



AN ELLSWORTH ADHESIVES COMPANY 

TECHNICAL DATA SHEET EP1215 Clear

03/26/2009

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

DESCRIPTION:

Resinlab™ EP1215 Clear is a two part unfilled epoxy structural adhesive designed for bonding applications requiring high strength and good impact resistance. It cures completely at room temperature to a tough, flexible to semi-rigid polymer depending upon the mix ratio employed. It has good wetting and adhesion to most surfaces and has a free flowing viscosity. It has very good resistance to water, acids and bases and most organic solvents.

It was especially formulated to allow users to vary mix ratio to achieve desired hardness and flexibility. It can be mixed anywhere from an A/B ratio of 2 to 1 to 1 to 2 by weight or volume. EP1215 will normally 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 10 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 and a 1/1-volume ratio unless otherwise noted.

<u>PROPERTY:</u>	<u>VALUE:</u>	<u>TEST METHOD:</u>		
Color	Clear			
Viscosity		TM R050-12		
RVT, #6, 2.5 RPM	Part A 16,500 cps (mPa·s)			
RVT, #5, 2.5 RPM	Part B 28,000 cps (mPa·s)			
Specific Gravity	Part A 1.16 Part B 0.97	TM R050-16		
Temperature**	-40 to 150°C			
Mix Part A to Part B by Volume	2 / 1	1 / 1	1 / 2	
Mixed Viscosity	20,500 cps 20,500 mPa·s	22,500 cps 22,500 mPa·s	24,000 cps 24,500 mPa·s	
Mixed Specific Gravity	1.10	1.06	1.03	
Pot Life	150	120	120	TM R050-19
Mass	50 grams	50 grams	50 grams	
Hardness	85	80	75	TM R050-17
Scale	Shore-D	Shore-D	Shore-D	
Water Absorption	0.78 %	1.81 %	2.66 %	TM R050-35
24 hours				

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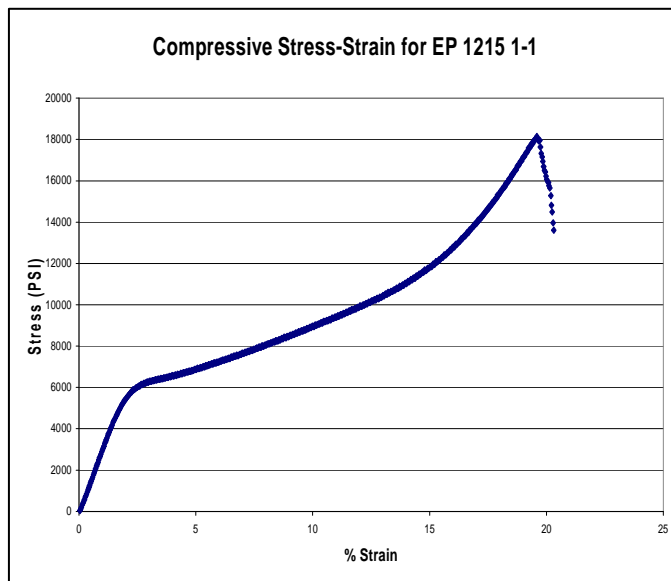
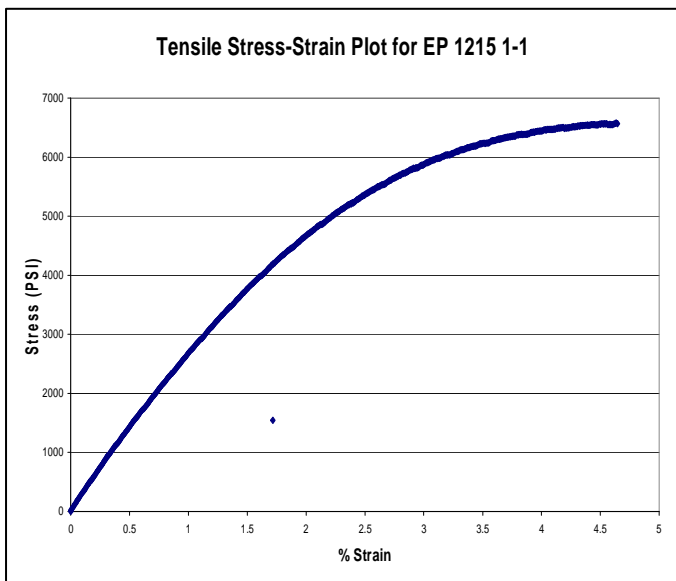
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<u>PROPERTY:</u>	<u>VALUE:</u>			<u>TEST METHOD:</u>
Mix Part A to Part B by Volume	2 / 1	1 / 1	1 / 2	
Tensile				TM R050-36
Yield Strength	3,000 PSI 20.7 N/mm ²	2,000 PSI 13.8 N/mm ²	1,000 PSI 6.9 N/mm ²	
Ultimate Strength	8,000 PSI 55.2 N/mm ²	6,500 PSI 44.8 N/mm ²	2,000 PSI 13.8 N/mm ²	
Break Strength	8,000 PSI 55.2 N/mm ²	6,500 PSI 44.8 N/mm ²	2,000 PSI 13.8 N/mm ²	
Elongation At Break	3-6 %	3-5 %	60-80 %	
Yield Modulus	400,000 PSI 2,760 N/mm ²	290,000 PSI 2,000 N/mm ²	20,000 PSI 137.9 N/mm ²	
Lap Shear Strength (2024 T3 Al Abraded/MEK Wipe)	1,600 PSI 11.0 N/mm ²	1,900 PSI 13.1 N/mm ²	2,500 PSI 17.2 N/mm ²	TM R050-37
Compressive				TM R050-38
Yield Strength	11,000 PSI 75.9 N/mm ²	7,000 PSI 48.3 N/mm ²	2,000 PSI 13.8 N/mm ²	
Ultimate Strength	19,000 PSI 131.0 N/mm ²	17,000 PSI 117.2 N/mm ²	2,500 PSI 17.2 N/mm ²	
Break Strength	19,000 PSI 131.0 N/mm ²	17,000 PSI 117.2 N/mm ²	2,500 PSI 17.2 N/mm ²	
Yield Modulus	500,000 PSI 3,450 N/mm ²	350,000 PSI 2,415 N/mm ²	70,000 PSI 482.8 N/mm ²	



