

# TECHNICAL DATA SHEET EP11HT Gray

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## DESCRIPTION:

*Resinlab™* EP11HT Gray is a two part filled epoxy adhesive designed for bonding metals and plastics. It cures at room temperature to a tough, semi-rigid material. It has good wetting to most surfaces and is very thixotropic to resist running and sagging. This product gives very good vibration and impact resistance. It gives good resistance to water, salt spray, inorganic acids and bases and most organic solvents. When used at a 1 to 2 A/B ratio, this system has shown excellent ability to withstand cryogenic temperatures (-196°C – Liquid Nitrogen) exposure tested by cooling specimens down to -196°C for 5 to 10 minutes and returning to room temperature without cracking and maintaining original bond strength.

It was especially formulated to a 1A:1B volume mix ratio for use in side-by-side dispensing cartridges and meter/mix and dispense equipment. EP11HT Gray will reach 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 to 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.

<u>PROPERTY:</u>		<u>VALUE:</u>	<u>TEST METHOD:</u>
Color		Gray	
Viscosity			
RVT, #7, 2.5 RPM	Part A	800,000 cps (mPa-s)	TM R050-12
RVT, #7, 2.5 RPM	Part B	550,000 cps (mPa-s)	
	Mixed	700,000 cps (mPa-s)	
Specific Gravity	Part A	1.26	TM R050-16
	Part B	1.25	
	Mixed	1.25	
Pot Life		> 2 hours	TM R050-19
Mass		50 grams	
Hardness		80	TM R050-17
Scale		Shore-D	
Water Absorption		0.50 %	TM R050-35
24 hours			
Temperature Range**		-40 to 150°C	

**PROPERTY:****VALUE:****METHOD:****Tensile**

	<b>PSI</b>	<b>N/mm<sup>2</sup></b>
Yield Strength	3,500	24.1
Ultimate Strength	7,500	51.7
Break Strength	7,500	51.7
Elongation At Break	1-2 %	
Modulus	500,000	3,450

TM R050-36

Lap Shear Strength  
(2024 T3 Al Abraded / MEK Wipe)

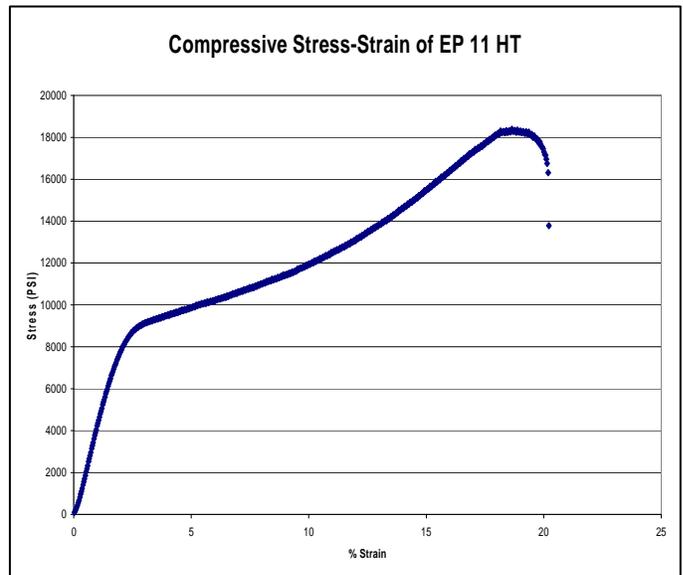
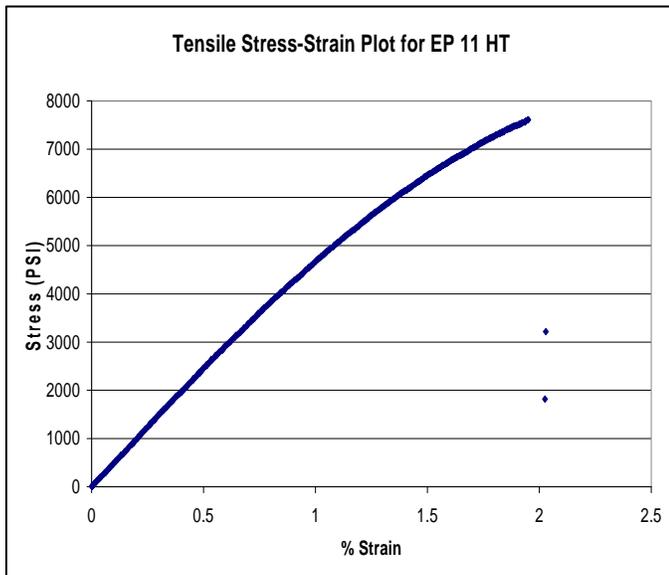
2,300      15.9

