TECHNICAL DATA SHEET

EP1112NCRC Black

Revision date: 5/7/2024

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

DESCRIPTION:

ResinLab® EP1112NCRC Black is a two-part epoxy formula designed to be REACH compliant and as of the date of this document contains no raw materials listed on the ECHA Substances of Very High Concern list. This formula also complies with the RoHS 3 Directive (EU) 2015/863.

EP1112NCRC Black is an unfilled fast curing electronic grade epoxy designed for small to medium sized castings. It cures completely at room temperature to a tough, flexible polymer. Its low viscosity allows for good wicking and penetration into components and circuitry to fill voids while releasing any trapped air. It has very good resistance to water, acids and bases and most organic solvents. It also has high flexibility which contributes to excellent thermal shock and cycling properties by absorbing stresses created when joining substrates having different thermal expansion rates.

It was formulated to a 1A:1B volume mix ratio for use in side-by-side dispensing cartridges and meter/mix and dispense equipment. *EP1112NCRC Black* will reach full cure at room temperature within 24 to 48 hours. Cure time can be accelerated by the application of heat after product has gelled. Times and temperatures from 1 hour at 65 °C to 30 minutes at 100 °C are typical for small castings (less than 50 grams).

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	1.14 to 1	
Mix Ratio by volume	1 to 1	
Cure Schedule	24-48 hrs @ 25 °C 1 hr @ 65 °C 30 min @ 100 °C	
Viscosity - Part A	1,200 cP	TA HR20 Rheometer 25mm parallel plate @ 1/s DCV6100723
Viscosity - Part B	1,000 cP	
Viscosity - Mixed	1,100 cP *	
Specific Gravity - Part A	1.15	Calculated
Specific Gravity - Part B	1.01	
Specific Gravity - Mixed	1.08	
Pot Life defined as the time it takes for initial mixed viscosity to double	10 minutes	TA HR20 Rheometer parallel plate 25mm @ 1/s DCV6100723
Heated Gel Time 100cc Sample	21 minutes *	455300005339/Gardco Gel Timer
Hardness	80 Shore D	455300006287/ASTM D2240
Glass Transition Temperature/Tg	30 °C *	453560822409 by DSC
Water Absorption	0.17 % *	24 hr immersion 457561824543/ASTM D570

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Property:	*Value:*		*Test Method or Source:*
Tensile Properties:			4535601224470/ASTM D638
Strength	4,500 psi		
Elongation	13 %		
Modulus	230,000 psi		
Lap Shear Strength			4535601224468/ASTM D1002
0.010" Bond Line, Al to Al	2,400 psi		
Compressive Properties:			4535601224467/ASTM D695
Yield Strength	5,000 psi *		
Ultimate Strength	29,000 psi *		
Modulus	85,000 psi *		
Flame Resistance	Passes with HB Rating @ 6.0 mm *		45376013225560/UL94HB
Tested at ResinLab, not UL Certified			
Electrical Resistivity:			455300006612/ASTM D257 @ 23 °C @ 21 %RH
Volume	1.3 x 10^{15} ohm-cm *		
Surface	4.1 x 10^{15} ohm/sq *		
Dielectric Constant & Dissipation Factor:	ε'	tan δ	455300006513/ASTM D150
@ 100 Hz	3.1 *	0.02 *	
@ 100 kHz	2.9 *	0.01 *	
Coefficient of Thermal Expansion by TMA:			455300005340/ASTM E831 TMA, 5 °C/min
below Tg	63 ppm/°C *		
above Tg	258 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.
*** 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.

*** Extrapolated data source: EP1112NCRC Clear**

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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. Allow to cure undisturbed until product is fully gelled or tack-free to the touch.
5. Clean up uncured resin with suitable organic solvent such as MEK or acetone.

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.