



LAMINATING
EPOXY

ADHESIVES

PROCESS
EQUIPMENT

Technical Data

M1027 Resin/M2028 Hardener

Infusion Epoxy

The M1027/M2028 Epoxy system is formulated for molding synthetic composite structures. Use M1027/M2028 for closed mold laminating applications like vacuum resin infusion or RTM processes. *This product combination should not be used for open molding operations.* The M1027/M2028 mixture will provide a working time of approximately 600 minutes at 72° F. A typical laminate will be gelled in approximately 14 hours at 72° F. Higher processing temperatures or large volume / thick laminates will accelerate the cure and shorten the time required to maintain vacuum pressure or mold clamp pressure. Under normal processing conditions, the bag pressure should remain for a minimum of 24 hours

MIXING

Combine PRO-SET M1027 Resin with PRO-SET M2028 Hardener following the ratios by weight or volume shown in the table. Stir thoroughly and transfer to the resin pot or meter and dispense directly into the mold cavity with RTM methods.

CURING

PRO-SET M1027/M2028 mixtures maintain excellent working properties until gel takes place. Room temperature cure for 2 weeks will provide properties acceptable for many applications. Longer time at processing temperature or higher ambient temperatures will provide additional cure and will enhance mechanical and thermal properties. An elevated temperature post cure of 110°F to 140°F is suggested for mixture to reach ultimate properties.

We recommend building sample panels using proposed materials and procedures to understand working and curing characteristics under your shop conditions.

HANDLING CHARACTERISTICS *(Not for specification purposes)*

Property	Mixed Resin/Hardener	
Density	9.3 lb/gal	
Viscosity @ 72°F (ASTM D-2393-80)	350 cps	
	see viscosity profile graph for additional information	
Mix Ratio (M1027 Resin:M2028 Hardener)Target	Acceptable Range	
by weight	100:32.6 (3:1)	100:26.0 to 100:37.2
by volume	100:40 (2.5:1)	100:31.9 to 100:45.6
Pot Life (ASTM D-2427-71)	100g	150g
@72°F	420 min	330 min
@ 77°F		240 min

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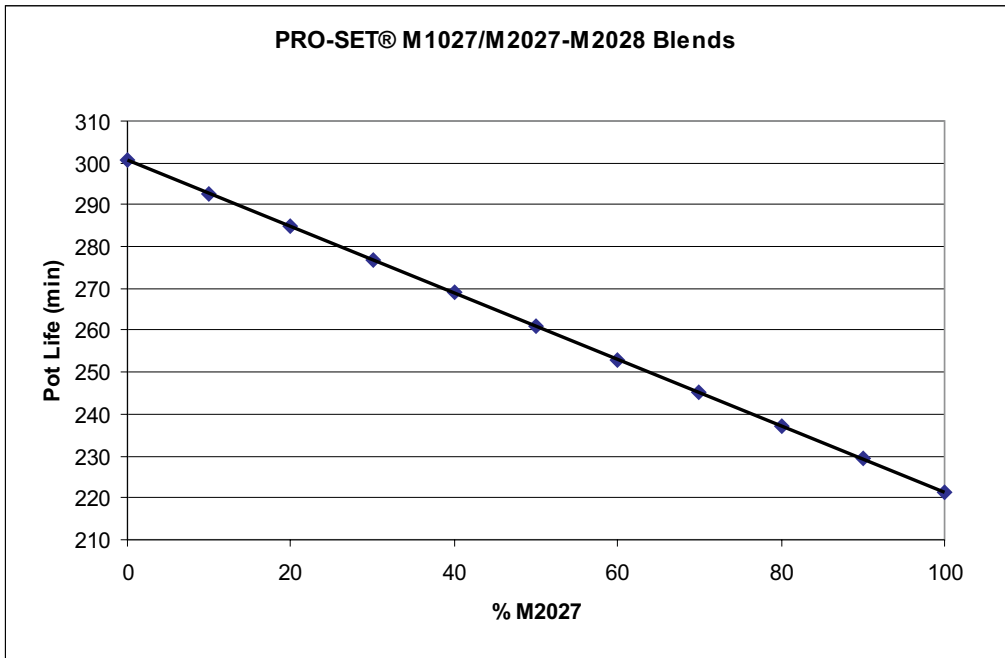
LAMINATING EPOXY – PHYSICAL PROPERTIES
M1027 Resin / M2028 Hardener

Physical Property	Test Method	Cure Schedule			
		RT x 24 hr + 85°F x 3 days	RT x 2 wks	RT x 15 hr + 125°F x 16 hr	RT x 15 hr + 140°F x 8 hr
Hardness (Shore D)	ASTM D-2240	86	86	87	86
Compression Yield (psi)	ASTM D-695	15,651	16,169	14,306	13,109
Tensile Strength (psi)	ASTM D-638	9,850	8,975	10,229	9,348
Tensile Elongation (%)	ASTM D-638	2.5	1.9	5.4	5.4
Tensile Modulus (psi)	ASTM D-638	5.35E+05	5.69E+05	4.98E+05	4.56E+05
Flexural Strength (psi)	ASTM D-790	17,442	13,359	17,579	16,286
Flexural Modulus (psi)	ASTM D-790	5.20E+05	5.66E+05	4.82E+05	4.59E+05
Heat Deflection Temperature (HDT) (°F)	ASTM D-648	137	123	159	161
Onset of Tg by DSC (°F) 1st Heat**		137	135	165	172
Onset of Tg by DSC (°F) 2nd Heat**		156	156	153	151
Izod Impact, notched (Ft-lb/in)	ASTM D-256	0.94	0.606	1.32	1.58

** 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



PRO-SET® Hardener Blend Chart		
150g Pot Life @ 77°F w/M1027 Resin		
% M2027	% M2028	Time to 10,000 cP (min)
100	0	221
90	10	229
80	20	237
70	30	245
60	40	253
50	50	261
40	60	269
30	70	277
20	80	285
10	90	293
0	100	301





M1027/M2028 Temperature/Viscosity Curve

