**Product Description**

DuPont 4597 is a cadmium-free* solderable 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 Benefits**

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

- Excellent solder acceptance
- High circuit density
- High reliability

*Cadmium “free” as used herein means that cadmium and lead are not an intentional ingredients in and are not intentionally added to the referenced product. Trace amounts however may be present.

**Processing**

**Substrates**

Properties are based on tests 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 (12 in/s) can be used.

**Drying**

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

**Firing**

Dried prints should be fired in a belt furnace. Use a 60-minutes cycle with a peak temperature of 850°C.

---

**Table 1**

**Typical Physical Properties**

<table>
<thead>
<tr>
<th>Test</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Line Resolution (µm) lines/space</td>
<td>150 / 100</td>
</tr>
<tr>
<td>Fired Thickness (µm)</td>
<td>13-17</td>
</tr>
<tr>
<td>Resistivity (mΩ/sq @ 15 µm)</td>
<td>30 - 100</td>
</tr>
<tr>
<td>Initial Adhesion¹</td>
<td>≥ 20</td>
</tr>
<tr>
<td>Aged² Adhesion(N)</td>
<td>≥ 15</td>
</tr>
<tr>
<td>Solder Acceptance (%)</td>
<td>≥ 97% (n 5704)</td>
</tr>
<tr>
<td></td>
<td>≥ 95% on alumina</td>
</tr>
<tr>
<td>Resistance to Solder Leaching³</td>
<td>≥ 15</td>
</tr>
</tbody>
</table>

¹ (3x850°C fires/5sec dip/63Sn/37/Pb @240C)
² At 150°C for 48 hrs
³ 10 sec dips @ 240°C 63Sn37Pb solder

These tables show anticipated typical physical properties for DuPont 4597 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

**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).

Table 2
Composition Properties

<table>
<thead>
<tr>
<th>Test</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity (Pa.S)</td>
<td>180 - 280</td>
</tr>
<tr>
<td>[HBT SC4-14/6R @ 10 rpm]</td>
<td></td>
</tr>
<tr>
<td>Solids (1050°C) [%]</td>
<td>80.1 - 81.4</td>
</tr>
<tr>
<td>Coverage (cm²/g)</td>
<td>60 - 70</td>
</tr>
<tr>
<td>Thinner</td>
<td>DuPont 9180</td>
</tr>
</tbody>
</table>

For more information on DuPont 4597 or other DuPont Microcircuit Materials products, please contact your local representative:

Americas
DuPont Microcircuit Materials
14 T.W. Alexander Drive
Research Triangle Park, NC 27709
Tel.: 800-284-3382

Europe
Du Pont (U.K.) Limited
Coldharbour Lane
Bristol BS16 1QD
U.K.
Tel.: 44-117-931-3191

Asia
DuPont Kabushiki Kaisha
Sanno Park Tower, 11-1
Nagata-cho 2-chome
Chiyoda-ku, Tokyo 100-611
Japan
Tel.: 81-3-5521-8650

DuPont Taiwan Ltd
45, Hsing-Pont Road,
Taoyuan, Taiwan 330
Tel.: 886-3-377-3616

DuPont China Holding Co. Ltd
Bldg 11, 399 Keyuan Rd., Zhangji Hi-Tech Park,
Pudong New District, Shanghai 201203, China
Tel.: 86-21-6386-6366 ext.2202

DuPont Korea Inc.
3~5th Floor, Asia tower #726,
Yeoksam-dong, Gangnam-gu
Seoul 135-719, Korea
Tel.: 82-10-6385-5399

E. I. DuPont India Private Limited
7th Floor, Tower C, DLF Cyber Greens,
Sector-25A, DLF City, Phase-III,
Gurgaon 122 002 Haryana, India
Tel.: 91-124-4091818

Du Pont Company (Singapore) Pte Ltd
1 HarbourFront Place, #11-01
HarbourFront Tower One,
Singapore 098633
Tel.: 65-6586-3022

http://www.mcm.dupont.com