TECHNICAL DATA SHEET

EP1200 Black

Revision date: 12/8/2021

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

DESCRIPTION:

Resinlab® EP1200 Black is a highly filled, medium viscosity, casting resin designed for applications requiring moderate thermal conductivity, high flexibility, and low CTE. It also contains abrasive aluminum oxide filler, which introduces wear considerations for wetted components. It is recognized under the Component Recognition Program of Underwriters Laboratories Inc., (File# E186034) for UL Standard 94. It qualifies for a horizontal burn rating at 1.5 mm thickness.

EP1200 Black was formulated to a 1A:1B by volume mix ratio for use in side-by-side dispensing cartridges and meter/mix and dispense equipment.

EP1200 Black will reach handle cure within 24 hours at room temperature and final cure within 72 hours. Final cure properties can be achieved more quickly by the application of heat after product has gelled. Cure times and temperatures typical for most applications range from 2 hours at 65 °C to 30 minutes at 100 °C. Time to heat substrate must be taken into account with cooler temperatures extending the work time.

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 to 1	
Mix Ratio by volume	1 to 1	
Cure Schedule	24 hrs @ 25 °C for handle cure 72 hrs @ 25 °C for full cure 2 hrs @ 65 °C 30 min @ 100 °C	
Viscosity - Part A	32,000 cP	TA HR20 Rheometer 25mm parallel plate @ 1/s DCV6100723
Viscosity - Part B	30,000 cP	
Viscosity - Mixed	36,000 cP	
Specific Gravity - Part A	2.01	Calculated
Specific Gravity - Part B	1.94	
Specific Gravity - Mixed	1.98	
Pot Life defined as the time it takes for initial mixed viscosity to double	23 minutes	TA HR20 Rheometer parallel plate 25mm @ 1/s DCV6100723
Gel Time 100cc Sample	68 minutes	455300005339/Gardco Gel Timer
Hardness	75 Shore D	455300006287/ASTM D2240
Glass Transition Temperature/Tg	8 °C	453560822409 by DSC
Water Absorption	0.05 %	24 hr immersion 457561824543/ASTM D570

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Property:	*Value:*	*Test Method or Source:*
Tensile Properties:		4535601224470/ASTM D638
Strength	1,400 psi	
Elongation	11 %	
Modulus	39,000 psi	
Lap Shear Strength **0.010" Bond Line, Al to Al**	1,600 psi	4535601224468/ASTM D1002
Compressive Properties:		4535601224467/ASTM D695
Yield Strength	7,700 psi	
Ultimate Strength	7,700 psi	
Modulus	18,900 psi	
Flame Resistance **UL Certified, File #E186034**	Passes with HB Rating @ 1.5 mm	45376013225560/UL94HB
Thermal Conductivity by Guarded Heat Flux Meter	1.07 W/m.K	ASTM C518-91 Guarded Heat Flux Meter Steady state @ 25 °C
Thermal Conductivity by LFA	0.6 W/m.K	453560822409/ASTM E1461
Thermal Conductivity by Transient Plane Heat Source (TPS)	0.7 W/m.K	Thermtest TPS Hot Disk ISO 22007-2 45376013225604
Volume Resistivity	3.43 x 10^{13} ohm-cm	455300006612/ASTM D257 @ 17 °C @ 22 %RH
Surface Resistivity	1.95 x 10^{15} ohm/sq	455300006612/ASTM D257 @ 17 °C @ 22 %RH
Dielectric Constant & Dissipation Factor		455300006513/ASTM D150
@ 100 Hz	4.3 , 0.03	
@ 100 kHz	3.8 , 0.03	
AC Dielectric Strength	21.3 kV/mm	ASTM D149 Method A, immersed in ASTM D3487 Type II Oil Specimen thickness was ~1-3 mm
Coefficient of Thermal Expansion by TMA		455300005340/ASTM E831 TMA, 5 °C/min
below Tg	66 ppm/°C	
above Tg	150 ppm/°C	
Operating Temperature Range	-40 to 200 °C**	TGA method, ASTM E1131-08
Relative Thermal Index (RTI)	90 °C	UL746B, Table 7.1 Generic Value Based on Composition

*** 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.

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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. A power mixer is suggested such as a 500-1000 rpm device with a mix paddle sufficient to turn material and disperse any filler. 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:

6 months DOP at 25 °C in cartridges.
Store cartridges horizontally.
12 months at 25 °C in bulk packaging.
Specialty packaging may be less.
This system is prone to settling due to high filler content. Inventory should be rotated on a FIFO (first in, first out) basis.
Bulk containers should be inverted every two to three weeks to reduce the accumulation of the fillers on the bottom of the containers.

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.