

DuPont 4141A

DIELECTRIC COMPOSITION

Technical Data Sheet

Product Description

DuPont 4141A dielectric is a low-k value composition, designed to be fired using a 900°C profile.

Design notes

Design should limit the number of refires to 7 when used with silver, and to 15 when used with gold.

Compatibility

Testing was done with DuPont QG150, DuPont 5715 and DuPont 5771. While they all work well, DuPont 5771 offers the best results.

Processing

Thinner

This composition is optimized for screen printing, thinning is not normally required. Use the DuPont recommended thinner for slight adjustments to viscosity or to replace evaporation losses. The use of too much thinner or the use of a non recommended thinner may affect the rheological behavior of the material and its printing characteristics.

Printing

The composition should be thoroughly mixed before use. This is best achieved by slow, gentle, hand stirring with a clean, burr-free, hard rubber spatula for 1-2 minutes. Care must be taken to avoid air entrapment. Printing should be performed in a clean and well ventilated area. A 280 or 325-mesh screen with 3 prints is recommended. Note: Optimum printing characteristics are generally achieved in the room temperature range of 20°C - 23°C. It is therefore important that the material, in its container, is at this temperature prior to commencement of printing.

Typical Physical Properties

Test	Properties
Fired Thickness (µm)	45-55
Insulation Resistance (Ω/sq)	>10 ¹²
Dielectric Constant (K)	3.9 - 4.6
Dissipation Factor (%)	< 0.5
Break Down Voltage (kV)	≥ 1 @ 25 µm
Composition Properties	
Viscosity (Pa.s) [Brookfield 2xHAT, 10 rpm, #14 spindle&UC, 25°C)	280-380
Solids (%)	71 - 73
Coverage (cm ² /g/mil) ¹	80-100
Thinner	DuPont 9450
<small>¹ based on 50 µm dried thickness</small>	

This table shows anticipated typical physical properties for DuPont 4141A based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

Drying

Allow prints to level 10 minutes at room temperature. Dry in a well ventilated oven or conveyor dryer for 15 minutes at 150°C.

Firing

Fire in a well ventilated belt, conveyor furnace, or static furnace. Fire using a 60 minute cycle in air. The peak temperature is held at 900°C for 10 minutes.

General

Performance will depend to a large degree on care exercised in screen printing. Scrupulous care should be taken to keep the composition, printing screens and other tools free of metal contamination. Dust, lint and other particulate 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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