Celanese
The chemistry inside innovation™

Micromax™ 9C612

Electronic Inks and Pastes

Silver Cofireable Conductor

Micromax™ 9C612 is a cofireable internal and external signal line conductor composition, compatible with Micromax™ GreenTape™ 9KC low temperature co-fired ceramic system, targeting telecom application under 5G domain. It provides excellent refire dimensional and resistive stability.

Product benefits

When used with Micromax™ GreenTape™ 9KC low temperature co-fired ceramic system and compatible pastes, Micromax™ 9C612 offers the following benefits:

- Low resistivity
- High reliability
- High yields
- Cofire processing
- Phthalate, Cadmium, Nickel oxide free*

* Cadmium, Nickel and Phthalate 'free' as used herein means that cadmium, nickel and phthalate are not intentional ingredients in and are not intentionally added to the referenced product. Trace amount however may be present.

Product information

Solvent or thinner	Micromax™ 8250	
Solid content	81.1 - 84.1	%

Rheological properties

Viscosity	150 - 300[1]	Pa.s

[1]: Brookfield 2xHAT, UC&S, 10 rpm

Application technique

Mask mesh	325	
Mask emulsion	12	µm
Drying time	5	min
Drying temperature	120	°C
Theoretical coverage	80 - 90	cm^2/g
Recommended film thickness, dried	15 - 18	µm
Recommended film thickness, fired	9 - 12	µm
Print resolution, lines	125[2]	µm
Print resolution, spaces	125[2]	µm

[2]: Dried Line Resolution

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Electrical properties

Surface resistivity	≤5	mOhm per square

Storage and stability

Shelf life	6[3]	months

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

Additional information

How to use

Design & compatibility

- Design
  - For detailed recommendations on use of Micromax™ GreenTape™ 9KC and conductors such as Micromax™ 9C612, see the Micromax™ GreenTape™ 9KC Design Guide Addendum and Micromax™ GreenTape™ 9KC Product Data Sheet. For compatible co-fired and post fired conductor compositions, consult your Micromax™ representative.

Processing

- Printing
  - The composition should be thoroughly mixed before use. This is best achieved by slow, gentle hand stirring with a clean burr-free spatula (flexible plastic or stainless steel) for about 1-2 minutes. Care must be taken to avoid air entrapment. Printing should be performed in a clean and well-ventilated area.
  - Note : Optimum printing characteristics are generally achieved in the room temperature range of 20°C - 23°C. It id therefore important that the material, in its container, is at the temperature prior to commencement of printing. Viscosity, and therefore printability, of thick film compositions can be affected by ambient temperatures.
  - Print Micromax™ 9C612 directly onto unfired Micromax™ GreenTape™ 9KC using thick film printing methods and a vacuum stone or other support structure that uniformly distributes vacuum. A 325 mesh stainless steel screen with 12µm emulsion is standard.
- Clean-up solvent
  - 1-Propoxy-2-Propanol
- Drying
  - Dry in air in a well-ventilated oven or conveyor dryer for 5 minutes

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at 120 °C. Do not over-dry. See material Safety Data Sheet for additional information.

- Lamination and firing
  - Laminate multiple sheets of Micromax™ GreenTape™ 9KC onto which Micromax™ 9C612 has been printed according to processing parameters detailed in the Micromax™ GreenTape™ 9KC Design Guide Addendum and on the Micromax™ GreenTape™ 9KC Product Data Sheet. Consult these documents as well for details of the recommended Micromax™ GreenTape™ 9KC firing profile for belt or box air furnaces.

Properties

- Information in this datasheet shows anticipated typical physical properties for Micromax™ 9C612 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

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 Safety Data Sheet (SDS).