

# PRO-SET®

## Technical Data

# M1038~M2009

### LATENT CURE LAMINATING EPOXY

The New  
Standard

#### COMBINED FEATURES

**Medium viscosity** for good wet out of all synthetic composite fabrics and core materials.

**Latent cure hardener** provides up to 14-16 hours of working time at 72°F (22°C), and 8-10 hours of working time at 90°F (32°C).

**Optimized** for hand wet out and machine impregnation in contact molding, vacuum bagging and filament winding applications.

**Elevated temperature cure is required;** this combination will vitrify to a very brittle solid after 16 hours. Will not be brittle after post cure.

**T<sub>g</sub> as high as 216°F (102°C)** with proper post cure providing excellent temperature stability and great part cosmetics.

**Cost effective, high performance** epoxy formulation for synthetic composite manufacturing.

**Quality-control tinting** is available at no extra charge; simply add "QC" after the product code on your order.

**Shelf life** is 3 years for resin and 18 months for hardener when properly stored<sup>2</sup>.

#### HANDLING PROPERTIES

Property	Standard	Units	72°F (22°C)
Working Time		hours	14-16
Viscosity Mixed	ASTM D2196	cP	2050
Viscosity (resin)	ASTM D2196	cP	3,250
Viscosity (hardener)	ASTM D2196	cP	150

#### MIX RATIO

Method	Resin:Hardener	Resin:Hardener
Weight	6.67:1	100:15.0
Weight Range	6.00:1-7.50:1	100:16.7-100:13.3
Volume	5.65:1	100:17.7
Volume Range	5.09:1-6.36:1	100:19.7-100:15.7

#### DENSITY

State	Units	72°F (22°C)
Cured	lb/gal (g/cc)	9.76 (1.17)

EPOXIES for  
Laminating  
Infusion  
Tooling  
Assembly

Gougeon Brothers, Inc.  
P.O. Box 908  
Bay City, MI 48707  
prosetepoxy.com  
888-377-6738

ISO9001:2008 Certified

Rev 4 / July 2014

Test specimens were neat epoxy (without fiber reinforcement).  
Typical values, not to be construed as specification.

# M1038~M2009

## LATENT CURE LAMINATING EPOXY

### MECHANICAL PROPERTIES

Property	Standard	Units	RT Gelation + 125°F (52°C) x 16 hrs	RT Gelation + 140°F (60°C) x 8 hrs	RT Gelation + 140°F (60°C) x 16 hrs	RT Gelation + 180°F (82°C) x 4 hrs	RT Gelation + 180°F (82°C) x 8 hrs
Hardness	ASTM D2240	Type D	88	86	85	88	88
Compression Yield	ASTM D695	psi (MPa)	18,800 (130)	18,200 (125)	18,500 (128)	18,000 (124)	18,000 (124)
Tensile Strength	ASTM D638	psi (MPa)	11,100 (77)	11,600 (80)	12,200 (84)	12,200 (84)	11,800 (81)
Tensile Modulus	ASTM D638	psi (GPa)	5.22E+05 (3.6)	5.33E+05 (3.67)	5.11E+05 (3.52)	4.88E+05 (3.36)	4.49E+05 (3.1)
Tensile Elongation	ASTM D638	%	2.6	3.4	3.8	4.5	4.2
Flexural Strength	ASTM D790	psi (MPa)	21,500 (148)	21,200 (146)	20,000 (138)	22,000 (152)	22,200 (153)
Flexural Modulus	ASTM D790	psi (GPa)	6.15E+05 (4.24)	5.39E+05 (3.72)	5.59E+05 (3.85)	5.35E+05 (3.69)	5.48E+05 (3.78)

### THERMAL PROPERTIES

Property	Standard	Units	RT Gelation + 125°F (52°C) x 16 hrs	RT Gelation + 140°F (60°C) x 8 hrs	RT Gelation + 140°F (60°C) x 16 hrs	RT Gelation + 180°F (82°C) x 4 hrs	RT Gelation + 180°F (82°C) x 8 hrs
Tg DSC Onset– 1st Heat	ASTM E1356	°F (°C)	175 (79)	186 (86)	192 (89)	211 (99)	216 (102)
Heat Deflection Temperature	ASTM D648	°F (°C)	166 (74)	184 (84)	188 (87)	206 (97)	212 (100)
Tg DSC Ultimate	ASTM E1356	°F (°C)			216 (102) <sup>1</sup>		

<sup>1</sup> Additional post cure may be required; contact Technical Department for details.

<sup>2</sup> Store PRO-SET® Epoxy resins and hardeners at room temperature in sealed containers until shortly before use. As with many high-performance epoxy resins, repeated exposure to low temperatures during storage may cause the resin to crystallize. If this occurs, warm the resin to 125° F and stir to dissolve crystals. Hardeners may form carbamation when exposed to CO<sub>2</sub> and moisture in the atmosphere for extended periods of time. Prevent carbamation by protecting hardeners from exposure until immediately prior to processing.

Rev 4 / July 2014