

# PRO-SET®

## Technical Data

# LAM-135

# LAM-249-HT

## HIGH TEMPERATURE LAMINATING EPOXY

The New  
Standard

EPOXIES for  
Laminating  
Infusion  
Tooling  
Assembly

### Wessex Resins & Adhesives

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ISO9001:2015 Certified

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& Adhesives

### COMBINED FEATURES

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

**Medium cure speed** hardener provides 2 to 3 hours of working time at 25°C. A typical laminate will be gelled in 8 hours.

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

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

**Tg as high as 128°C** with proper post cure providing excellent temperature stability and great part cosmetics.

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

### HANDLING PROPERTIES

Property	Standard	Units	22°C
150g Pot Life	ASTM D2471	minutes	91
500g Pot Life	ASTM D2471	minutes	67
Viscosity Mixed	ASTM D2196	mPas	1339
Viscosity (resin)	ASTM D2196	mPas	5725
Viscosity (hardener)	ASTM D2196	mPas	28

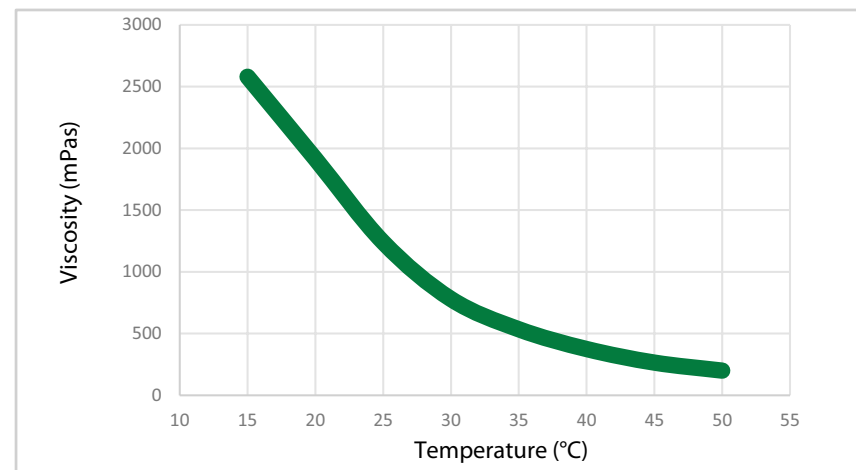
### MIX RATIO

Method	Resin:Hardener	Resin:Hardener
Weight	3.57:1	100:28
Volume	3.00:1	100:33.3

### DENSITY

State	Units	22°C
Cured	gcm <sup>-3</sup>	1.14
Resin	gcm <sup>-3</sup>	1.16
Hardener	gcm <sup>-3</sup>	0.96

### VISCOSITY VS TEMPERATURE



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

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### MECHANICAL PROPERTIES

Property	Standard	Units	RT Gelation + 60°C x 8 hrs	RT Gelation + 121°C x 8 hrs
Hardness	ASTM D2240	Shore D	86	87
Compression Yield	ASTM D695	MPa	122	119
Tensile Strength	ASTM D638	MPa	79.7	73.4
Tensile Modulus	ASTM D638	GPa	3.34	3.30
Tensile Elongation	ASTM D638	%	3.51	6.30
Flexural Strength	ASTM D790	MPa	104	116
Flexural Modulus	ASTM D790	GPa	3.39	3.62

### THERMAL PROPERTIES

Property	Standard	Units	RT Gelation + 60°C x 8 hrs	RT Gelation + 121°C x 8 hrs
Tg DMA Peak Tan Delta	ASTM E1640*1	°C	105.4	134.2
Tg DSC Onset - 1st Heat	ASTM E1356	°C	89.2	128.1
Tg DSC Ultimate	ASTM E1356	°C	144.7	144.7

\*1 1Hz, 3°C per minute.

\*2 Additional post cure may be required; contact Technical Department for details.

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These are typical properties and cannot be construed as a specification. The end users should test the products to ensure the products are suitable for the intended application. Any information, data, advice or recommendation published by Wessex Resins or obtained from Wessex Resins by other means and whether relating to Wessex Resins' materials or other materials, is given in good faith and believed to be reliable.

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