

N109 W13300 ELLSWORTH DRIVE GERMANTOWN, WI 53022  
262-253-5900 FAX 262-253-5919

**DESCRIPTION:**

*Resinlab*<sup>®</sup> *EP1330LV Black* is a one part thermally conductive heat cure epoxy polymer system. This product can also be used as a small mass potting (<50 grams) “glob top coating” or the fill in a “dam and fill” application. It is recommended for applications requiring high thermal conductivity, low shrinkage, low CTE and excellent adhesion to a wide variety of plastics, metals and circuit board materials. *EP1330LV Black* is a moderately free flowing material that will self-level, but still maintain a conformal build on circuit board components.

This product can cure as low as 85 °C with temperatures in the 100 °C to 150 °C range being most commonly used.

**TYPICAL PROPERTIES:**

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

<b>Property:</b>	<b>Value:</b>	<b>Test Method or Source:</b>
<b>Color</b>	Black	Visual
<b>Cure Schedule</b>	5-10 min @150 °C 15 min @ 120 °C 30-45 min @85 °C – minimum temp to activate cure.	
<b>Viscosity</b>	225,000 cP	Rheometer parallel plate 25mm @ 1/s 455300006291
<b>Specific Gravity</b>	1.99	Calculated
<b>Hardness</b>	90 Shore D	455300006287/ASTM D2240
<b>Glass Transition Temperature/Tg</b>	92 °C	453560822409 by DSC
<b>Water Absorption</b>	0.04 %	24 hr immersion 457561824543/ASTM D570
<b>Tensile Properties:</b>		4535601224470/ASTM D638
<b>Strength</b>	3,000 psi	
<b>Elongation</b>	0 – 1 %	
<b>Modulus</b>	1,000,000 psi	
<b>Lap Shear Strength</b>		4535601224468/ASTM D1002
<b>0.010" Bond Line, Al to Al</b>	2,000 psi	
<b>Compressive Properties:</b>		4535601224467/ASTM D695
<b>Yield Strength</b>	18,000 psi	
<b>Ultimate Strength</b>	18,000 psi	
<b>Modulus</b>	311,000 psi	
<b>Thermal Conductivity by Transient Plane Heat Source (TPS)</b>	0.8 W/m.K	Thermtest TPS Hot Disk ISO 22007-2 45376013225604

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<b>Electrical Resistivity:</b>		455300006612/ASTM D257
<b>Volume</b>	8.2 x 10 <sup>15</sup> ohm-cm	@ 24 °C @ 16 %RH
<b>Surface</b>	5.0 x 10 <sup>15</sup> ohm/sq	
<b>Dielectric Constant &amp; Dissipation Factor:</b>		455300006513/ASTM D150
<b>@ 100 Hz</b>	4.6, 0.004	
<b>@ 100 kHz</b>	4.5, 0.007	
<b>AC Dielectric Strength</b>	17.2 kV/mm *	DCV6101609; ASTM D149 Method A, immersed in ASTM D3487 Type II Oil
<b>Coefficient of Thermal Expansion by TMA:</b>		455300005340/ASTM E831 TMA, 5 °C/min
<b>below Tg</b>	40 ppm/°C	
<b>above Tg</b>	146 ppm/°C	
<b>Operating Temperature Range</b>	-40 to 150 °C**	
<b>Relative Thermal Index (RTI)</b>	90 °C	UL746B, Table 7.1 Generic Value Based on Composition

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

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

\*\*\* This TDS contains values that have been updated. The values reported in this technical data sheet are typical values of the product, and are highly dependent on test conditions and methodology. We actively seek the most precise and accurate ways to measure and interpret performance of our products, and to update estimated values with measured values. The formula has not been revised or changed in any way. Although the values on paper have changed, you can expect the same performance of the product.

**Additional Performance Data – Degree of Cure, 453560822409 by DSC:**

Temperature	Time	Degree of Cure
85 °C	30 minutes	90 %
95 °C	15 minutes	90 %
110 °C	5 – 10 minutes	90 %
120 °C	5 – 10 minutes	90 %
130 °C	< 5 minutes	90 %
140 °C	< 5 minutes	90 %
150 °C	< 5 minutes	90 %

**Degree of Cure Note:**

- Actual assemblies will require longer times to cure due to heat transfer, mass, and method of heating.
- The cure schedule provided on page 1 provides times and temperatures more in line with use in a typical application.
- This chart reflects the thermal response of a very small sample analyzed in ideal conditions.

**INSTRUCTIONS:**

1. Bring to room temperature prior to use.
2. Apply to substrate with flow applicator, place in oven, allow to cure undisturbed until product is fully gelled or tack-free to the touch.

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- Clean up uncured resin with suitable organic solvent such as MEK or acetone.

**SHELF LIFE AND STORAGE:**

3 months at 5 °C or less.

1 month at 25 °C.

Specialty packaging may be less.

Product will tolerate ambient conditions during shipment of up to 7 days.

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

NOTE: This product is sensitive to excursions above room temperature. Exposure to higher temperature, or cycling of product temperature, will shorten product shelf life.