PRO-SET®

LAMINATING EPOXY

ADHESIVES

PROCESS EQUIPMENT

Technical Data

M1013 Resin/M2017 Hardener

Toughened, Thixotroped Adhesive

The M1013/M2017 epoxy combination is a toughened and thixotroped formulation 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. This combination works well for highly loaded wood beam reinforcement. The M2017 Hardener provides approximately 1.5-2 hrs. of open time at 72° F.

MIXING

Stir resin and hardener thoroughly in their respective containers to ensure even consistency before dispensing.

Combine the M1013 Resin with M2017 Hardener following the ratio by weight shown in the table. Stir the mixture thoroughly and transfer to impregnator, roller pan, or apply directly to the laminate surface.

CURING

The M1013/M2017 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 or laminates 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)	10,167 cps

Mix Ratio (M1013:M2017)	**Target**	**Acceptable Range**
By weight	100:23	100:24.6 – 100:20.9
By volume	100:26	100:27.8 - 100:23.6

Pot Life (ASTM D-2471-71)	**100g**
@ 72° F	22 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

M1013 Resin/M2017 Hardener

Physical Property	Test Method	Cure Schedule	
		Room Temp. x 2 weeks	RT x 15 hr + 140°F x 8 hr
Hardness (Shore D)	ASTM D-2240	85	85
Compression Yield (psi)	ASTM D-695	11,971	12,483
Tensile Strength (psi)	ASTM D-638	6,127	8,264
Tensile Elongation (%)	ASTM D-638	1.7	3.0
Tensile Modulus (psi)	ASTM D-638	4.52E+05	4.58E+05
Flexural Strength (psi)	ASTM D-790	11,652	15,554
Flexural Modulus (psi)	ASTM D-790	4.35E+05	4.41E+05
Heat Deflection Temperature (HDT) (°F)	ASTM D-648	141	148
Onset of Tg by DSC (°F) **		136	145
Ultimate Tg by DSC (°F) **		168	168
Izod Impact, notched (Ft-lb/in)	ASTM D-256	0.73	0.53

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

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