

Micromax™ 6146A

Electronic Inks and Pastes

Silver/Palladium Cofireable Solderable Conductor

Micromax™ 6146A is an external solderable cofireable silver/palladium conductor compatible with Micromax™ GreenTape™ 951/LF95C low temperature co-fired ceramic material system. Micromax™ 6146A is ideally suited applications requiring excellent solder acceptance.

Product benefits

When used with Micromax™ GreenTape™ 951/LF95C and compatible via fill pastes, Micromax™ 6146A offers the following benefits:

- High reliability High yields
- High circuit density
- Superior solder acceptance
- Cofire processing
- Cadmium, Lead, Nickel and Phthalate free*

*Cadmium, Lead, Nickel and Phthalate 'free' as used herein means that cadmium, lead, 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	68.6 - 70.6 ^[1] %
[1]: 1050 °C	

Rheological properties

Viscosity	190 - 250 ^[2] Pa.s
[2]: Brookfield HBT, UC&SP, 10 rpm, 25 °C	

Application technique

Mask mesh	325
Mask emulsion	12 µm
Drying time	5 min
Drying temperature	120 °C
Theoretical coverage	60 - 70 ^[3] cm ² /g
Recommended film thickness, dried	12 - 17 µm
Recommended film thickness, fired	8 - 12 µm
Print resolution, lines	125 ^[4] µm
Print resolution, spaces	125 ^[4] µm

[3]: calculated at a wet thickness of 25µm

[4]: Dried Line Resolution

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Electrical properties

Surface resistivity $\leq 35^{[5]}$ mOhm per square

[5]: at 13µm dried film thickness

Storage and stability

Shelf life $6^{[6]}$ months

[6]: 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™ 951/LF95C and conductors such as Micromax™ 6146A, see the Micromax™ GreenTape™ 951/LF95C Product Data Sheet.

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 1-2 minutes. Care must be taken to avoid air entrapment.
- Printing should be performed in a clean and well-ventilated area. Optimum printing characteristics are generally achieved in the room temperature range of 20-23°C. Viscosity, and therefore printability, of thick film compositions can be affected by ambient temperatures.
- Print Micromax™ 6146A directly onto unfired Micromax™ GreenTape™ 951/LF95C low temperature co-fired ceramic system 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.

- Thinning

- Thinning thick film compositions is not recommended as material is supplied formulated for optimal performance. Improper thinning may affect printing characteristics. Thinner may be added to replenish solvent lost during normal usage but care should be taken to not over-thin.

- Clean-up solvent

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- 1-Propoxy-2-Propanol
- **Drying**
 - Dry in air in a well-ventilated oven or conveyor dryer for 5 minutes at 120°C. Do not over-dry.
- **Lamination and firing**
 - Laminate multiple sheets of Micromax™ GreenTape™ 951/LF95C onto which Micromax™ 6146A has been printed according to processing parameters detailed in the Micromax™ GreenTape™ 951/LF95C Design Guide and Product Data Sheet.
 - Consult these documents as well for details of the recommended Micromax™ GreenTape™ 951/LF95C firing profile for belt or box air furnaces.

Properties

- Information in this datasheet shows anticipated typical physical properties for Micromax™ 6146A 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).