

DuPont 5704

MULTILAYER DIELECTRIC

Technical Data Sheet

Product Description

DuPont 5704 is a screen printable dielectric for use in multilayer circuits as an insulator between conductor layers. It prints up to 15 cm/sec squeegee speed and fires to a pinhole-free smooth surface.

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

Print individual dielectric layers with a 200 or 325 mesh stainless steel screen. A 325 mesh screen is recommended for best via resolution. The total thickness of the fired dielectric should be at least 40 μm (1.6 mil). Three separate printings of DuPont 5704 may be necessary to achieve this fired thickness when 325 mesh screens are used. Printing speeds up to 15cm/s(6 in/s) can be achieved. Use a double wet squeegee pass to minimize pinholes.

Drying

Allow the wet print to level for 5-10 minutes at room temperature. Dry 10 - 15 minutes at 150°C.

Firing

Each dielectric print should be fired separately in a belt furnace. Use a 30 or 60 minute cycle with a peak temperature of 850°C for 10 minutes.

Typical Physical Properties

Test	Properties
Fired Thickness (μm) (3 fired layers, 325-mesh screen)	45 - 50
Dielectric Constant (K)	8 - 10
Dissipation Factor(%)	< 0.5
Insulation Resistance (ohms at 100 VDC)	> 10^{12}
Breakdown Voltage (VDC/25 μm)	> 400 (1.0 mil)
Composition Properties	
Viscosity (Pa.s) (Brookfield HBT, SC-4-14/6r, 10 rpm, 25°C)	150-250
Solids (%)	73 - 75
Coverage ¹ , cm ² /g	60-70 (9-11 in ² /g)
Thinner	DuPont 8672
<small>*value based on 50 μm [2 mil] wet film thickness)</small>	

This table shows anticipated typical physical properties for DuPont 5704 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

Yield and performance will depend to a large degree on the care exercised during processing, particularly in screen printing. Care should be given to keeping the dielectric composition, printing screens and other tools free of metal contaminations. Dust, lint and other particular matter may also contribute to poor yields.

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).

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