TECHNICAL DATA SHEET
EP1296 Black

11/19/2021

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

DESCRIPTION:

Resinlab® EP1296 Black is a highly filled, moderately thixotropic casting resin designed for applications requiring good thermal conductivity, low shrinkage and a low CTE. It was designed to cure in less than 1 hour at 65 °C for ease of processing and also to reduce viscosity.

EP1296 Black was formulated to allow users mix ratio options in order to achieve desired Tg and water absorption. It can be mixed at a 1 to 1 or 2 to 1 by volume ratio. Both ratios can be packaged in side-by side dispensing cartridges and used with meter/mix and dispense equipment. *EP1296 Black* contains fillers, which are low in abrasive character to minimize wear considerations for wetted components. It shows very good stability in side-by-side cartridges.

EP1296 Black will cure at room temperature in 24 – 48 hours. An elevated cure schedule can be used to reach final properties quickly. Times and temperatures from 30 – 60 minutes at 65 °C to 15 minutes at 100 °C are typical for small castings (less than 50 grams). Heat should be applied after product has gelled.

TYPICAL PROPERTIES:

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

Property:	*Value: 1:1*	*Value: 2:1*	*Test Method or Source:*
Color	Black	Black	Visual
Mix Ratio **By weight** **By volume**	Part A to Part B 1.07 to 1 1 to 1	Part A to Part B 2.15 to 1 2 to 1	Calculated
Cure Schedule	24 - 48 hours @ 25 °C 30 minutes @ 65 °C 15 minutes @ 100 °C	48 hours @ 25 °C 30 – 60 minutes @ 65 °C 15 minutes @ 100 °C	
Viscosity – Part A **Viscosity – Part B** **Viscosity - Mixed**	12,000 cps @1/s 8,000 cps @1/s 8,000 cps @1/s	14,700 cps 11,500 cps 12,000 cps (estimated)	Rheometer parallel plate 25mm 455300006291
Specific Gravity – Part A **Specific Gravity – Part B** **Specific Gravity - Mixed**	1.60 1.49 1.54	1.60 1.49 1.56	Calculated
Pot Life, defined as the time it takes for initial mixed viscosity to double	1 hour	2 hours	Rheometer parallel plate 25mm@1/s 455300006291
Gel Time	2.5 hours/100cc sample	4 hours/100cc sample	455300005339/Gardco Gel Timer
Glass Transition Temperature/Tg	23 °C	45 °C	453560822409 by DSC
Hardness	80 Shore D	80 Shore D	455300006287/ASTM D2240
Water Absorption	0.2% after 24 hours	0.04% after 24 hours	457561824543/ASTM D570
Peak Exotherm	35.5 °C after 1 minute for 40mL sample	n/a	455300005593 by Type K thermocouple
Tensile Properties: **Strength** **Elongation** **Modulus**	 1,600 psi 10% 207,000 psi	 4,500 psi 1% 720,000 psi	4535601224470/ASTM D638

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Lap Shear Strength			4535601224468/ASTM D1002
0.010" bond line Al to Al	2,500 psi	2,300 psi	
Compressive Properties:			4535601224467/ASTM D695
Yield Strength	11,200 psi	12,000 psi	
Compressive Strength	11,200 psi	14,000 psi	
Modulus	28,000 psi	188,000 psi	
Flame Resistance	Passes Resinlab testing with HB rating at 6.0mm thickness. Not UL Certified.	n/a	UL94
Thermal Conductivity by Transient Plane Heat Source (TPS)	0.45 W / (m.K)	0.48 W / (m.K)	45376013225604/Thermtest TPS Hot Disk ISO 22007-2
Surface Resistivity	1.0 x 10^{13} ohm/sq (@ 62 %RH)	n/a	455300006612/ASTM D257
Volume Resistivity	3.9 x 10^{13} ohm-cm (@ 20 °C)	n/a	
Dielectric Constant / Dissipation Factor			455300006513/ASTM D150
@ 100 Hz	3.6, 0.04	n/a	
@ 100 kHz	3.2, 0.01	n/a	
AC Dielectric Strength	400 V/mil*	n/a	ASTM D149 Method A, immersed in ASTM D3487 Type II Oil
Coefficient of Thermal Expansion by TMA	56 ppm/ °C below Tg 172 ppm/ °C above Tg	50 ppm/ °C below Tg 156 ppm/ °C above Tg	455300005340/ASTM E831 TMA, 5 °C/min
Operating Temperature Range	-40 to 150 °C**	-40 to 150 °C**	
Relative Thermal Index (RTI)	90 °C **	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.

INSTRUCTIONS:

1. Bring both components to room temperature prior to mixing.

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.

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3. Bulk format: 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, acetone or other organic solvent.

SHELF LIFE AND STORAGE: 6 DOP months at 25 °C, stir before use.
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.