

DuPont 9544

CROSSOVER DIELECTRIC

Technical Data Sheet

Product Description

DuPont 9544 is a filled, crystallizable screen printed thick film dielectric composition. It is a versatile dielectric intended for use in low cost crossover applications.

Product Benefits

- Broad conductor compatibility (gold, silver and mixed metal)
- Thin, 2 print, hermetic dielectric film for protection against environmental conditions, and mechanical abrasion.
- Highly resistant to EMF (electro-motive force) blistering and shorting
- Robust electrical and mechanical properties.
- Compatible with cofired conductors

Design Notes

For optimum yield in the most demanding applications, it is recommended that a fired thickness of 30 μm or greater is achieved between conductor layers.

Processing Substrates

Substrates of different compositions and from various manufacturers may result in variations in performance properties.

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. Refer to table 1.

Typical Fired Properties

Test	Properties
Total Fired Thickness [μm]	≥ 30
Dielectric constant [@ 1 MHz]	7 - 11
Dissipation Factor [@ 1 MHz]	<0.5%
Leakage Current ² [$\mu\text{A}\cdot\text{cm}^2$]	<1
Insulation Resistance	$>10^{12}$ @ 100VDC
Breakage Voltage	> 1000 V/30 μm

Composition Properties

Viscosity [Pa.s] Brookfield HBT, UC&SP (SC4-14/6R), 50 rpm, 25°C \pm 0.2°C	55 - 120
Coverage [cm^2/g] (based on an average fired thickness of 14 μm)	110 - 130
Thinner	DuPont 4553

Notes

² Standard measurements made after 5 minutes at 10 VDC

This table shows anticipated typical physical properties for DuPont 9544 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

Printing

The composition should be thoroughly mixed before use. This is best achieved by slow, gently, hand stirring with a clean burr-free spatula (flexible plastic) for 30 seconds. Care must be taken to avoid air entrapment. Printing should be performed in a clean and well ventilated area.

Processing Conditions

Printing

230 to 280 stainless steel screen, at a print speed of 15cm/sec

Drying

Allow prints to level for 10 - 15 minutes at room temperature, then dry for 10 - 15 minutes at 150°C.

Firing

850°C peak held for 10 minutes on 30 minute cycle in an air atmosphere. Fire in a well ventilated belt, conveyor furnace, or static furnace. Air flows and extraction rates should be optimized to ensure that oxidizing conditions exist within the muffle.

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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