

Product Bulletin

CASS POLYMERS

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EL-326
EL-326-1, -2
EPOXY LAMINATING RESIN SYSTEM
HIGH TEMPERATURE - UNFILLED
AMBER 0302

DESCRIPTION

EL-326, EL-326-1 and EL-326-2 are a health-safe, two component, unfilled, non-staining, high temperature epoxy laminating system specifically developed for room temperature hardening (B Stage) with high temperature properties for high temperature tooling application. EL-326 series has excellent handling properties and fabric wet-out to produce a void-free tool with high dimensional stability. EL-326 series can be used in the construction of large or small tools, as well as production parts. EL-326 series can also be used with ADTECH high-temperature surface coat ES-219.

TYPICAL MIXED PROPERTIES @ ROOM TEMPERATURE 77° F (25° C)

Property	Test Method	Test Values		
		EL-326	EL-326-1	EL-326-2
Mix Ratio by Weight		100R/14H	100R/30H	100R/24H
Viscosity (cps)	ASTM D-2392	2,000	3,750	2,700
Density (lbs./cu inch)	ASTM D-792	0.039	0.042	0.039
Specific Gravity (grams/cc)	ASTM D-792	1.09	1.16	1.09
Work Life (minutes)		50	70	250
Demold Time (hours)		16-24	16-24	16-24
Color		Amber	Amber	Amber

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PHYSICAL PROPERTIES

Property	Test Method	Test Values		
<u>6 Layer, 10 Ounce Glass Fabric Laminate:</u>				
		<u>EL-326</u>	<u>EL-326-1</u>	<u>EL-326-2</u>
Tensile Strength (psi)	ASTM D-3039.93	31,030	28,750	33,530
Tensile Modulus (psi)	ASTM D-3039.93	1,970,000	1,970,000	2,656,000
Tensile Elongation (%)	ASTM D-3039.93	1.77	1.77	1.907
Flexural Strength (psi)	ASTM D-790.92	41,000	41,000	41,000
Flexural Modulus (psi)	ASTM D-790	1,590,000	1,590,000	1,590,000
Tg by DMA (° F/° C)	ASTM D-4065	278 / 137		333 / 167
<u>Cast Bar</u>				
		<u>EL-326</u>	<u>EL-326-1</u>	<u>EL-326-2</u>
Comp. Strength (psi)	ASTM D-695.91	13,295	16,800	16,680
Comp. Modulus (psi)	ASTM D-695	117,500	219,000	192,600
IZOD Impact (in-lbs./inch.)	ASTM D-256.93a	6.89	6.89	5.80
HDT @ 66 psi (° F/° C)	ASTM D-648.82	257 / 125	270 / 132	298 / 147
HDT @ 264 psi (° F/° C)	ASTM D-648.82	243 / 117	263 / 129	284 / 140
Shore D Hardness	ASTM D-2240	88	88	88

RECOMMENDED CURE SCHEDULE

For superior properties an elevated temperature cure is required.

Post-cure schedule:

- Cure for 24 hours at room temperature 77° F (25° C)
- Heat cure for 2 hours (or 6 hours for the EL-326-2 system) at 150° F (66° C)

NOTE: We recommend the laminate be left on the master for this initial post cure. The tool can then be supported with back-up structure and demolded for the remaining post cures.

- Continue heat cure for 2 hours at 200° F (93° C) plus 2 hours at 250° F (121° C) plus 3 hours at 300° F (149° C)

Post-cure Instructions: Always heat or cool tools at a rate of 3 to 5° F per minute only. Begin by placing tool in a room-temperature oven. Initiate post-cure by ramping the tool to 150° F (66° C) and hold for 2 hours. Continue 3 to 5° F per minute ramp-up rate and hold for 1 hour at each 50° F increment until intended use temperature is reached.

When cooling, allow the tools to remain in the heated environment and decrease the temperature at a rate of no more than 5° F per minute. Remove the tool after cooling the oven below 100° F to avoid thermal shock and warpage. Install thermocouples in the laminate to ensure proper curing temperatures.

PACKAGING

EL-326, EL-326-1 and EL-326-2 are available in the following kits:

- Quart Kits
- Gallon Kits
- Pail Kits
- Drum Kits