TM R050-37

**Compressive**

Yield Strength	9,000	62.1
Ultimate Strength	18,000	124.1
Break Strength	16,500	113.8
Modulus	400,000	2,760

TM R050-38

**PROPERTY:****VALUE:****METHOD:**Linear Coefficient  
Of Thermal Expansion53 ppm/°C (below Tg) \*  
135 ppm/°C (above Tg) \*

Thermal Conductivity

0.282 BTU/(hr-ft.°F) \*  
0.489 W/m° K \*Dielectric Constant  
(25C, 100Hz)

4.5 \*

Dielectric Strength

410 V/mil \*  
16.1 kV/mm \*

Volume Resistivity

8 x 10<sup>14</sup> ohm-cm \*Glass Transition Temp  
Exothermic Energy  
Onset Temp  
(by DSC)77°C  
192.2 J/g  
44°C

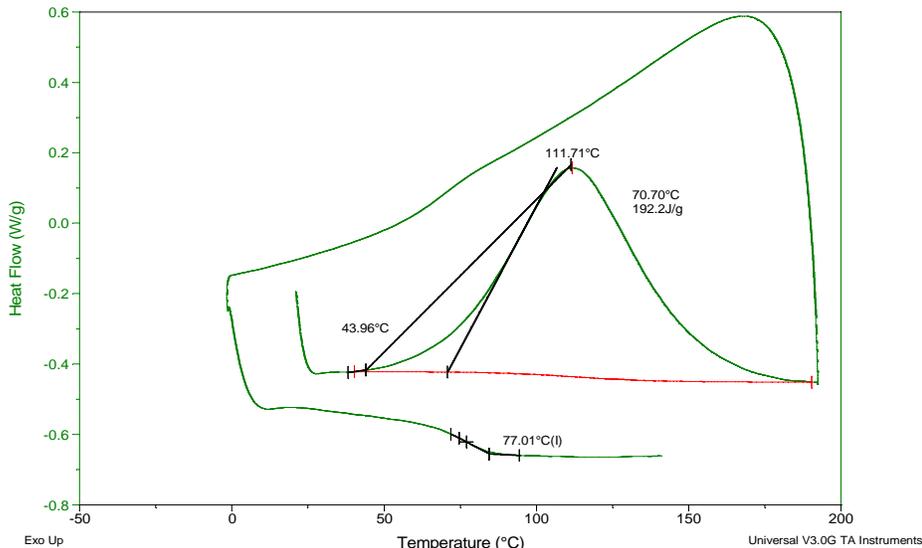
TM R050-25

Sample: EP 11 HT  
Size: 21.7000 mg  
Method: 200 C full cure  
Comment: 200C Full Cure + Tg

DSC

File: Z:\...DSC\EP 11 HT\EP 11HT.001

Run Date: 15-Nov-01 17:58



## INSTRUCTIONS:

Bring both components to room temperature prior to mixing. Cartridges should be stored in a vertical position to allow any air to accumulate at the tip. Mixer should be attached keeping the cartridge vertical and any air pocket purged this way. Ease of dispensing is greatly affected by ambient / material temperature.

If used in bulk, 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 surface. If product is used in a side-by-side cartridge, attach a new static mixer with each cartridge, 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.

Allow to cure undisturbed until product is fully gelled or tack-free to the touch.

Clean up uncured resin with suitable organic solvent such as MEK, acetone or other organic solvent.

## SIDE - BY - SIDE CARTRIDGE SUITABILITY RATING

POOR FAIR AVERAGE GOOD **EXCELLENT**

This rating scale is a general guideline to give the user an expected level of success in a typical bench-top dispensing scenario.

Important process variables to consider are: Cartridge type and size, wall thickness; manual or pneumatic gun type; static mixer design and dimensions; product viscosity spread and ratio; shot size, shot frequency, flow rate; temperature range during use.

This scale also address's product stability in a cartridge. Factors such as filler content and settling rate, storage temperature and cartridge orientation are important factors which affect this.

It is important for the user to define the optimum static mix for each dispensing process, a change in any of the above variables can affect the mix quality. Dispensing the product on a flat surface using the dispensing pattern can help show the quality of mixing in terms of thoroughness and lead/lag consistency.

**MIX RATIO:** (Parts A to B):  
by weight 1 to 1  
by volume 1 to 1

\* 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.

### Notes:

Values presented above are considered to be typical properties, not to be used for specification purposes. Contact our Technical Department for further information.

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 phenomena. 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.

**SHELF LIFE:** 12 months at 25°C. Specialty packaging may be less.



