



LAMINATING
EPOXY

ADHESIVES

PROCESS
EQUIPMENT

Technical Data

M1003 Resin/226 Hardener

Thixotropic Laminating Epoxy

The M1003/226 laminating epoxy system is formulated for use in molding situations where resin drain-out is a concern. The shear thinning nature of the system provides very good wet-out of the fibers, but will not drain out on vertical or overhead surfaces. This combination works very well in an impregnator or wet-out machine. The 226 Hardener provides approximately 1.5-3 hrs. of open time at 72° F.

MIXING

Mix resin before using. Re-mix if allowed to set for more than a week.

Combine the M1003 Resin with PRO-SET 226 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 M1003/226 mixtures maintain 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 many applications. Elevated temperature post cure will increase the degree of cure and improve the mechanical and thermal properties.

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)	1,600 cps	
Mix Ratio (M1003:226)	Target	Acceptable Range
By weight	100:25	100:26.6 – 100:21.3
By volume	100:29	100:30.5 – 100:26.0
Pot Life (ASTM D-2471-71)	100g	
@ 72° F	48 minutes	

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LAMINATING EPOXY – PHYSICAL PROPERTIES

M1003 Resin/226 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 + 140°F x 8 hr	RT x 15 hr + 140°F x 16 hr	Room Temp. X 3 Months
Hardness (Shore D)	ASTM D-2240	81	85	85	86	85
Compression Yield (psi)	ASTM D-695	14,021	14,169	15,152	15,321	16,225
Tensile Strength (psi)	ASTM D-638	6,557	8,507	9,339	9,976	5,775
Tensile Elongation (%)	ASTM D-638	1.7	2.7	4.5	4.1	1.3
Tensile Modulus (psi)	ASTM D-638	4.78E+05	4.17E+05	4.05E+05	4.60E+05	4.64E+05
Flexural Strength (psi)	ASTM D-790	11,159	14,337	16,631	18,075	12,498
Flexural Modulus (psi)	ASTM D-790	4.72E+05	4.68E+05	4.51E+05	4.84E+05	5.17E+05
Heat Deflection Temperature (HDT) (°F)	ASTM D-648	130.0	131.0	143.0	147.0	138.0
Onset of Tg by DSC (°F) **		130.1	126.0	139.8	144.9	144.7
Ultimate Tg by DSC (°F) **		158.4	158.4	158.4	158.4	158.4
Izod Impact, notched (Ft-lb/in)	ASTM D-256	0.15	0.63	0.56	0.68	0.50

* RT is 72° F

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