Mercurywave™ 9350 is a non PTFE, high frequency, low loss resin system tailored to meet the needs of the RF and Microwave market. With its low loss electrical properties and high thermal reliability, Mercurywave™ 9350 offers greater flexibility and freedom to design high performance RF and Microwave substrates.

**Key Features**

**Excellent Electrical Properties**
- Controlled Dk/Df electrical properties for both laminate and prepregs
- Stable electrical properties versus frequency when tested over environmental conditions

**RF Substrate Technology**
- Single and double sided
- Mixed hybrid designs
- Multi-layer capability
- Low insertion loss
- Low passive intermodulation

**Lead-Free Compatibility**
- Mercurywave™ 9350 will withstand multiple 260°C assembly reflow cycles

**Thermal and Mechanical Properties**
- Excellent thermal dissipation
- Low Z-axis expansion
- High peel strength
- High Tg material

**Processing**
- 120 min press at 193°C and 275-350 psi

**Available in a variety of constructions**
- Available in a wide variety of constructions, copper weights and glass styles including standard copper, double treat and RTFOIL®
- UL Rating of 50°C MOT
- Meets and exceeds:
  - IPC-4101/29
  - IPC-4103/11 electrical and mechanical requirements
  - UL 94V-0
- All Nelco® materials are RoHS compliant.
- Vacuum laminated

---

**Applications**

- **Base Station Equipment**
  - Filters, combiners and components

- **Automotive**
  - Radar
  - Broadband communication
  - Road tolling

- **Satellite Communication**
  - LNB’s / LNA’s
  - GPS

- **Military**
  - High reliability communications
  - Guidance
  - Radar

- **Broadband RF Antennas**
  - WiFi / WiMax
  - RFID’s
  - LAN’s

- **RF Components**
  - Directional couplers
  - TXRX
  - Up/Down converters

**Global Availability**

Neltex, Inc. - Americas
+1.480.967.5600
Nelco Products Pte. Ltd. - Asia Pacific
+65.6861.7117
Neltex, S.A. - Europe
+33.562.98.52.90
www.parkelectro.com
info@parkelectro.com

**Park’s UL file number:** E36295
## Mechanical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Mercurywave™ 9350</th>
<th>Mercurywave™ Metric 9350</th>
<th>Test Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peel Strength - 1 oz. (35 micron) Cu</td>
<td>7 lb / inch</td>
<td>1.22 N / mm</td>
<td>IPC-TM-650.2.4.8</td>
</tr>
<tr>
<td>After Solder Float</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At Elevated Temperature</td>
<td>7 lb / inch</td>
<td>1.22 N / mm</td>
<td>IPC-TM-650.2.4.8.2a</td>
</tr>
<tr>
<td>After Exposure to Process Solutions</td>
<td>8 lb / inch</td>
<td>1.4 N / mm</td>
<td>IPC-TM-650.2.4.8</td>
</tr>
<tr>
<td>X / Y CTE [-40°C to +125°C]</td>
<td>10-14 ppm / °C</td>
<td>10-14 ppm / °C</td>
<td>IPC-TM-650.2.4.41</td>
</tr>
<tr>
<td>Z Axis CTE Alpha 1 [50°C to Tg]</td>
<td>48 ppm / °C</td>
<td>48 ppm / °C</td>
<td>IPC-TM-650.2.4.24</td>
</tr>
<tr>
<td>Z Axis CTE Alpha 2 [Tg to 260°C]</td>
<td>245 ppm / °C</td>
<td>245 ppm / °C</td>
<td>IPC-TM-650.2.4.24</td>
</tr>
<tr>
<td>Z Axis Expansion [50°C to 260°C]</td>
<td>2.5 %</td>
<td>2.5 %</td>
<td>IPC-TM-650.2.4.24</td>
</tr>
<tr>
<td>Young’s Modulus (X / Y)</td>
<td>3.0 / 3.7 psi x 10^6</td>
<td>2.1^10 / 2.5^10 GN / m^2</td>
<td>ASTM D3039</td>
</tr>
<tr>
<td>Poisson’s Ratios (X / Y)</td>
<td>0.14 / 0.17</td>
<td>0.14 / 0.17</td>
<td>ASTM D3039</td>
</tr>
<tr>
<td>Thermal Conductivity</td>
<td>.5 W / mK</td>
<td>.5 W / mK</td>
<td>ASTM E1461</td>
</tr>
<tr>
<td>Specific Heat</td>
<td>1.2 J / gK</td>
<td>1.2 J / gK</td>
<td>ASTM E1461</td>
</tr>
</tbody>
</table>

## Electrical Properties

**Dielectric Constant (Typical)**
- @ 2.5 GHz (Split Post Cavity): 3.7
- @ 10 GHz (Stripline): 3.5
- @ 10 GHz (Split Post Cavity): 3.7
- Dissipation Factor (Typical)
  - @ 2.5 GHz (Split Post Cavity): 0.004
  - @ 10 GHz (Stripline): 0.004
  - @ 10 GHz (Split Post Cavity): 0.004

## Thermal Properties

*Glass Transition Temperature (Tg)*
- DMA (°C) (Tan d Peak): ≥200 °C
- Degradation Temp (TGA) (5% wt. loss): 360 °C
- Pressure Cooker-60 min then solder dip @288°C until failure (max 10 min.)
  - 60 minutes
  - 60 minutes
  - 132 seconds
  - 132 seconds

## Chemical / Physical Properties

- Moisture Absorption: 0.15 wt. %
- Methylene Chloride Resistance: 0.50 % wt. chg.
- Density [50% resin content]: 1.97 g / cm³

---

*DMA is the preferred method for measuring Tg - other methods may be less accurate.*

---

Park Electrochemical Corp. is a global advanced materials company which develops and manufactures high-technology digital and RF/microwave printed circuit materials and advanced composite materials, parts and assemblies. The company operates under the Nelco®, Nelcote®, and Nova™ names.

All test data provided are typical values and not intended to be specification values. For review of critical specification tolerances, please contact a Nelco representative directly. Nelco reserves the right to change these typical values as a natural process of refining our testing equipment and techniques. Aeroglide™, CoreFix®, Easycure™, EP®, EF®, LD®, Mercurywave™, Nelco®, Nelcote®, Nova™, PeelCote™, RTFoil® and SI® are trademarks of Park Electrochemical Corp.

Nelco reserves the right to make changes without further notice to any products herein to improve reliability, function or design. Nelco does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights nor the rights of others. This disclaimer of warranty is in lieu of all warranties whether expressed, implied or statutory, including implied warranties of merchantability or fitness for a particular purpose.