TECHNICAL DATA SHEET EP1282 Clear

11/08/2018

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

DESCRIPTION:

Resinlab® EP1282 Clear is a two part unfilled epoxy encapsulant designed for medium sized castings. 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 and has an assigned Performance Level Category (PLC) rating of 0 for Comparative Tracking Index (CTI), this corresponds to >600 volts.

EP1282 Clear cures at room temperature to a tough and flexible polymer. It has good wetting and adhesion to most surfaces, is free flowing to penetrate voids and gives good air release with a smooth high gloss surface. It has very good resistance to water, acids, bases and most organic solvents. Thermal shock and cycling properties are enhanced by its high elongation giving it the ability to absorb differences in CTE's of substrates and potted components. This epoxy is low stress and proved for SMT.

EP1282 Clear was formulated to a 1A:1B volume mix ratio for use in side-by-side dispensing cartridges and meter/mix and dispense equipment. EP1282 Clear will reach full cure at room temperature within 24 – 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 20 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	Clear	Visual
Mix Ratio **By weight** **By volume**	Part A to Part B 1.17 to 1 1 to 1	Calculated
Cure Schedule	24-48 hours at 25 °C 1 hour @65 °C 20 minutes @100 °C	
Viscosity – Part A **Viscosity – Part B** **Viscosity - Mixed**	6,000 cps 2,000 cps 3,000 cps	Rheometer parallel plate 25mm@1/s 455300006291
Specific Gravity – Part A **Specific Gravity – Part B** **Specific Gravity - Mixed**	1.14 0.98 1.06	Calculated
Pot Life, defined as the time it takes for initial mixed viscosity to double	1 hour	Rheometer parallel plate 25mm@1/s 455300006291
Glass Transition Temperature/Tg	25 °C	453560822409 by DSC
Hardness	70 Shore D	455300006287/ASTM D2240
Water Absorption	0.66% after 24 hours	457561824543/ASTM D570
Peak Exotherm	<30 °C after 30 minutes for 40mL sample	455300005593 by Type K thermocouple Extrapolated from EP1282 Black

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Tensile Properties:		455300006285/ASTM D638
Strength	2,400 psi	
Elongation	56%	
Modulus	89,000 psi	
Lap Shear Strength		455300005642/ASTM D1002
0.010" bond line Al to Al	1,500 psi	
Compressive Properties:		455300006265/ASTM D695
Strength	25,000 psi	
Modulus	211,000 psi	
Flame Resistance	Passes Resinlab testing and UL Certified for HB at 1.5mm thickness	UL94
Thermal Conductivity by LFA	0.2 W / (m.K)	453560822409/ASTM E1461
Surface Resistivity	1.42×10^{16} ohm/sq (@ 20 %RH)	455300006612/ASTM D257
Volume Resistivity	1.32×10^{14} ohm-cm (@ 24 °C)	
Coefficient of Thermal Expansion by TMA	70 ppm/ °C below Tg 228 ppm/ °C above Tg	455300005340/ASTM E831 TMA, 5 °C/min
Dielectric Constant / Dissipation Factor		455300006513/ASTM D150
@ 100 Hz	4.1, 0.070	
@ 100 kHz	3.3, 0.040	
AC Dielectric Strength	778 V/mil (30.6 kV/mm)	ASTM D149, Method A, tested in oil
Operating Temperature Range Based on TGA / DSC	-40 °C to 150 °C	ASTM E1131-08

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

*** 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 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.

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: 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.