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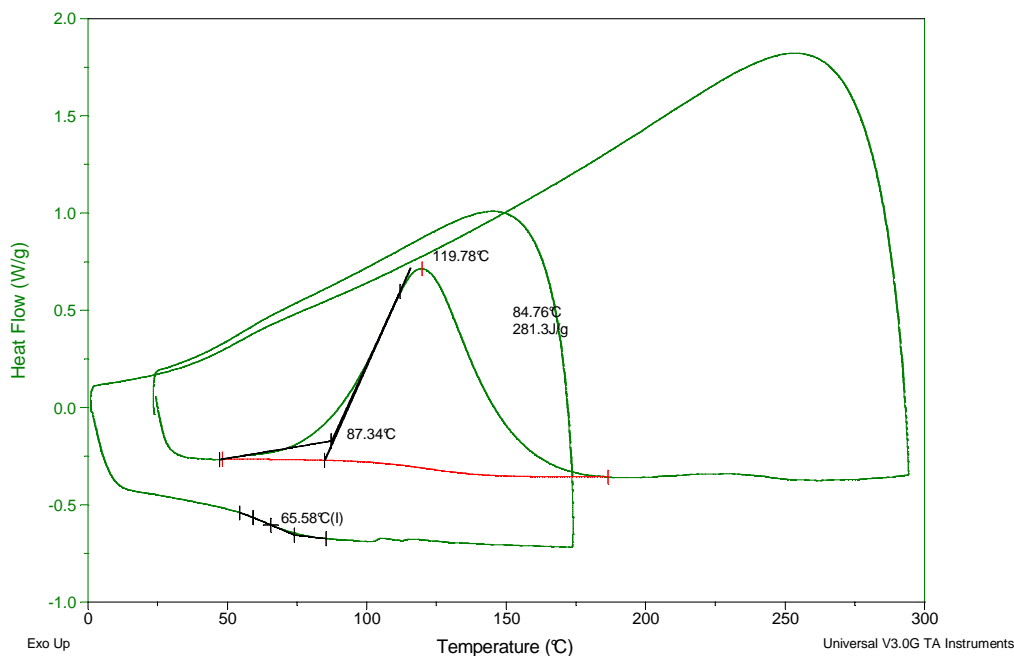
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<u>PROPERTY:</u>	<u>VALUE:</u>			<u>TEST METHOD:</u>
Mix Part A to Part B by Volume	2 / 1	1 / 1	1 / 2	
Dielectric Constant (25C, 100Hz)	3.0 *	3.0 *	3.0 *	
Dielectric Strength	400 V/mil * 2.8 kV/mm *	400 V/mil * 2.8 kV/mm *	400 V/mil * 2.8 kV/mm *	
Volume Resistivity (ohm-cm)	8.3 x 10 ¹⁴ *	8.3 x 10 ¹⁴ *	8.3 x 10 ¹⁴ *	
Glass Transition Temp	65°C			TM R050-25
Exothermic Energy	281.3 J/g			
Onset Temp (by DSC)	87°C			

Sample: EP1215
Size: 43.7000 mg
Method: 300 C full cure slow + Tg
Comment: 300 energy + Tg

DSC

File: Z:\...TA_DSC Folder\DSC\EP 1215\1215.002
Operator: PT
Run Date: 6-Sep-06 08:44



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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. After mixer contains material, mixer tip can be dropped to dispense pre-bleed amount.
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 of casting. 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: Variable

* 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.

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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, Specialty packaging may be less.