DuPont 4597R is a phthalate and cadmium-free* solderable platinum/palladium/gold conductor for high density single and multilayer hybrids. It has excellent tin/lead solderability and exhibits high leach resistance on both alumina and dielectric.

**Product Description**

DuPont 4597R offers the following benefits:

- Phthalate and Cadmium free* solderable
- Excellent solder acceptance
- Improved backlight density
- High circuit density
- High reliability

*Phthalate and cadmium “free” as used herein means that these are not intentionally added to the referenced product. Trace amounts however may be present.

**Product Benefits**

When used on alumina or with DuPont multilayer dielectrics, DuPont 4597R offers the following benefits:

- Phthalate and Cadmium free* solderable
- Excellent solder acceptance
- Improved backlight density
- High circuit density
- High reliability

**Processing**

**Substrates**

Properties are based on test using 96% alumina substrates. Substrates of other compositions and from various manufacturers may result in variations in performance properties.

**Screen Printing Equipment**

A 200-mesh stainless steel screen with a 12µm (0.5 mil) emulsion thickness is recommended. Printing speeds up to 30 cm/s (12in/s) can be used.

**Drying**

Allow the wet print to level for 10-15 minutes at room temperature. Dry for 15 minutes at 150°C.

**Table 1**

<table>
<thead>
<tr>
<th>Test</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line Resolution (lines/spaces) [µm]</td>
<td>150/100</td>
</tr>
<tr>
<td>Fired Thickness (µm)</td>
<td>13 - 17</td>
</tr>
<tr>
<td>Resistivity (fired thickness) [mΩ/sq @ 10 µm]</td>
<td>30 – 100</td>
</tr>
<tr>
<td>Initial Adhesion (^1) (N)</td>
<td>≥ 20</td>
</tr>
<tr>
<td>Aged (^2) Adhesion (N)</td>
<td>≥ 14</td>
</tr>
<tr>
<td>Solder Acceptance (%)</td>
<td>≥ 97 on 5704, ≥ 95 on Alumina</td>
</tr>
<tr>
<td>Resistance to Solder Leaching (^3) on Alumina</td>
<td>≥ 15</td>
</tr>
</tbody>
</table>

\(^1\) (3x850°C fires/5sec dip/63Sn37/Pb @240°C)

\(^2\) At 150°C for 48 hrs

\(^3\) 10 sec dips @ 240°C 63Sn37Pb solder

**Composition Properties**

| Viscosity (Pa.s) (Brookfield HBT, SC04 14/6R [UC&SP], 10 RPM, 25°C) | 180 - 280 |
| Solids (1050°C) [%] | 80.1 – 81.4 |
| Coverage, cm²/g | 60-70 |
| Thinner | DuPont 9180R |

This table shows anticipated typical physical properties for DuPont 4597R based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.
Firing
Dried prints should be fired in a belt furnace. Use a 60-minute cycle with a peak temperature of 850ºC.

Storage and Shelf Life
Containers should be stored, tightly sealed, in a clean, stable environment at room temperature (<25°C). Shelf life of material in unopened containers is six months from date of shipment. Some settling of solids may occur and compositions should be thoroughly mixed prior to use.

Safety and Handling
For Safety and Handling information pertaining to this product, read the Material Safety Data Sheet (MSDS).