CTD-415P Cyanate Ester/BMI Pre-Preg

General Description:
CTD-415P is a cyanate ester/bismaleimide blended resin hot-melt pre-preg system developed for use as electrical insulation in superconducting and fusion magnet systems. CTD-415P has excellent electrical and mechanical properties at both elevated and cryogenic temperatures, exceptional processing properties, and a radiation-resistance that exceeds standard epoxy resin systems.

Key Features:
- A hot-melt pre-preg resin system (solventless)
- Readily flows at 100°C
- Improved processing properties allow better containment of resin within part
- Radiation resistant with low outgassing
- Long out-life at room temperature
- Supplied as tape or broadcloth using any standard fiber reinforcement, such as glass or carbon fiber.

Mechanical and Electrical Properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>295 K</th>
<th>77 K</th>
<th>373 K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short Beam Shear Strength (MPa)</td>
<td>55</td>
<td>68</td>
<td>53</td>
</tr>
<tr>
<td>Flexural Modulus (GPa)</td>
<td>19.5</td>
<td>23.0</td>
<td>18.5</td>
</tr>
<tr>
<td>Compressive Strength (MPa)</td>
<td>1010</td>
<td>1225</td>
<td>850</td>
</tr>
<tr>
<td>Compressive Modulus (GPa)</td>
<td>11.9</td>
<td>15.5</td>
<td>11.1</td>
</tr>
<tr>
<td>Tensile Strength (MPa)</td>
<td>605</td>
<td>770</td>
<td>575</td>
</tr>
<tr>
<td>Tensile Modulus (GPa)</td>
<td>35.0</td>
<td>43.5</td>
<td>35.5</td>
</tr>
<tr>
<td>Dielectric Strength (kV/mm) @ 0.5mm</td>
<td>83</td>
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<td></td>
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</tbody>
</table>

Effect of Radiation

![Effect of Radiation Graph]
Application:
- Electrical Insulation for Superconducting Magnets
- Structural Composite Material for Cryogenic Applications
- Structural Composite Material for Elevated Temperature Applications
- High Radiation Environments

Cure: 4 hours at 190°C
Post-cure: 6 hours at 245°C

Outlife: 3 weeks at 22°C
6 months at 0°C

Storage Guidelines:
- Store at 0°C or below for longest shelf life
- Protect from moisture during storage and while warming to room temperature

Disclaimer: The information and recommendations contained herein are based upon data believed to be accurate. However, no guarantee or warranty of any kind expressed or implied is made with respect to the information contained herein.