**Product Description**
DuPont CB102 silver conductive via plug paste is used to provide high conductivity plateable vias for Plastic ball grid array (PBGA), buried via and sequential build-up board (SBU). DuPont CB102 offers greater flexibility and processing latitude for filling small diameter holes and can be applied to thin PWB’s. The improved processing capabilities allow DuPont CB102 to fill vias without the need of vacuum assistance.

**Product Benefits**
- High thermal conductivity allows use of drilled, filled vias as heat sinks improving thermal management
- Strong adhesion to copper and most laminate materials provides increased reliability
- Solvent-less composition provides broader curing window and reduced curing time.
- Simple application of material using screen printing techniques (160-280 mesh screen) reduces processing steps with minimal capital investment.
- Close CTE to board material (FR-4, BT resin) increases reliability
- High electrical conductivity of filled, buried vias allows reduced layer count and processing steps.
- No shrinkage, one part epoxy system provides reliability, planarization and ease of use.
- Solderability after plating provides increased use of board real estate by allowing via in pad technology

**Processing**
**Screen Printing Equipment**
Semi-automatic or manual printer. No vacuum assist required. Mesh screen or stencil can be used

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**Table 1**
**Typical Physical Properties**

<table>
<thead>
<tr>
<th>Test</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulk Resistivity (Ω/cm³)</td>
<td>1.8 X 10^-4</td>
</tr>
<tr>
<td>Abrasion Resistance, Pencil Hardness (H)</td>
<td>3 - 4</td>
</tr>
<tr>
<td>(ASTM D3363-74)</td>
<td></td>
</tr>
<tr>
<td>Specific Gravity (gt/cm³)</td>
<td>4.8</td>
</tr>
<tr>
<td>Viscosity (Pa.s)</td>
<td>85</td>
</tr>
<tr>
<td>(Brookfield HBT, 10 rpm, 25°C)</td>
<td></td>
</tr>
<tr>
<td>Thermal conductivity (W/mK)</td>
<td>3.27</td>
</tr>
<tr>
<td>Thinner</td>
<td>None</td>
</tr>
<tr>
<td>Platability (Cu plating)</td>
<td>Good in Electrolytic Ni/Au</td>
</tr>
<tr>
<td>(Ni/Au electrolytic plating possible)</td>
<td></td>
</tr>
</tbody>
</table>

This table shows anticipated typical physical properties for DuPont CB102 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

**Substrates**
Epoxy glass, BT resin

**Ink Residence Time on Screen**
>1 hr

**Screen or Stencil Types**
160-280 stainless steel or polyester mesh screen or 3 - 4 mil stainless steel stencil recommended

**Typical Cure Conditions**
150 deg C for 60 minutes

**Clean up Solvent**
Axarel®, Isopropanol, Ethylene diacetate
**Process Recommendations**

- Copper Clad Board
- Drill Through-holes
- Plate Through-holes
- Fill Via Plug Material (Cure 150°C for 60 min.)
- Scrubbing for Planarization (Sander or Buff Roller)
- Electrolytic Plating (Cu, ni, 5-10 microns)
- Print & Etch Process

**Environmental Properties**

<table>
<thead>
<tr>
<th>Glass Transition Temperature</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMA 1 Hz</td>
</tr>
<tr>
<td>DMA 10 Hz</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thermal Expansion</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMA a1</td>
</tr>
<tr>
<td>TMA a2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Solder Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>260°C/ 20 sec, 2X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chemical Resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>10% H₂SO₄</td>
</tr>
<tr>
<td>10% NaOH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Water Absorption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boiling water, 1hr</td>
</tr>
<tr>
<td>DI water, 23°C, 24 hrs</td>
</tr>
<tr>
<td>PCT 121C, 100% RH 24 hrs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Out Gassing: Test Method ASTM E595</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample I.D.</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>CB102</td>
</tr>
</tbody>
</table>

TML is well below the normal acceptance of 1.0%
CVCM is below the normal acceptance level of 0.10%
**Storage and Shelf Life**
Containers should be stored, tightly sealed, in a clean, refrigerated environment (0-5°C). Shelf life of material in unopened containers is three 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).

For more information on DuPont CB102 or other DuPont Microcircuit Materials products, please contact your local representative:

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