

# Micromax<sup>TM</sup> 9544

## **Electronic Inks and Pastes**

#### Crossover Dielectric

Micromax<sup>TM</sup> 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.
- High resistant to EMF (electro-motive force) blistering and shorting.
- · Robust electrical and mechanical properties.
- · Compatible with cofired conductors.

#### **Product information**

Solvent or thinner Micromax™ 4553

## Rheological properties

Viscosity 55 - 120<sup>[1]</sup> Pa.s

[1]: Brookfield HBT, UC&SP, SC4-14/6R, 50 rpm, 25 °C  $\pm$  0.2 °C

#### Application technique

[2]: based on an average fired thickness of 14µm

[3]: total fired thickness

## Electrical properties

 $\begin{array}{lll} \mbox{Dielectric Constant} & 7 - 11^{[4]} \\ \mbox{Dissipation Factor} & \leq 0.5^{[4]} \ \% \\ \mbox{Insulation Resistance, DC} & \geq 1E12^{[5]} \ \mbox{Ohm} \\ \mbox{Surface Leakage Current} & \leq 1^{[6]} \ \mu\mbox{A/cm}^2 \\ \mbox{Breakdown Voltage} & \geq 1600^{[7]} \ \mbox{V} \end{array}$ 

[4]: at 1 KHz [5]: at 100 VDC

[6]: Standard measurements made after 5 min at 10 VDC

[7]: at 30µm

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## Storage and stability

Shelf life 6<sup>[8]</sup> months

[8]: in unopened containers, from date of shipment, at temperature <25°C

#### Additional information

How to use

# Design & compatibility

#### Design

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

# **Processing**

#### Substrates

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

#### Printing

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

#### Thinning

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

#### 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.

## **Properties**

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 Information in this datasheet shows anticipated typical physical properties for Micromax<sup>TM</sup> 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.

### 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 Safety Data Sheet (SDS).

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