PRO-SET®

# Technical Data

# LAM-145
# LAM-226

## LAMINATING EPOXY

The New Standard

**EPOXIES** for
Laminating
Infusion
Tooling
Assembly

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ISO9001:2008 Certified

**REV 1 / Oct 2013**



### COMBINED FEATURES

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

**Thixotroped** to prevent drain out in heavy fabrics and on vertical surfaces.

**High tack** to help hold heavy fabric and core in place on vertical surfaces.

**Medium cure speed** hardener provides 2 to 3 hours of working time at 25°C. A typical laminate will be gelled in 4 to 5 hours.

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

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

**Tg as high as 101°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 | 25°C | 29°C |
|---|---|---|---|---|---|
| 150g Pot Life | ASTM D2471 | minutes | 75 | 52 | 40 |
| 500g Pot Life | ASTM D2471 | minutes | 56 | 52 | 36 |
| Viscosity Mixed | ASTM D2196 | mPas | 1917 | 1737 | 1242 |
| Viscosity (resin) | ASTM D2196 | mPas | 10,000 | | |
| Viscosity (hardener) | ASTM D2196 | mPas | 40 | | |
| Shear Thinning Index | ASTM D2196 | - | 1.39 | | |

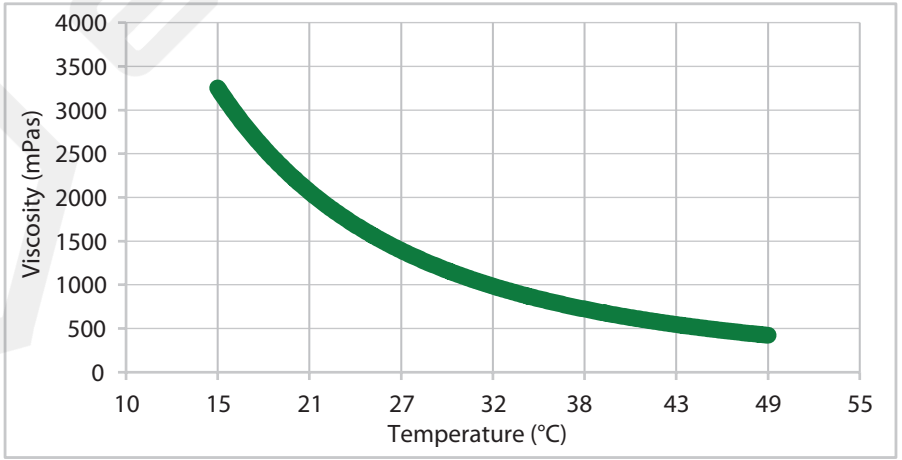
### MIX RATIO

| Method | Resin:Hardener | Resin:Hardener |
|---|---|---|
| Weight | 3.5:1 | 100:28.6 |
| Weight Range | 3.77:1-3.15:1 | 100:26.5-100:31.7 |
| Volume | 3.00:1 | 100:33.3 |
| Volume Range | 3.15:1-2.64:1 | 100:31.7-100:37.9 |

### DENSITY

| State | Units | 21°C |
|---|---|---|
| Cured | $gcm^{-3}$ | 1.17 |
| Resin | $gcm^{-3}$ | 1.17 |
| Hardener | $gcm^{-3}$ | 0.98 |

### VISCOSITY VS TEMPERATURE




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

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## LAMINATING EPOXY

### MECHANICAL PROPERTIES

| Property | Standard | Units | 22°C x 4 Weeks | 25°C x 2 Weeks | RT Gelation + 49°C x 8 hrs | RT Gelation + 60°C x 8 hrs | RT Gelation + 82°C x 8 hrs |
|---|---|---|---|---|---|---|---|
| Hardness | ASTM D2240 | Shore D | 86 | 86 | 87 | 87 | 88 |
| Compression Yield | ASTM D895 | MPa | 109 | 108 | 101 | 101 | 101 |
| Tensile Strength | ASTM D638 | MPa | 56 | 58 | 72 | 72 | 75 |
| Tensile Modulus | ASTM D638 | GPa | 3.37 | 3.91 | 3.67 | 3.71 | 3.25 |
| Tensile Elongation | ASTM D638 | % | 1.7 | 1.7 | 3.3 | 3.3 | 6.3 |
| Flexural Strength | ASTM D790 | MPa | 79 | 90 | 121 | 121 | 121 |
| Flexural Modulus | ASTM D790 | GPa | 3.59 | 3.59 | 3.45 | 3.17 | 2.94 |

### THERMAL PROPERTIES

| Property | Standard | Units | 22°C x 4 Weeks | 25°C x 2 Weeks | RT Gelation + 49°C x 8 hrs | RT Gelation + 60°C x 8 hrs | RT Gelation + 82°C x 8 hrs |
|---|---|---|---|---|---|---|---|
| Tg DMA Peak Tan Delta | ASTM E1640*1 | °C | 70 | 69 | 86 | 95 | 111 |
| Tg DMA Onset Storage Modulus | ASTM E1640*1 | °C | 62 | 61 | 75 | 84 | 101 |
| Tg DSC Onset - 1st Heat | ASTM E1356 | °C | 60 | 57 | 70 | 75 | 95 |
| Heat Deflection Temperature | ASTM D648 | °C | 55 | 54 | 66 | 74 | 88 |
| Tg DSC Ultimate | ASTM E1356 | °C | | | 104*2 | | |

*1 1Hz, 3°C per minute.
*2 Additional post cure may be required; contact Technical Department for details.
Test specimens were neat epoxy (without fibre reinforcement).
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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