



LAMINATING  
EPOXY

ADHESIVES

PROCESS  
EQUIPMENT

## Technical Data

# 117LV Resin/224 Hardener

## Laminating Epoxy

This combination is intended specifically for resin infusion and closed mold processes. It is not appropriate for open molding.

The 117LV/224 Epoxy system is formulated for laminating synthetic composite structures using closed mold processes. The 117LV/224 mixture will provide a working time of approximately 20 minutes at 72° F. A typical laminate will be gelled in approximately 2.25 hours at 72° F.

### MIXING

Combine the 117LV Resin with 224 Hardener following the ratios by weight or volume shown in the table. Stir the mixture thoroughly and transfer to the feed containers connected to the resin distribution system.

### CURING

The 117LV/224 mixture maintains excellent working properties until gel takes place. The mixture will temper and continue to cure over the next several days at room temperature, and after two weeks will reach an acceptable degree of cure for most applications. Elevated temperature post cure will increase the degree of cure and improve the mechanical and thermal properties.

We recommend building and testing sample laminates using proposed materials and manufacturing processes to confirm working and curing characteristics under anticipated use conditions.

### HANDLING CHARACTERISTICS *(Not for specification purposes)*

Property	Mixed Resin/Hardener
Density . . . . .	9.3 lb/gal
Viscosity @ 72°F (ASTM D-2393-80) . . . . .	800cps

Mix Ratio (117LV Resin:224 Hardener)	Target	Acceptable Range
by weight . . . . .	100:33	100:34.2 to 100:29.1
by volume . . . . .	100:34	100:36.3 to 100:30.8

Pot Life (ASTM D-2427-71)	100g
@65°F . . . . .	29 min
@72°F . . . . .	21 min
@80°F . . . . .	15 min

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ISO 9001:2000 certified

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LAMINATING EPOXY—PHYSICAL PROPERTIES

# 117LV Resin/224 Hardener

Physical Property	Test Method	Cure Schedule				
		Room Temp. x 2 weeks	RT x 15 hr + 110°F x 8 hr	RT x 15 hr + 125°F x 8 hr	RT x 15 hr + 140°F x 8 hr	RT x 15 hr + 180°F x 8 hr
Hardness (Shore D)	ASTM D-2240	86	87	88	87	87
Compression Yield (psi)	ASTM D-695	16,185	16,734	16,825	17,058	16,601
Tensile Strength (psi)	ASTM D-638	9,911	10,670	10,875	11,161	11,037
Tensile Elongation (%)	ASTM D-638	4.3	4.2	4.8	3.8	4.1
Tensile Modulus (psi)	ASTM D-638	4.76E+05	5.26E+05	4.86E+05	5.38E+05	5.23E+05
Flexural Strength (psi)	ASTM D-790	17,137	18,614	19,094	19,556	18,012
Flexural Modulus (psi)	ASTM D-790	5.00E+05	4.92E+05	4.82E+05	4.96E+05	4.70E+05
Heat Deflection Temperature (HDT) (°F)	ASTM D-648	135	144	150	147	148
Onset of Tg by DSC (°F) **		128	136	145	145	146
Ultimate Tg by DSC (°F) **		158	158	158	158	158
Izod Impact, notched (Ft-lb/in)	ASTM D-256	0.38	0.53	0.71	0.58	0.63

\*\* Determined using a Differential Scanning Calorimeter (DSC).

Value reported is the onset of the glass transition

Test Specimens were neat epoxy (without fiber reinforcement)

Typical Values; not to be construed as specification