THICK FILM MATERIALS

Dielectrics for Aluminum Substrates

Description

IP6080A, part of the Celcion material system, is a cadmium free single part dielectric paste which produces a dense, grey, hermetic fired film. IP6080A is compatible with 3000 and 6000 grade aluminum substrates. Its unique glass system dramatically reduces bowing on aluminum while providing high breakdown strength up to 75 µm of dielectric. It is compatible with C8829A and C8829D Ag conductors.

Key Benefits

- REACH¹ and ROHS² compliant
- Excellent electrical properties
- High breakdown voltage
- Compatible with Aluminum substrates

Typical Properties

Dielectric Constant
< 20 at 1 KHz

Dissipation Factor
< 0.5 % at 1 KHz

Insulation Resistance
> 10⁹ Ω at 100 DC

Breakdown Voltage
> 1000 V DC per mil
(2 individually fired layers)

Bowing Deflection
2 PDF layers – 2” x 2” Al substrate (full coverage print)
< 0.0180 inch on 2mm 3003 – H14 aluminum alloy
< 0.0042 inch on 2mm 6061 – T6 aluminum alloy

Viscosity
40 – 80 Kcps, Brookfield RVT,
SC4-14 spindle with 6R utility cup at 10 rpm, 25 °C

Solids
72.0 ± 2.0 %

Recommended Processing Guidelines

Printing
165 mesh stainless steel screen
0.5 mil emulsion thickness
Allow wet prints to level at room temperature for 10 minutes before drying
Three individually fired layers with a total thickness of at least 50 µm will be necessary to achieve the optimum performance level

Coverage
155 cm²/g at 40 µm wet film thickness

Drying
150 °C for 15 minutes

Firing
570 °C as measured on substrate
Dwell time of 2 – 20 minutes, dependent on application/substrate mass

Thickness

<table>
<thead>
<tr>
<th></th>
<th>Dried:</th>
<th>Fired:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>35 – 40 µm (1 layer)</td>
<td>25 – 30 µm (1 layer)</td>
</tr>
<tr>
<td></td>
<td>50 – 60 µm (2 layers)</td>
<td></td>
</tr>
</tbody>
</table>

Thinner
RV-507

Warranty
Material guaranteed to meet specifications for 6 months from date of shipment.

Storage
Store in a dry location at 5 – 10 °C to ensure proper performance of shelf life.
Allow paste to come to room temperature prior to opening. Spatulate well before using.
The descriptions and engineering data shown here have been compiled by Heraeus using commonly accepted procedures, in conjunction with modern testing equipment, and have been compiled as according to the latest factual knowledge in our possession. The information was up to date on the date this document was printed (latest versions can always be supplied upon request). Although the data is considered accurate, we cannot guarantee accuracy; the results obtained from its use, or any patent infringement resulting from its use (unless this is contractually and explicitly agreed in writing, in advance). The data is supplied on the condition that the user shall conduct tests to determine materials suitability for particular applications.

** See the data sheet issue date (DD/MM/YY) as reference of validity of latest edition which is available on request