

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

DESCRIPTION:

Resinlab[®] EP1046FGRC Black is a two-part, unfilled, electronic grade epoxy encapsulant designed for use with small castings (less than 25 grams). This material will cure very quickly with low exotherm to a tough, semi-rigid polymer matrix. The low viscosity allows for good wicking and penetration into components and circuitry and will also release trapped air. It has very good resistance to water, acids, bases, and most organic solvents.

EP1046FGRC Black was formulated to a 1A:1B volume mix ratio for use in side-by-side dispensing cartridges and meter/mix and dispense equipment. EP1046FGRC Black will reach handle cure at room temperature within 1 to 2 hours. Cure time can be accelerated by the application of heat after product has gelled. Times and temperatures from 30 minutes at 65 °C to 10 minutes at 100 °C are typical for small castings.

TYPICAL PROPERTIES:

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

Property:	Value:	Test Method or Source:
Color	Black	Visual
Mix Ratio	Part A to Part B	Calculated
Mix Ratio by weight	1.11 to 1	
Mix Ratio by volume	1 to 1	
Cure Schedule	24-48 hrs @ 25 °C 30 min @ 65 °C 10 min @ 100 °C	
Viscosity - Part A	1,700 cP	TA HR20 Rheometer 25mm parallel plate @ 1/s DCV6100723
Viscosity - Part B	1,300 cP	
Viscosity - Mixed	1,500 cP *	
Specific Gravity - Part A	1.16	Calculated
Specific Gravity - Part B	1.04	
Specific Gravity - Mixed	1.10	
Pot Life defined as the time it takes for initial mixed viscosity to double	1.5 – 5 minutes	TA HR20 Rheometer parallel plate 25mm @ 1/s DCV6100723
Gel Time	2 minutes (50 g)	Visual, Observed cup and stick
Peak Exotherm	155 °C after 5 minutes for 40 mL sample	455300005593 by Type K thermocouple
Hardness	80 Shore D	455300006287/ASTM D2240
Glass Transition Temperature/Tg	39 °C	453560822409 by DSC
Water Absorption	0.11 %	24 hr immersion 457561824543/ASTM D570
Tensile Properties:		4535601224470/ASTM D638
Strength	7,000 psi	
Elongation	5 %	
Modulus	390,000 psi	

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Property:	Value:	Test Method or Source:
Lap Shear Strength 0.010" Bond Line, Al to Al	1,200 psi	4535601224468/ASTM D1002
Compressive Properties:		4535601224467/ASTM D695
Yield Strength	12,500 psi	
Modulus	254,000 psi	
Thermal Conductivity by Transient Plane Heat Source (TPS)	0.22 W/m.K	Thermtest TPS Hot Disk ISO 22007-2 45376013225604
Electrical Resistivity:		455300006612/ASTM D257 @ 22 °C @ 50 %RH
Volume	3.4 x 10 ¹⁵ ohm-cm	
Surface	1.1 x 10 ¹⁶ ohm/sq	
Dielectric Constant & Dissipation Factor:		455300006513/ASTM D150
@ 100 Hz	3.1, 0.009	
@ 100 kHz	3.0, 0.009	
Coefficient of Thermal Expansion by TMA:		455300005340/ASTM E831 TMA, 5 °C/min
below Tg	54 ppm/°C	
above Tg	213 ppm/°C	
Operating Temperature Range	-55 to 150 °C**	
Relative Thermal Index (RTI)	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.

INSTRUCTIONS:

1. Bring to room temperature prior to use.
2. Cartridge format: Mixer should be attached keeping the cartridge vertical and any air pocket purged this way. After the mixer contains material, the mixer tip can be dropped to dispense pre-bleed amount. Attach a new static mixer with each cartridge, then pre-bleed the first 3 inches of dispensed material or until a uniform color is obtained. Maintain adequate velocity during dispensing to ensure complete mixing.
3. Bulk format: stir until homogeneous weigh and mix parts A and B accurately and thoroughly, scraping sides of container often. Do not pour from mixing container, transfer to a new container as residual unmixed material may cause a tacky spot on the surface of the casting. Maintain adequate velocity during dispensing to ensure complete mixing.
4. Clean up uncured resin with suitable organic solvent such as MEK or acetone.
5. Allow to cure undisturbed until product is fully gelled or tack-free to the touch.

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SHELF LIFE AND STORAGE:

12 months at 25 °C.
Specialty packaging may be less.

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 phenomenon. Heating the individual component to 50 to 60 °C while stirring can usually restore products to original state. Storage at 25 +/- 10 °C is optimum for most products.