

Revision date: 7/18/2024

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

DESCRIPTION:

Resinlab[®] *EP1218 Clear* is a two part unfilled electronic grade epoxy encapsulant designed for medium to large sized castings. It cures completely at room temperature to a tough, flexible polymer. The very low viscosity allows for good wicking and penetration into components and circuitry and also gives good air release. It provides very good resistance to water, acids and bases and most organic solvents. Thermal shock and cycling properties are also enhanced by its high elongation giving it the ability to absorb difference in CTE's of substrates.

EP1218 Clear was formulated to a 1A:1B volume mix ratio for use in side-by-side dispensing cartridges and meter/mix and dispense equipment. Cure is normally achieved at elevated temperatures although a room temperature cure schedule can be used if time allows. The recommended cure schedule options are as follows: 30 minutes at 100 °C, 6 hours at 65 °C, 7 hours at 50 °C or 2 days at 25 °C. These can be used to determine optimum processing cure times (90% cure).

TYPICAL PROPERTIES:

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

Mix RatioPart A to Part BCalculatedMix Ratio by weight1.12 to 1Mix Ratio by volume1 to 1Cure Schedule48 hrs @ 25 °C7 hrs @ 50 °C6 hrs @ 65 °C30 min @ 100 °CViscosity - Part A Brookfield425 cP, Spindle #2 @50 rpmViscosity - Part B Brookfield400 cP, Spindle #2 @50 rpmViscosity - Part B Brookfield450 cP, Spindle #2 @50 rpmSpecific Gravity - Part A1.08Specific Gravity - Part B0.98Specific Gravity - Mixed1.04Pot Life defined as the time it takes for initial mixed viscosity to double1 hoursMork Life> 4 hours (100g mass)45350005339/Gardco Hot Pot Gel TimerGel Time25 – 30 minutes (@ 70 °C, 15g mass)455300005339/Gardco Hot Pot Gel TimerHardness85 Shore A455300006287/ASTM D2240Glass Transition Temperature/Tg-1 °C45350002240 by DSC	Property:	Value:	Test Method or Source:
Mix Ratio by weight 1.12 to 1 Mix Ratio by volume 1 to 1 Cure Schedule 48 hrs @ 25 °C 7 hrs @ 50 °C 6 hrs @ 65 °C 30 min @ 100 °C Viscosity - Part A Brookfield 425 cP, Spindle #2 @50 rpm 455300005420/Brookfield Viscometer Viscosity - Part B Brookfield 400 cP, Spindle #2 @50 rpm Viscosity - Nixed Brookfield 450 cP, Spindle #2 @50 rpm Specific Gravity - Part A 1.08 Calculated Specific Gravity - Part B 0.98 Specific Gravity - Part B 0.98 Specific Gravity - Mixed 1.04 Pot Life defined as the time it takes for 1.04 Pot Life defined as the time it takes for 1.04 Specific Gravity to double 455 cP 30 minutes (@ 70 °C, 15g mass) Gel Time 25 – 30 minutes (@ 70 °C, 15g mass) Gel Time 100cc Sample 7 hours 455300005339/Gardco Hot Pot Gel Timer Hardness 85 Shore A 455300006287/ASTM D2240	Color	Clear	Visual
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Specific Gravity - Part A1.08CalculatedSpecific Gravity - Part B0.98	Viscosity - Part B Brookfield	400 cP, Spindle #2 @50 rpm	
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Glass Transition Temperature/Tg-1 °C453560822409 by DSC	Gel Time 100cc Sample	7 hours	455300005339/Gardco Hot Pot Gel Timer
	Hardness	85 Shore A	455300006287/ASTM D2240
Water Absorption 0.4 % * 24 hr immersion 457561824543/ASTM D570	Glass Transition Temperature/Tg	-1 °C	453560822409 by DSC
•	Water Absorption	0.4 % *	24 hr immersion 457561824543/ASTM D570

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TECHNICAL DATA SHEET EP1218 Clear

Revision date: 7/18/2024

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Property:	Value:		Test Method or Source:
Tensile Properties:			4535601224470/ASTM D638
Strength	400 psi		
Elongation	80 %		
Modulus	910 psi		
Lap Shear Strength			4535601224468/ASTM D1002
0.010" Bond Line, Al to Al	700 psi *		
Dielectric Constant & Dissipation Factor:	ε'	tan δ	455300006513/ASTM D150
@ 100 Hz	4.2 *	n/a	
AC Dielectric Strength	16 kV/mm *		DCV6101609; ASTM D149 Method A,
			immersed in ASTM D3487 Type II Oil
Coefficient of Thermal Expansion by TMA:			455300005340/ASTM E831 TMA, 5 °C/min
below Tg	92 ppm/°C *		
above Tg	225 ppm/°C *		
Operating Temperature Range	-40 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: EP1218 Black



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INSTRUCTIONS:

- 1. Bring to room temperature prior to use.
- 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.

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.