



AN ELLSWORTH ADHESIVES COMPANY 

TECHNICAL DATA SHEET EP11HTFS Gray

03/17/2009

W186 N11687 MORSE DRIVE GERMANTOWN, WI 53022
262-502-6610 FAX 262-502-4743

DESCRIPTION:

Resinlab™ EP11HTFS 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.

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. EP11HTFS Gray will reach initial cure at room temperature within 2 – 4 hours with full cure in 24 – 48 hours. Cure time can be accelerated by the application of heat. Times and temperatures from 1 hour at 65°C to 15 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	700,000 cps (mPa-s)	
	Mixed	750,000 cps (mPa-s)	
Specific Gravity	Part A	1.26	TM R050-16
	Part B	1.29	
	Mixed	1.28	
Pot Life		30–40 min.	TM R050-19
Mass		50 grams	
Hardness		85	TM R050-17
Scale		Shore-D	
Water Absorption		0.17 %	TM R050-35
24 hours			
Temperature Range**		-40 to 150°C	

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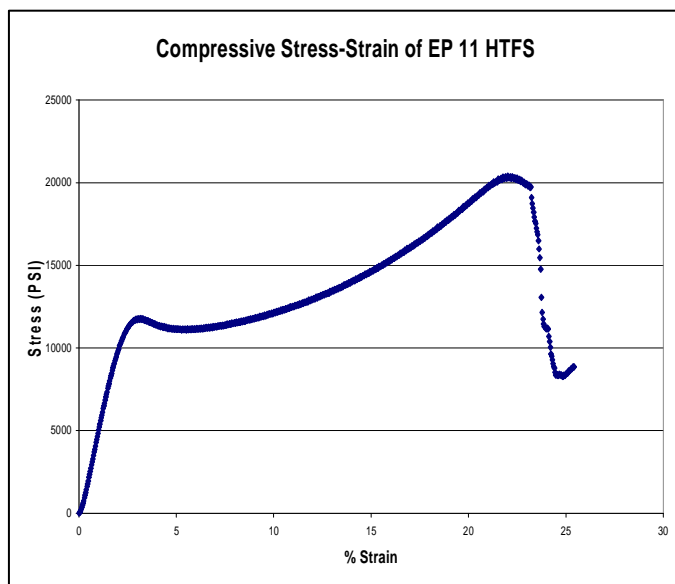
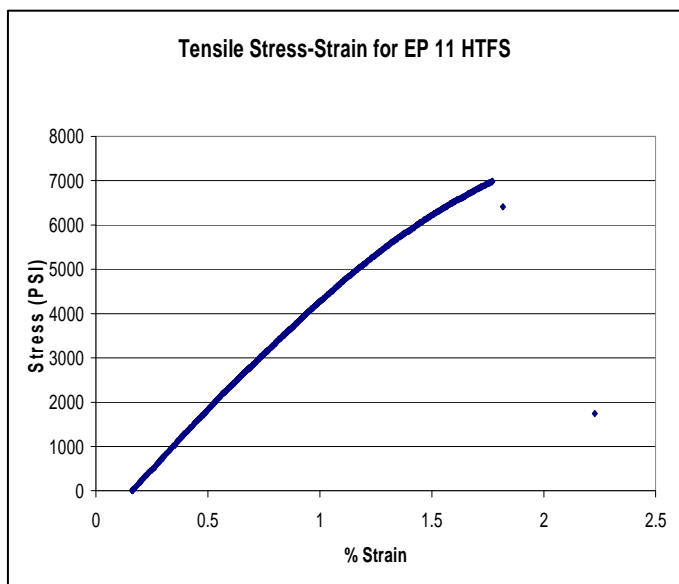
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<u>PROPERTY:</u>	<u>VALUE:</u>		<u>TEST METHOD:</u>
Tensile	PSI	N/mm²	TM R050-36
Yield Strength	3,500	24.1	
Ultimate Strength	7,000	290.5	
Break Strength	7,000	290.5	
Elongation At Break	1-2 %		
Modulus	550,000	3,800	
Lap Shear Strength (2024 T3 Al Abraded / MEK Wipe)	2,300	15.9	TM R050-37
Compressive			TM R050-38
Yield Strength	11,500	79.3	
Ultimate Strength	20,500	141.4	
Break Strength	20,000	137.9	
Modulus	485,000	3,345	



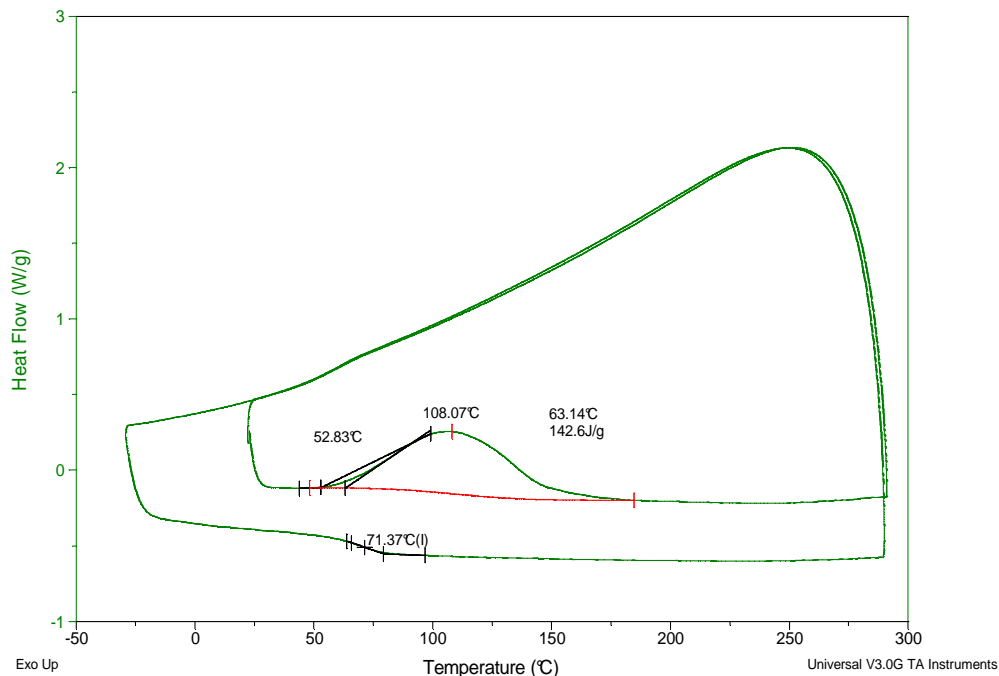
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<u>PROPERTY:</u>	<u>VALUE:</u>	<u>TEST METHOD:</u>
Dielectric Constant (25C, 100Hz)	4.5 *	
Dielectric Strength	410 V/mil * 16.1 kV/mm *	
Volume Resistivity	8×10^{14} ohm-cm	
Glass Transition Temp	71°C	TM R050-25
Exothermic Energy	142.6 J/g	
Onset Temp (by DSC)	52°C	

Sample: EP 11 HT FS
Size: 37.9000 mg
Method: 300 C full cure slow + Tg
Comment: 300 Full Cure + Tg

DSC

File: Z:\DSC\EP 11 HT\EP 11 HT FS.001
Operator: NVo
Run Date: 8-Aug-07 15:26



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CURE SCHEDULE:

24 – 72 hours at 25°C
or 2 hours @ 65°C

INSTRUCTIONS:

1. 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.
2. 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.
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.

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:

Mix Ratio (Part 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.



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** 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.