

PRO-SET®

Technical Data

HTP 187 HTP 287

HIGH-TEMP SURFACE COAT EPOXY

COMBINED FEATURES

High-temperature, high-performance epoxy formulation for synthetic composite part and tooling manufacture. Black in color.

T_g as high as 300°F (149°C) with proper post cure. Provides excellent temperature stability and great part cosmetics.

Slow cure speed hardener provides 6 to 8 hours working time at 72°F (22°C). A typical application gels in 12 to 15 hours at room temperature. A second application can be applied when the surface coat becomes tacky.

Medium Viscosity enables brush application and air release. Easily applied with a short bristle brush.

Thixotroped to prevent runs and sags at a thickness of 10-12 mils.

Elevated temperature cure is required. Parts can be pulled after 24-48 hours at room temperature or sooner after a mild initial cure of 90-110°F (32-43°C). Post cure 140°F (60°C) x 2hr + 275°F (135°C) x 12hr, with ramp rates no greater than 15°C/hour, to achieve maximum properties.

The New
Standard

EPOXIES for
Laminating
Infusion
Tooling
Assembly

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ISO9001:2015 Certified

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HANDLING PROPERTIES

Property	Standard	Units	72°F (22°C)
150g Pot Life	ASTM D2471	minutes	150
500g Pot Life	ASTM D2471	minutes	110
Viscosity Mixed	ASTM D2196	cP	11,260
Viscosity (resin)	ASTM D2196	cP	24,000
Viscosity (hardener)	ASTM D2196	cP	52

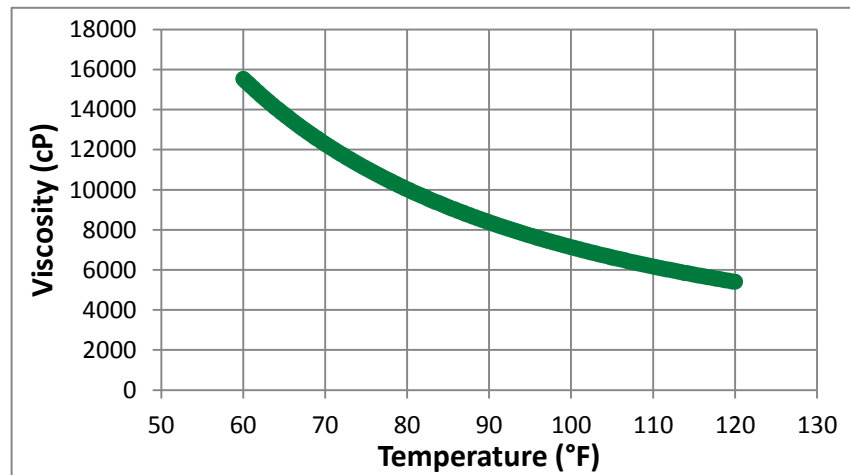
MIX RATIO

Method	Resin:Hardener	Resin:Hardener
Weight	6.83:1	100:14.6
Weight Range	7.93:1 - 5.92:1	100:12.6 - 100:16.9
Volume	5.00:1	100:20.0
Volume Range	5.81:1 - 4.34:1	100:17.2 - 100:23.1

DENSITY

State	Units	72°F (22°C)
Cured	lb/gal (g/cc)	10.10 (1.21)
Resin	lb/gal (g/cc)	10.75 (1.29)
Hardener	lb/gal (g/cc)	7.88 (0.94)

VISCOSITY VS TEMPERATURE



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

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MECHANICAL PROPERTIES

Property	Standard	Units	RT + 140°F (60°C) x 2hr + 275°F (135°C) x 12hr
Hardness	ASTM D2240	Type D	92
Compression Yield	ASTM D695	psi (MPa)	14,900 (103)
Tensile Strength	ASTM D638	psi (MPa)	6,400 (44)
Tensile Modulus	ASTM D638	psi (GPa)	4.98E+05 (3.43)
Tensile Elongation	ASTM D638	%	1.5
Flexural Strength	ASTM D790	psi (MPa)	12,000 (83)
Flexural Modulus	ASTM D790	psi (GPa)	4.81E+05 (3.32)

THERMAL PROPERTIES

Property	Standard	Units	RT + 140°F (60°C) x 2hr + 275°F (135°C) x 12hr
Tg DMA Peak Tan Delta	ASTM E1640 ¹	°F (°C)	324 (162)
Tg DMA Onset Storage Modulus	ASTM E1640 ¹	°F (°C)	302 (150)
Tg DSC Onset-1st Heat	ASTM E1356	°F (°C)	302 (150)
Heat Deflection Temperature	ASTM D648	°F (°C)	285

APPLICATION TIPS

- Always evaluate mold release on a test panel that is characterized with your post-cure schedule.
- Apply product using stiff bristle brush. Cut bristles to half of their original length to increase brush stiffness.
- When applying, brush in an alternating pattern of 0 and 90 degrees to a thickness of 10-12 mils.
- Let surface coat cure between each application and prior to lamination. Wash with water and a Scotch Brite Pad to remove amine blush. **IMPORTANT! Blush may not be visible and can occur while product is still tacky.**
- To repair finished molds, grind away damaged Surface Coat and grind a “Vee” into any cracks. Sand areas with 80-grit sandpaper and fill with Surface Coat. Post-cure as required.

¹ 1 Hz, 3°C per minute.

² 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 CO2 and moisture in the atmosphere for extended periods of time. Prevent carbamation by protecting hardeners from exposure until immediately prior to processing.