PRO-SET®

Technical Data

INF-114
INF-211

INFUSION EPOXY

The New Standard

EPOXIES for Laminating Infusion Tooling Assembly

COMBINED FEATURES

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

Medium cure speed hardener provides 100-115 minutes of infusion time at 72°F (22°C) in a typical ¼ inch thick laminate if resin feed pot stays under 100°F (38°C). Vacuum off time at 72°F (22°C) is 9.75 hours in a typical laminate.

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

Room temperature cure properties suitable for many composite components and structures.

Tg as high as 196° F (91°C) with proper post cure providing excellent temperature stability and great part cosmetics.

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ISO9001:2015 Certified

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HANDLING PROPERTIES

Property	Standard	Units	72°F (22°C)	77°F (25°C)	85°F (29°C)
150g Pot Life	ASTM D2471	minutes	117-145	109-135	64-80
500g Pot Life	ASTM D2471	minutes	90-112	76-94	56-70
Viscosity Mixed	ASTM D2196	cP	296	245	196
Viscosity (resin)	ASTM D2196	cP	1433		
Viscosity (hardener)	ASTM D2196	cP	14		

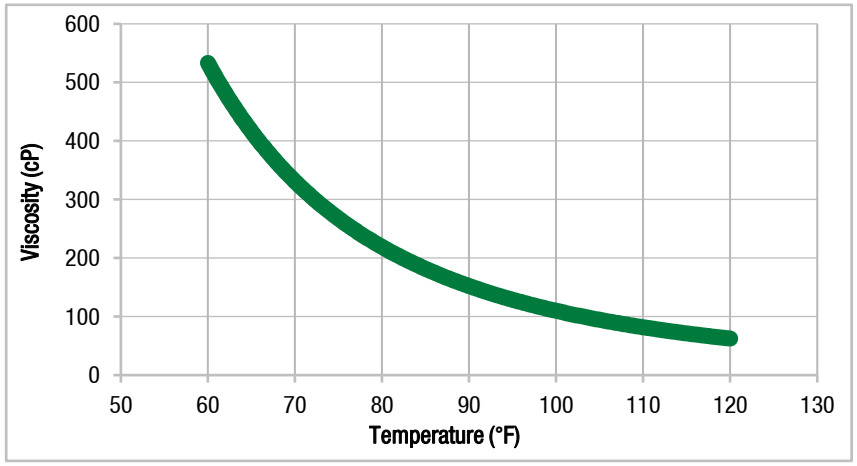
MIX RATIO

Method	Resin:Hardener	Resin:Hardener
Weight	3.65:1	100:27.4
Weight Range	3.81:1–3.45:1	100:26.3–100:29.0
Volume	3.00:1	100:33.3
Volume Range	3.13:1–2.84:1	100:31.9–100:35.3

DENSITY

State	Units	72°F (22°C)
Cured	lb/gal (g/cc)	9.5 (1.14)
Resin	lb/gal (g/cc)	9.5 (1.14)
Hardener	lb/gal (g/cc)	7.8 (0.93)

VISCOSITY VS TEMPERATURE



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

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INFUSION EPOXY

MECHANICAL PROPERTIES

Property	Standard	Units	72°F (22°C) x 4 wk	77°F (25°C) x 2 wk	RT Gelation + 120°F (49°C) x 8 hrs	RT Gelation + 140°F (60°C) x 8 hrs	RT Gelation + 180°F (82°C) x 8 hrs
Hardness	ASTM D2240	Type D	86	86	85	85	85
Compression Yield	ASTM D695	psi (MPa)	14,700 (101)	15,300 (105)	13,700 (94)	13,700 (94)	13,700 (94)
Tensile Strength	ASTM D638	psi (MPa)	7,770 (54)	8,540 (59)	9,540 (66)	9,820 (68)	10,100 (70)
Tensile Modulus	ASTM D638	psi (GPa)	5.24E+5 (3.61)	5.34E+5 (3.68)	5.35E+05 (3.69)	5.11E+05 (3.52)	4.87E+05 (3.36)
Tensile Elongation	ASTM D638	%	1.7	2.0	2.6	3.9	5.3
Flexural Strength	ASTM D790	psi (MPa)	12,300 (85)	15,000 (103)	17,100 (118)	17,600 (121)	18,200 (125)
Flexural Modulus	ASTM D790	psi (GPa)	4.85E+5 (3.34)	4.83E+5 (3.33)	4.97E+05 (3.43)	4.95E+05 (3.41)	4.64E+05 (3.2)

THERMAL PROPERTIES

Property	Standard	Units	72°F (22°C) x 4 wk	77°F (25°C) x 2 wk	RT Gelation + 120°F (49°C) x 8 hrs	RT Gelation + 140°F (60°C) x 8 hrs	RT Gelation + 180°F (82°C) x 8 hrs
Tg DMA Peak Tan Delta	ASTM E1640[1]	°F (°C)	158 (70)	157 (70)	176 (80)	195 (91)	215 (102)
Tg DMA Onset Storage Modulus	ASTM E1640[1]	°F (°C)	145 (63)	145 (63)	157 (69)	176 (80)	196 (91)
Tg DSC Onset– 1st Heat	ASTM E1356	°F (°C)	138 (59)	138 (59)	151 (66)	165 (74)	177 (81)
Heat Deflection Temperature	ASTM D648	°F (°C)	129 (54)	131 (55)	144 (62)	160 (71)	173 (78)
Tg DSC Ultimate	ASTM E1356	°F (°C)	185 (85)[2]				

[1] 1 Hz, 3°C per minute.

[2] Additional post cure may be required; contact Technical Department for details.

[3] 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_2 and moisture in the atmosphere for extended periods of time. Prevent carbamation by protecting hardeners from exposure until immediately prior to processing.

Shelf Life

QC Tinting Available

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