

DESCRIPTION:

ResinLab® EP11HT Gray is a two part epoxy adhesive formulated to bond metals and plastics. It cures at room temperature to a tough, semi-rigid material. EP11HT Gray has good wetting to most surfaces and will resist running and sagging due to its thixotropy. When cured EP11HT Gray can provide very good impact and vibration resistance. EP11HT Gray has resistance to water, salt spray, inorganic acids and bases and most organic solvents.

EP11HT Gray was formulated to a 1A:1B volume mix ratio for use in side by side dispensing cartridges and meter/mix and dispense equipment. It reaches full cure at room temperature within 24-48 hours. Cure time can be accelerated by the application of heat. Times and temperatures from 2 hours at 65 °C or 20 minutes at 100 °C are typical for most applications. Time to heat substrate must be taken into account. Cooler temperatures will also extend work time and increase cure times.

TYPICAL PROPERTIES:

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

Property:	Value:	Test Method or Source:
Color	Gray	Visual
Mix Ratio	Part A to Part B	
By weight	1 to 1	
By volume	1 to 1	
Cure Schedule	2 hour @65 °C 20 minutes @ 100 °C	
Viscosity – Part A	329,000 cps	Rheometer parallel plate 25mm@1/s
Viscosity – Part B	235,000 cps	455300006291
Viscosity - Mixed	300,000 cps (estimated)	
Specific Gravity – Part A	1.26	Calculated
Specific Gravity – Part B	1.25	
Specific Gravity - Mixed	1.25	
Pot Life	3 hours	Rheometer parallel plate 25mm@1/s 455300006291
Glass Transition Temperature/Tg	75 °C	453560822409 by DSC
Hardness	80 Shore D	455300006287/ASTM D2240
Water Absorption	0.07% after 24 hours	457561824543/ASTM D570
Tensile Properties:		455300006285/ASTM D638
Strength	5,500 psi	
Elongation	2.8%	
Modulus	270,000 psi	
Lap Shear Strength, 0.010" bond line Al to Al		455300005642/ASTM D1002
At -61 °F	2,300 psi	Note: specimens were cooled / heated in an oven prior to testing, and quickly pulled at ambient laboratory temperature. They were not tested at temperature in an environmental chamber.
At 75 °F	2,900 psi	
At 120 °F	3,000 psi	
At 180 °F	3,700 psi	
At 200 °F	4,200 psi	
Compressive Properties:		455300006265/ASTM D695
Strength	20,500 psi	
Modulus	149,000 psi	

Thermal Conductivity by LFA	0.27 W / (m.K)	453560822409/ASTM E1461
Surface Resistivity (at 40% humidity)	2.51×10^{15} ohm/sq	455300006612/ASTM D257
Volume Resistivity (at 20 °C)	6.18×10^{15} ohm-cm	
Dielectric Constant / Dissipation Factor		455300006513/ASTM D150
@ 100 Hz	3.5 / 0.0078	
@ 100 kHz	3.3 / 0.015	
Dielectric Strength	410 V/mil*	*Estimated
Coefficient of Thermal Expansion by TMA	69 ppm/ °C below Tg 167 ppm/ °C above Tg	455300005340 /ASTM E831 TMA, 5 °C/min
Temperature Range	-40 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. 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.
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.

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