

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

DESCRIPTION:

Resinlab® EP1285 Black / HD-12 is a highly filled, medium viscosity black casting resin designed for applications requiring a high degree of thermal conductivity and a low CTE combined with a moderate free flowing viscosity. This formula gives excellent resistance to acids, bases, water, and most organic compounds. The high filler content also enhances resistance to thermal cycle stresses. This product must be cured with heat with a recommended cure schedule of two hours at 80 °C followed by three hours at 150 °C to reach full cure while limiting shrinkage.

The resin contains a high loading of abrasive aluminum oxide filler, which can introduce wear considerations for wetted components of meter-mix and dispensing equipment. Warming the assembly prior to filling will aid in flow and air release. Additional vacuum degassing may be desired for some applications.

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
By weight	15.55 to 1	
By volume	6.65 to 1	
Cure Schedule	2 hours @ 80 °C + 3 hours @150 °C	
Viscosity – Part A	35,000 cps	Rheometer parallel plate 25mm@1/s
Viscosity – Part B	170 cps	455300006291
Viscosity – Mixed	15,000 cps	
Pot Life, defined as the time it takes for initial mixed viscosity to double	1.5 to 2.5 hours	Rheometer parallel plate 25mm@1/s 455300006291
Specific Gravity – Part A	2.42	Calculated
Specific Gravity – Part B	1.00	
Specific Gravity – Mixed	2.20	
Glass Transition Temperature/Tg	98 °C	453560822409 by DSC Extrapolated from EP1285 White/HD-12
Hardness	90 Shore D	455300006287/ASTM D2240 Extrapolated from EP1285 White/HD-12
Water Absorption	0.03% after 24 hours	457561824543/ASTM D570 Extrapolated from EP1285 White/HD-12
Tensile Properties:		455300006285/ASTM D638
Strength	4,000 psi	Extrapolated from EP1285 White/HD-12
Elongation	0.9%	
Modulus	800,000 psi	
Lap Shear Strength		455300005642/ASTM D1002
0.010" bond line Al to Al	1,500 psi	Extrapolated from EP1285 White/HD-12
Compressive Properties:		455300006265/ASTM D695
Strength	10,500 psi	Extrapolated from EP1285 White/HD-12
Modulus	210,000 psi	

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Thermal Conductivity by LFA	1.1 W / (m.K)	453560822409/ASTM E1461
Coefficient of Thermal Expansion by TMA	35 ppm / °C below Tg 125 ppm / °C above Tg	455300005340 /ASTM E831 TMA, 5 °C/min Extrapolated from EP1285 White/HD-12
Linear Shrinkage	0.002 cm/cm*	Estimated Extrapolated from EP1285 White/HD-12
Dielectric Strength	380 V/mil*	Estimated Extrapolated from EP1285 White/HD-12
Dielectric Constant / Dissipation Factor		455300006513/ASTM D150
@ 100 Hz	4.6, 0.006	
@ 100 kHz	4.5, 0.008	
Surface Resistivity	3.9 x 10 ¹⁶ ohm/sq (@ 17.8%RH)	455300006612/ASTM D257
Volume Resistivity	3.2 x 10 ¹⁶ ohm-cm (@ 19.7 °C)	
Temperature Range	-50 to 150 °C**	

* Asterisk denotes values considered typical to associated resin systems or extrapolated from other test results.

**Temperature rating 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, so you can expect the same performance of this product.

INSTRUCTIONS:

1. Bring both components to room temperature prior to mixing. Part A of this product in bulk form should be stored at a cool temperature (5 °C +/- 3 °C) for maximum shelf life. Part B should be stored at 20 °C +/-3 °C. Bulk containers should be inverted every two to three weeks to reduce the accumulation of fillers on the bottom of the containers. Inventory should be rotated on a FIFO (first in, first out) basis.
2. Bulk format: 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.
3. Allow to cure undisturbed until product is fully gelled or tack-free to the touch.
4. Clean up uncured resin with suitable organic solvent such as MEK, acetone or other organic solvent.

SHELF LIFE AND STORAGE:

6 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.

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