Polymeric dielectric composition DuPont 5018A is a colorless UV curable, solvent less, screen printable composition used in encapsulant and crossover applications for both rigid and flexible circuit manufacture. It offers the advantages of rapid cure and excellent processing latitude while maintaining excellent electrical and physical properties after cure, including excellent crosshatch adhesion to print-treated and good adhesion to non-print-treated PET substrate and conductor. It is fully compatible with DuPont’s 5000’s Series conductor compositions.

Product Benefits
- Best insulating UV cure dielectric

Processing
- Screen Printing Equipment
  Semiautomatic and manual
- Substrates
  Polyester, polyimide, epoxy glass
- Ink Residence Time on Screen
  > 2 hours
- Screen Types
  Polyester, stainless steel
- Optimum Cure Conditions for Flexibility
  40 ft/min in air¹
  500 - 1500 mJ/cm²*
- Typical Thickness (after cure) Printed with
  200 - 280 mesh stainless steel screen
  1– 1.2 mil
Two prints of dielectric are strongly recommended to achieve maximum circuit reliability.

### Table 1
#### Typical Physical Properties

<table>
<thead>
<tr>
<th>Test</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adhesion Crosshatch (B) (ASTM D3359-78)</td>
<td>No transfer (5)</td>
</tr>
<tr>
<td>Dielectric to Polyester Scotch Tape #600</td>
<td></td>
</tr>
<tr>
<td>Conductor to Dielectric</td>
<td>No transfer</td>
</tr>
<tr>
<td>Abrasion Resistance, Pencil Hardness (H) (ASTM D3363-74)</td>
<td>≥1</td>
</tr>
<tr>
<td>Operating Use Temperature (°C) (dependent on conductor)</td>
<td>At least 70</td>
</tr>
<tr>
<td>Flexibility (180° crease over DuPont 5007)</td>
<td>No opens</td>
</tr>
<tr>
<td>Breakdown Voltage (V/mil DC) (ASTM D150)</td>
<td>≥ 500</td>
</tr>
<tr>
<td>Dielectric Constant (at 1kHz) (ASTM D150)</td>
<td>4.4</td>
</tr>
<tr>
<td>Insulation Resistance (GΩ/sq/mil)</td>
<td>&gt; 10</td>
</tr>
<tr>
<td>Change in Physical Properties after Environmental Tests*</td>
<td>Insignificant</td>
</tr>
<tr>
<td>Change in Insulation Resistance after Environmental Tests*</td>
<td>May drop up to one order of magnitude</td>
</tr>
</tbody>
</table>

¹RPC Industries “QC” Processor Model 1202 AN, with the 200 W/in medium-pressure mercury vapor lamps. Since cure conditions govern characteristics, customers should establish the cure rate required to produce optimum combination of flexibility and hardness.

*0.500 - 1.500, joules using International Light IL390B Light Bug or UV Process Supply Con-Trol-Cure® Compact Radiometer, or 0.100 - 0.300 joules, using Electronic Instrumentation & Technology Inc. UR 365 CHI Radiometer

Table 1 & 2 show anticipated typical physical properties for DuPont 5018A 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
DuPont thick film polymeric compositions should be stored at ambient temperatures. The shelf life of material in unopened containers is a minimum of six months from date of shipment. UV curable compositions such as DuPont 5018A should be stored away from heat and light.

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

<table>
<thead>
<tr>
<th>Test</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity (Pa.s)</td>
<td>15 - 30</td>
</tr>
<tr>
<td>(Brookfield ½RVT, 10 rpm, #14 spindle, 25°C)</td>
<td></td>
</tr>
<tr>
<td>Solids (150°C) (%)</td>
<td>100</td>
</tr>
<tr>
<td>Coverage (cm²/g)</td>
<td></td>
</tr>
<tr>
<td>(Dependent on print thickness)</td>
<td>500</td>
</tr>
<tr>
<td>0.45 mil coating given by</td>
<td>375</td>
</tr>
<tr>
<td>280-mesh polyester</td>
<td></td>
</tr>
<tr>
<td>0.6 mil coating given by</td>
<td>290</td>
</tr>
<tr>
<td>230-mesh polyester</td>
<td></td>
</tr>
<tr>
<td>1.0 mil coating given by</td>
<td>240</td>
</tr>
<tr>
<td>280-mesh stainless steel</td>
<td></td>
</tr>
<tr>
<td>1.1 mil coating given by</td>
<td></td>
</tr>
<tr>
<td>200-mesh stainless steel</td>
<td></td>
</tr>
<tr>
<td>Thinner</td>
<td>Not recommended</td>
</tr>
<tr>
<td>Density, g/cm³</td>
<td>1.28</td>
</tr>
<tr>
<td>Color</td>
<td>Colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>Slight, pleasant</td>
</tr>
</tbody>
</table>

Table 2
Composition Properties

For more information on DuPont 5018A 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://mcm.dupont.com
Caution: Do not use in medical applications involving implantation in the human body or contact with internal body fluids or tissue unless the product is provided by DuPont under a formal written contract consistent with the DuPont Policy Regarding Medical Applications of DuPont Materials H-50103-2 ("Medical Applications Policy") and which expressly acknowledges the contemplated use. For additional information, please request a copy of DuPont Medical Caution Statement H-50102-2 and the DuPont Medical Applications Policy.

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