

DuPont QS420

CROSSOVER DIELECTRIC

Technical Data Sheet

Product Description

DuPont QS420 crossover dielectric is a screen-printed, air-fired dielectric material used as an insulating layer to prevent shorting between two crossing conductor lines.

Compatibility

DuPont QS420 may be used with DuPont QM21 3:1 silver/palladium conductor, DuPont 7484 3:1 silver/palladium conductor, DuPont 6277 6:1 silver/palladium conductor, DuPont QS175 silver conductor and DuPont QS171 silver/platinum conductor if the conductor and DuPont QS420 prints are fired sequentially. Although DuPont has tested this composition with the specified materials using the recommended processing conditions, it was not possible to evaluate all designs, processing conditions, and materials. Users should confirm the acceptability of the product for their requirements and process.

Processing

Thickness

Two layers of DuPont QS420 crossover dielectric at a fired thickness of 35µm are required for an effective barrier between conductor lines.

Substrates

Properties are based on tests on 96% alumina substrates. Substrates of other compositions and from various manufacturers may result in variations in performance properties.

Printing

Prior to use, stir thoroughly with a burr free plastic spatula. Exercise care to avoid entrapping air bubbles. Printing is best done in a clean, well-ventilated room at 20-23°C. Print with a 200 mesh or 325 mesh stainless steel screen with 0.5 mil emulsion. Test parts were printed at a squeegee speed of 6-8 in/sec. The printing behavior suggested higher speeds may be attainable.

Typical Physical Properties

Test	Properties
Breakdown Voltage (VDC)	≥1500
Dielectric Constant	9 - 11
Insulation Resistance	> 1 x 10 ¹²
Composition Properties	
Viscosity (Pa.s) (Brookfield HBT, UC&S (SC4-14/6R), 10 rpm, 25°C ± 0.2°C)	130 -170
Thinner	DuPont 9180
Coverage (cm ² /g) (fired thickness 35µm)	50-65

This table shows anticipated typical physical properties for DuPont QS420 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 for 5-10 minutes at room temperature (20-23°C), in a clean, draft free area or cabinet before drying for 10-15 min at 150°C in a well-ventilated oven or dryer.

Firing

Fire in a well ventilated moving conveyor furnace, in an oxidizing (air) atmosphere using a 30-min, 850°C peak temperature profile. The air supply should be clean and dry. The presence of halogens, sulfur, or oil in the furnace air will diminish fired properties. Proper exhausting of burnout gases is important to achieve maximum properties.

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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