Micromax™ 9544

Electronic Inks and Pastes

Crossover Dielectric

Micromax™ 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[1]	Pa.s

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

Application technique

Mask mesh	230 - 280	
Drying time	10 - 15	min
Drying temperature	150	°C
Theoretical coverage	110 - 130[2]	cm^2/g
Recommended film thickness, fired	≥30[3]	µm
Leveling time	10 - 15	min

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

[3]: total fired thickness

Electrical properties

Dielectric Constant	7 - 11[4]	
Dissipation Factor	≤0.5[4]	%
Insulation Resistance, DC	≥1E12[5]	Ohm
Surface Leakage Current	≤1[6]	$\mu A/cm^2$
Breakdown Voltage	≥1600[7]	V

[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[8] 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™ 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™ 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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