Storage at 25 +/- 10°C is optimum for most products.

Shelf Life:

<u>EP1320</u>	<u>EP1320LV</u>
6 months at 5°C or less	6 months at 5°C or less
3 months at 25C	1 month at 25°C

Usable shelf life is dependent upon method of application, storage conditions and users requirements.

Note: EP1320 can withstand short term exposure (less than 7 days) to temperatures up to 40°C without detriment. EP1320LV is much more sensitive to excursions above room temperature and should be protected from this.