Newport 301T

Description:
Newport 301T is a 250°F (121°C) to 300°F (149°C) cure, toughened, controlled flow epoxy resin system, with versatile processing, excellent mechanical properties, and long out time. The “T” series is optimized for the most critical aesthetic requirements.

Application:
Newport 301T is suited for structural applications in sporting goods, marine, medical, and industrial manufacturing.

Newport 301T can be supplied with most commercially available fibers in both woven form (designated as NB) as well as unidirectional tape (designated as NCT), including:
- Carbon
- Quartz
- Aramid
- S-glass
- E-glass
- Other specialty fibers and fabrics

Woven fabrics are available in standard commercial widths up to 60 inches (1.5 M). Unitape widths up to 39 inches (1M) are available in standard fiber weights ranging from 90 to 300 gsm.

Benefits/Features:
- Optimized cosmetics for bladder molding
- Moderate tack
- Good toughness
- Controlled flow
- Excellent mechanical properties
- >30 days out time at 70°F (21°C)
- Available on a wide range of unidirectional fibers and fabrics

Recommended Processing Conditions:
Newport 301T can be cured at temperatures from 250°F (121°C) to 300°F (149°C), depending on part size and complexity. Low, medium, and high pressure molding techniques may be used to cure 301T resin. Recommended cure cycle is 50 psi (345 kPa), 3°F (1.7°C)/min. ramp to 275°F (135°C), hold for 60 minutes, cool to <140°F (60°C).
Physical Properties:

- Gel Time 275°F (135°C): 4 - 6 minutes
- Specific Gravity: 1.22
- Tg (DMA, E'): 120°C (248°F)

Mechanical Properties:

Neat resin properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Result *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tensile strength, ksi</td>
<td>8.9</td>
</tr>
<tr>
<td>Tensile modulus, Msi</td>
<td>0.45</td>
</tr>
<tr>
<td>Flexural strength, ksi</td>
<td>16.5</td>
</tr>
<tr>
<td>Flexural modulus, Msi</td>
<td>0.52</td>
</tr>
</tbody>
</table>

* Values are average and do not constitute a specification

3K 2x2 Twill Weave Carbon Fabric Reinforcement

The mechanical properties listed in the following table are average values obtained from NB 301T with 3K 2x2 Twill weave carbon fabric cured for 60 minutes at 250°F (121°C), 40 psi (276 kPa) pressure. All data is normalized to 55% fiber volume, except for 0° SBS strength.

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method</th>
<th>RT *</th>
</tr>
</thead>
<tbody>
<tr>
<td>0° Tensile strength, ksi</td>
<td>ASTM D-3039</td>
<td>103</td>
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<tr>
<td>0° Tensile modulus, Msi</td>
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<td>9.2</td>
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<tr>
<td>0° Compressive strength, ksi</td>
<td>SACMA 1R-94</td>
<td>85</td>
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<tr>
<td>0° Flexural strength, ksi</td>
<td>ASTM D-790</td>
<td>120</td>
</tr>
<tr>
<td>0° Flexural modulus, Msi</td>
<td></td>
<td>8.4</td>
</tr>
<tr>
<td>0° Short Beam Shear strength, ksi</td>
<td>SACMA 8R-94</td>
<td>9.1</td>
</tr>
</tbody>
</table>

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**Melt Viscosity Profile of Newport 301T**

A TA(model AR2000) parallel plate rheometer was used to determine the melt viscosity profile of the neat resin system.

![Newport 301-T Viscosity vs Temperature](chart1)

**Gel Curve Profile of Newport 301T**

![301T Gel Time vs Temperature](chart2)
Prepreg Storage:
Material can be stored at 40°F (4°C) for 3 months, or 0°F (-18°C) for 6 months. Out time is more than 30 days at room temperature 70°F (21°C).

Availability:
Newport 301T is available on a wide variety of woven fabrics and unidirectional tapes including aramid, E-glass, S-glass, carbon, and other fibers. Some product characteristics such as areal weight, resin content, gel time can be tailored within reason to meet specific requirements. Contact Newport about any specialty fibers or requirements.

Standard prepreg fabric widths:
- E-glass 38, 50 inches
- Carbon 42, 50 inches
- Kevlar® 38, 50 inches

Standard unidirectional tape widths: 12, 24, 36 inches; 0.5, 1 meter

For orders, pricing, availability, technical assistance or other inquiries please contact:

CORPORATE OFFICES
Newport Adhesives and Composites, Inc.
1822 Reynolds Ave
Irvine, CA 92614-5714
Tel: (949) 253-5680
Fax: (949) 253-5692
Sales@newportad.com
http://www.newportad.com

(Kevlar® is a trademark of the DuPont Company)

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