

## Park Electrochemical Nelcote® V-376 Cyanate Ester Epoxy Prepregs, 581 Quartz Reinforced

Category : Polymer , Thermoset , Epoxy

### Material Notes:

Nelcote® V-376 is a Cyanate Ester matrix providing excellent electrical and mechanical properties for harsh aircraft, shipboard, and undersea applications for Radomes, Antenna, and Reflectors. Simple processing and good handling characteristics make V-376 an ideal alternative to BMI and polyimide resin systems. GC110 LM qualified specifications. Key Features and Benefits: Cyanate Ester resin provides outstanding electrical properties (Dk, Df) Excellent Moisture resistance properties Simplified handling and processing characteristics Minimal degradation of mechanical properties in Hot/Wet environments Self-Adhesive to many types of foam and honeycomb core Applications/Qualifications: Radomes Reflectors Antenna Signature Control Information provided by Park Electrochemical Corp.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Park-Electrochemical-Nelcote-V-376-Cyanate-Ester-Epoxy-Prepregs-581-Quartz-Reinforced.php](http://www.lookpolymers.com/polymer_Park-Electrochemical-Nelcote-V-376-Cyanate-Ester-Epoxy-Prepregs-581-Quartz-Reinforced.php)

| Physical Properties | Metric        | English    | Comments                        |
|---------------------|---------------|------------|---------------------------------|
| Volatiles           | <= 2.0 %      | <= 2.0 %   |                                 |
| Water Absorption    | 0.67 %        | 0.67 %     | by weight; 14 day soak at 160°F |
| Thickness           | 0.279 microns | 0.0110 mil | cured laminate, per ply         |

| Mechanical Properties   | Metric               | English              | Comments                     |
|-------------------------|----------------------|----------------------|------------------------------|
| Tensile Strength, Yield | 421 MPa              | 61000 psi            | 0° Direction, Dry; ASTM D638 |
|                         | @Temperature 204 °C  | @Temperature 400 °F  |                              |
|                         | 483 MPa              | 70000 psi            | 0° Direction, Wet; ASTM D638 |
|                         | @Temperature 82.2 °C | @Temperature 180 °F  |                              |
| Tensile Modulus         | 648 MPa              | 94000 psi            | 0° Direction, Dry; ASTM D638 |
|                         | @Temperature 149 °C  | @Temperature 300 °F  |                              |
|                         | 689 MPa              | 100000 psi           | 0° Direction, Dry; ASTM D638 |
|                         | @Temperature 23.9 °C | @Temperature 75.0 °F |                              |
| Tensile Modulus         | 22.1 GPa             | 3200 ksi             | Wet; ASTM D638               |
|                         | @Temperature 82.2 °C | @Temperature 180 °F  |                              |
|                         | 24.8 GPa             | 3600 ksi             | Dry; ASTM D638               |
|                         | @Temperature 204 °C  | @Temperature 400 °F  |                              |
| Tensile Modulus         | 26.2 GPa             | 3800 ksi             | Dry; ASTM D638               |
|                         | @Temperature 23.9 °C | @Temperature 75.0 °F |                              |

| Mechanical Properties | Metric               | English              | Comments                                                       |
|-----------------------|----------------------|----------------------|----------------------------------------------------------------|
|                       | @Temperature 149 °C  | @Temperature 300 °F  | Dry; ASTM D638                                                 |
| Flexural Strength     | 290 MPa              | 42000 psi            | 0° Direction, Dry; ASTM D790                                   |
|                       | @Temperature 204 °C  | @Temperature 400 °F  |                                                                |
|                       | 517 MPa              | 75000 psi            | 0° Direction, Dry; ASTM D790                                   |
|                       | @Temperature 149 °C  | @Temperature 300 °F  |                                                                |
|                       | 586 MPa              | 85000 psi            | 0° Direction, Wet; ASTM D790                                   |
|                       | @Temperature 82.2 °C | @Temperature 180 °F  |                                                                |
|                       | 758 MPa              | 110000 psi           | 0° Direction, Dry; ASTM D790                                   |
|                       | @Temperature 23.9 °C | @Temperature 75.0 °F |                                                                |
| Flexural Modulus      | 16.5 GPa             | 2400 ksi             | 0° Direction, Dry; ASTM D790                                   |
|                       | @Temperature 204 °C  | @Temperature 400 °F  |                                                                |
|                       | 22.1 GPa             | 3200 ksi             | 0° Direction, Dry; ASTM D790                                   |
|                       | @Temperature 149 °C  | @Temperature 300 °F  |                                                                |
|                       | 24.8 GPa             | 3600 ksi             | 0° Direction, Dry; ASTM D790                                   |
|                       | @Temperature 23.9 °C | @Temperature 75.0 °F |                                                                |
|                       | 24.8 GPa             | 3600 ksi             | 0° Direction, Wet; ASTM D790                                   |
|                       | @Temperature 82.2 °C | @Temperature 180 °F  |                                                                |
| Compressive Strength  | 179 MPa              | 26000 psi            | Compression after impact strength,<br>1500 in-lb/in; NASA 1092 |
|                       |                      |                      |                                                                |
|                       | 345 MPa              | 50000 psi            | Dry; ASTM D695                                                 |
|                       | @Temperature 204 °C  | @Temperature 400 °F  |                                                                |
|                       | 414 MPa              | 60000 psi            | Dry; ASTM D695                                                 |
|                       | @Temperature 149 °C  | @Temperature 300 °F  |                                                                |
|                       | 448 MPa              | 65000 psi            | Wet; ASTM D695                                                 |
|                       | @Temperature 82.2 °C | @Temperature 180 °F  |                                                                |
|                       | 517 MPa              | 75000 psi            | Dry; ASTM D695                                                 |
|                       | @Temperature 23.9 °C | @Temperature 75.0 °F |                                                                |
| Compressive Modulus   | 17.2 GPa             | 2500 ksi             | Compression after impact modulus,<br>1500 in-lb/in; NASA 1092  |
|                       |                      |                      |                                                                |
|                       | 22.8 GPa             | 3300 ksi             | Wet; ASTM D695                                                 |
|                       | @Temperature 82.2 °C | @Temperature 180 °F  |                                                                |

