

# Micromax<sup>TM</sup> PE510

## **Electronic Inks and Pastes**

#### **Copper Conductor**

Micromax<sup>TM</sup> PE510 Copper Conductor is used as an alternative to pure silver conductor inks to produce low-voltage circuitry on a wide range of substrates for Printed Electronic and RFID/Antenna applications. Micromax<sup>TM</sup> PE510 is designed to be processed using photonic-curing equipment and optimized curing profiles available from a number of manufacturers.

#### **Product benefits**

- High conductivity
- High-speed curing process
- Additive process RFID/antennas vs etched Cu
- · Long lamp life for photonic systems

#### **Product information**

Solvent or thinner	Micromax™ 3610
Density	3.2 g/cm <sup>3</sup>
Solid content	76 - 80 <sup>[1]</sup> %
[1]: 150°C	

### Rheological properties

Viscosity	10 - 40 <sup>[2]</sup> Pa.s
[2]: Brookfield 0.5xRVT, #14 spindle, 10 rpm, 25°C	

## Application technique

Mask mesh	325 - 400 <sup>[3]</sup>	
Drying time	2 - 10	min
Drying temperature	• • • • • • • • • • • • • • • • • • • •	°C
Theoretical coverage	180 <sup>[4]</sup>	cm <sup>2</sup> /g
Recommended film thickness, dried	6 - 10	μm

[3]: Screen Types: Stainless steel

[4]: at 10 $\mu$ m, in the case of at 6 $\mu$ m, 250 cm<sup>2</sup>/g

#### Typical mechanical properties

Adhesion, cross hatch	4B <sup>[၁]</sup>	class
[5]: Slight Haze 4, ASTM D3359-78, w/3M Scotch Tage 600		

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#### **Electrical properties**

Surface resistivity ≤35<sup>[6]</sup> mOhm per square

[6]: at 25.4μm, @ 9μm w/Substrate /Typical Photonic Curing Profiles FR4 Epoxy

#### Storage and stability

Shelf life 6<sup>[7]</sup> months

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

#### Additional information

How to use

#### Photonic processing and substrates

 Micromax<sup>TM</sup> PE510 has good electrical and physical performance on several types of substrates, using the latest photonic curing equipment. The performance of Micromax<sup>TM</sup> PE510 will vary according to substrate type and thickness, and the customized lamp energy output and pulse profiles as recommended by equipment manufacturers.

### **Processing**

- Substrates
  - · Low-loss epoxy-type; FR4
  - Polyimide; PVC for smart cards
  - Glass; polyester film
- Screen types
  - 400-325 wire/inch stainless steel mesh
  - o 156-130 thread/cm polyester mesh
- Printing
  - · Automatic reel-to-reel
  - · Semi-automatic flat-bed
  - o Rotary screen/ cylinder screen
- Thinning
  - Thinning with Micromax<sup>TM</sup> 3610 may be desired in some cases depending on printing requirements.
- Clean-up solvent
  - Ethylene diacetate
- Drying
  - Dry at 80 °C oven for 2-10 minutes in a well-ventilated oven. Apply sufficient photonic energy under desired pulse profile to obtain best balance of resistivity and physical performance.
- Encapsulant
  - Micromax™ 5036

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#### **Electronic Inks and Pastes**

#### **Properties**

Typical Physical & Composition Properties

Test	Properties
Abrasion Resistance, Pencil Hardness (ASTM D3363-74) [H]	1

Information in this datasheet shows anticipated typical physical properties for Micromax<sup>TM</sup> PE510 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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