



LAMINATING
EPOXY

ADHESIVES

PROCESS
EQUIPMENT

Technical Data

M1002 Resin/237 Hardener

Toughened Laminating Epoxy

The M1002/237 laminating epoxy system is formulated for high load or high peel applications and situations where the bondline area is less than optimum. Examples are carbon fiber skins on honeycomb core material or taping with carbon onto cured carbon skinned panels or structures. The 237 Hardener provides approximately 4.5-6 hrs. of open time at 72° F.

MIXING

Combine the M1002 Resin with PRO-SET 237 Hardener following the ratios by weight or volume shown in the table. Stir the mixture thoroughly and transfer to impregnator, roller pan, or apply directly to the laminate surface.

CURING

The M1002/237 mixtures maintain excellent working properties until gel takes place. The mixture will initially cure to a brittle B-stage. Elevated temperature post cure of 125° to 180°F is required for mixture to reach final cure.

We recommend building sample panels using proposed materials and manufacturing processes to confirm working and curing characteristics under your shop conditions.

HANDLING CHARACTERISTICS *(Not for specification purposes)*

Property	Mixed	
Viscosity @ 72° F (ASTM D-2393-86)	2,100 cps	
Mix Ratio (M1002:237)	Target	Acceptable Range
By weight	100:24	100:26.1 – 100:20.9
By volume	100:28	100:31.6 – 100:25.3
Pot Life (ASTM D-2471-71)	100g	
@ 72° F	80 minutes	

Pro-Set Inc.
P.O. Box 656
Bay City, MI 48707 USA
888-377-6738
prosetepoxy.com

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TOUGHENED LAMINATING EPOXY – PHYSICAL PROPERTIES

M1002 Resin/237 Hardener

Physical Property	Test Method	Cure Schedule		
		RT x 15 hr + 140°F x 8 hr	RT x 15 hr + 140°F x 16 hr	RT x 15 hr + 180°F x 8 hr
Hardness (Shore D)	ASTM D-2240	83	83	83
Compression Yield (psi)	ASTM D-695	14,133	14,093	13,916
Tensile Strength (psi)	ASTM D-638	10,039	10,069	9,588
Tensile Elongation (%)	ASTM D-638	5.5	4.6	5.7
Tensile Modulus (psi)	ASTM D-638	4.33E+05	4.21E+05	3.94E+05
Flexural Strength (psi)	ASTM D-790	18,767	18,466	17,685
Flexural Modulus (psi)	ASTM D-790	5.55E+05	5.46E+05	5.14E+05
Heat Deflection Temperature (HDT) (°F)	ASTM D-648	170.0 °F	169.0 °F	189.0 °F
Onset of Tg by DSC (°F) **		175.8 °F	180.3 °F	197.2 °F
Ultimate Tg by DSC (°F) **		197.2 °F	197.2 °F	197.2 °F
Izod Impact, notched (Ft-lb/in)	ASTM D-256	0.701	0.698	0.546

Test Specimens were neat epoxy (without fiber reinforcement)

** Determined using a Differential Scanning Calorimeter (DSC). Value reported is the onset of the glass transition

Typical Values; not to be construed as specification