

# PRO-SET®

## Technical Data

# INF-117G

# INF-249-HT

## BIOBASED HIGH T<sub>g</sub>

## INFUSION 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

### INTRODUCTION

The combination of PRO-SET INF-117G Resin with PRO-SET INF-249-HT Hardener is intended specifically for resin infusion processes. This production technique has become increasingly important to the composite industry and has made inroads into the marine market for the manufacture of lightweight, high performance hulls together with the deck assemblies and superstructure.

PRO-SET INF-117G Resin is mixed with PRO-SET INF-249-HT Hardener. The hardener is free of phenol and phenol related products - to produce an extremely low viscosity epoxy that provides fast and thorough wetting of the reinforcing fabric(s) within the laminate when using the resin infusion process.

### CURING

The cure time will vary with the ambient temperature and the thickness of the laminate and, for example, at a working temperature of 20°C, vacuum pressure should remain on the laminate for at least 12 hours after infusion is complete.

The resin and hardener mix will initially cure to a brittle "B" stage after 24 hours at room temperature but laminate must be subsequently post cured at 50°C for 16 hours before demoulding the component.

### HANDLING PROPERTIES

| Property             | Standard   | Units   | 25°C |
|----------------------|------------|---------|------|
| 100g Pot Life        | ASTM D2471 | minutes | 72   |
| 500g Pot Life        | ASTM D2471 | minutes | 55   |
| Viscosity Mixed      | ASTM D2196 | mPas    | 260  |
| Viscosity (resin)    | ASTM D2196 | mPas    | 480  |
| Viscosity (hardener) | ASTM D2196 | mPas    | 29   |

### MIX RATIO

| Method | Resin:Hardener | Resin:Hardener |
|--------|----------------|----------------|
| Weight | 3.45:1         | 100:29         |
| Volume | 3.03:1         | 100:33         |

### DENSITY

| State    | Units             | 21°C |
|----------|-------------------|------|
| Mixed    | gcm <sup>-3</sup> | 1.10 |
| Resin    | gcm <sup>-3</sup> | 1.17 |
| Hardener | gcm <sup>-3</sup> | 0.96 |

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

**The biobased content** of PRO-SET INF-117G resin is 36% as measured according to the ASTM D6866-18 test method.

# INF-117G / INF-249-HT

## BIOBASED HIGH T<sub>g</sub> INFUSION EPOXY

### MECHANICAL PROPERTIES

| Property           | Standard   | Units   | RT x 24 hrs<br>+ 50°C x 16 hrs | RT x 24 hrs<br>+ 50°C x 16 hrs<br>+ 80°C x 2 hrs |
|--------------------|------------|---------|--------------------------------|--|
| Hardness           | ASTM D2240 | Shore D | 85                             | 86   |
| Compression Yield  | ASTM D695  | MPa     | 115.4                          | 111.9  |
| Tensile Strength   | ASTM D638  | MPa     | 58.9                           | 77.9   |
| Tensile Modulus    | ASTM D638  | GPa     | 3.4                            | 3.2  |
| Tensile Elongation | ASTM D638  | %       | 2.2                            | 5.0  |
| Flexural Strength  | ASTM D790  | MPa     | 113.3                          | 109.6  |
| Flexural Modulus   | ASTM D790  | GPa     | 4.3                            | 4.2  |

### THERMAL PROPERTIES

| Property                | Standard     | Units | RT Gelation<br>+ 50°C<br>x 16 hrs | RT Gelation<br>+ 50°C x 16 hrs<br>+ 80°C x 2 hrs |
|-------------------------|--------------|-------|-----------------------------------|--|
| Tg DMA Peak Tan Delta   | ASTM E1640*1 | °C    | 89.6                              | 103.5  |
| Tg DSC Onset - 1st Heat | ASTM E1356   | °C    | 74.6                              | 86.0   |
| Tg DSC Ultimate         | ASTM E1356   | °C    | 109.0*2                           | 104.5*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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