

# PRO-SET®

## Technical Data

# INF-114 INF-251-HT

## HIGH TEMPERATURE INFUSION EPOXY COMBINED FEATURES

**Low viscosity** for rapid saturation of fiberglass, Kevlar® and carbon fiber laminate with resin infusion and VARTM processes.

**Extra slow cure speed** hardener provides up to 12 hours of working time at 77°F (25°C). A typical laminate will be gelled in about 16 to 20 hours at this temperature.

**This combination** is formulated specifically for resin infusion and VARTM processes. Do not use in open mold applications.

**Elevated temperature cure is required;** thermal and mechanical properties suitable for composite components and high-temperature tooling and molds.

**T<sub>g</sub> as high as 277° F (136°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, 18 months for hardener when properly stored<sup>3</sup>.

## HANDLING PROPERTIES

Property	Standard	Units	72°F (22°C)	77°F (25°C)	85°F (29°C)
150g Pot Life	ASTM D2471	minutes	430-561	342-418	236-290
500g Pot Life	ASTM D2471	minutes	370-454	254-312	159-195
Viscosity Mixed	ASTM D2196	cP	693	584	396
Viscosity (resin)	ASTM D2196	cP	1433		
Viscosity (hardener)	ASTM D2196	cP	121		

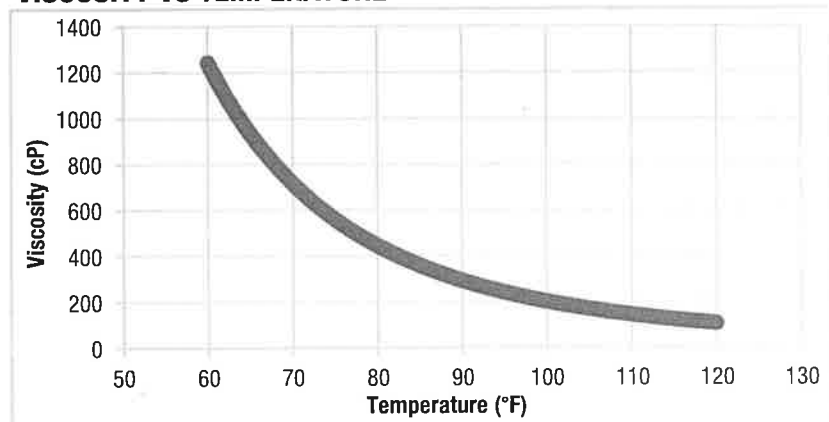
## MIX RATIO

Method	Resin:Hardener	Resin:Hardener
Weight	3.65:1	100:27.6
Weight Range	3.72:1-3.31:1	100:26.9-100:30.2
Volume	3.00:1	100:33.3
Volume Range	3.08:1-2.74:1	100:32.4-100:36.5

## DENSITY

State	Units	72°F (22°C)
Cured	lb/gal (g/cc)	9.42 (1.13)
Resin	lb/gal (g/cc)	9.49 (1.14)
Hardener	lb/gal (g/cc)	7.86 (0.94)

## VISCOSITY VS TEMPERATURE



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

The New  
Standard

EPOXIES for  
Laminating  
Infusion  
Tooling  
Assembly

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# INF-114~INF-251-HT

## HIGH TEMPERATURE INFUSION EPOXY

### MECHANICAL PROPERTIES

Property	Standard	Units	140°F (60°C) x 8 hrs	250°F (121°C) x 8 hrs
Hardness	ASTM D2240	Type D	87	89
Compression Yield	ASTM D695	psi (MPa)	16,600 (114)	16,100 (111)
Tensile Strength	ASTM D638	psi (MPa)	8,280 (57)	9,200 (63)
Tensile Modulus	ASTM D638	psi (GPa)	4.94E+5 (3.41)	4.32E+5 (2.98)
Tensile Elongation	ASTM D638	%	1.9	3.5
Flexural Strength	ASTM D790	psi (MPa)	17,600 (121)	16,500 (114)
Flexural Modulus	ASTM D790	psi (GPa)	4.91E+5 (3.39)	4.E+5 (2.76)

### THERMAL PROPERTIES

Property	Standard	Units	140°F (60°C) x 8 hrs	250°F (121°C) x 8 hrs
Tg DMA Peak Tan Delta	ASTM E1640 <sup>1</sup>	°F (°C)	218 (103)	300 (149)
Tg DMA Onset Storage Modulus	ASTM E1640 <sup>1</sup>	°F (°C)	187 (86)	277 (136)
Tg DSC Onset-- 1st Heat	ASTM E1356	°F (°C)	172 (78)	251 (122)
Heat Deflection Temperature	ASTM D648	°F (°C)	171 (77)	254 (123)
Tg DSC Ultimate	ASTM E1356	°F (°C)	264 (129) <sup>2</sup>	

<sup>1</sup> 1 Hz, 3°C per minute.

<sup>2</sup> Additional post cure may be required; contact Technical Department for details.

<sup>3</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.

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