| Mechanical Properties | Metric               | English              | Comments                    |
|-----------------------|----------------------|----------------------|-----------------------------|
|                       | @Temperature 149 °C  | @Temperature 300 °F  | Dry; ASTM D695              |
|                       | 23.4 GPa             | 3400 ksi             | Dry; ASTM D695              |
|                       | @Temperature 204 °C  | @Temperature 400 °F  |                             |
|                       | 24.1 GPa             | 3500 ksi             | Dry; ASTM D695              |
|                       | @Temperature 23.9 °C | @Temperature 75.0 °F |                             |
| Shear Modulus         | 4.14 GPa             | 600 ksi              | In-Plane; Dry; ASTM D3518   |
|                       | @Temperature 71.1 °C | @Temperature 160 °F  |                             |
|                       | 4.14 GPa             | 600 ksi              | In-Plane; Wet; ASTM D3518   |
|                       | @Temperature 71.1 °C | @Temperature 160 °F  |                             |
|                       | 4.83 GPa             | 700 ksi              | In-Plane; Dry; ASTM D3518   |
|                       | @Temperature 23.9 °C | @Temperature 75.0 °F |                             |
| Shear Strength        | 17.9 MPa             | 2600 psi             | Short Beam; Dry; ASTM D2344 |
|                       | @Temperature 204 °C  | @Temperature 400 °F  |                             |
|                       | 38.6 MPa             | 5600 psi             | Short Beam; Dry; ASTM D2344 |
|                       | @Temperature 149 °C  | @Temperature 300 °F  |                             |
|                       | 51.7 MPa             | 7500 psi             | Short Beam; Wet; ASTM D2344 |
|                       | @Temperature 82.2 °C | @Temperature 180 °F  |                             |
|                       | 58.6 MPa             | 8500 psi             | Short Beam; Dry; ASTM D2344 |
|                       | @Temperature 23.9 °C | @Temperature 75.0 °F |                             |
|                       | 98.6 MPa             | 14300 psi            | In-Plane; Wet; ASTM D3518   |
|                       | @Temperature 71.1 °C | @Temperature 160 °F  |                             |
|                       | 110 MPa              | 16000 psi            | In-Plane; Dry; ASTM D3518   |
|                       | @Temperature 71.1 °C | @Temperature 160 °F  |                             |
|                       | 119 MPa              | 17200 psi            | In-Plane; Dry; ASTM D3518   |
|                       | @Temperature 23.9 °C | @Temperature 75.0 °F |                             |

| Thermal Properties        | Metric       | English        | Comments               |
|---------------------------|--------------|----------------|------------------------|
| CTE, linear               | 52.0 µm/m-°C | 28.9 µin/in-°F | Z-Axis                 |
| Glass Transition Temp, Tg | 148 °C       | 298 °F         | DMA; without post-cure |
|                           | 178 °C       | 352 °F         | DMA; with post-cure    |

| Electrical Properties | Metric                 | English                | Comments |
|-----------------------|------------------------|------------------------|----------|
| Dielectric Constant   | 3.2 - 3.3              | 3.2 - 3.3              |          |
|                       | @Frequency 9.375e+9 Hz | @Frequency 9.375e+9 Hz |          |
| Dissipation Factor    | 0.0040 - 0.0070        | 0.0040 - 0.0070        |          |
|                       | @Frequency 9.375e+9 Hz | @Frequency 9.375e+9 Hz |          |

| Processing Properties | Metric                | English               | Comments |
|-----------------------|-----------------------|-----------------------|----------|
| Gel Time              | 0.800 - 2.50 min      | 0.800 - 2.50 min      |          |
|                       | @Temperature 135 °C   | @Temperature 275 °F   |          |
| Shelf Life            | 12.0 Month            | 12.0 Month            |          |
|                       | @Temperature -17.8 °C | @Temperature 0.000 °F |          |

| Descriptive Properties    | Value | Comments     |
|---------------------------|-------|--------------|
| Fabric Area Weight (g/m²) | 285   |              |
| Resin Flow (%)            | 8-28  | 325°F, 50psi |
| Resin Solids Content (%)  | 36-42 |              |

## Contact Songhan Plastic Technology Co.,Ltd.

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