

Micromax™ ME201

Electronic Inks and Pastes

Carbon Conductor

Micromax™ ME201 is part of the Micromax™ suite of materials developed for In Mold Electronic applications. Micromax™ ME201 is a carbon conductive ink capable of withstanding thermoforming and overmolding temperatures.

Product benefits

- Flexible, conductive carbon composition for In Mold Electronics
- Excellent adhesion directly on Polycarbonate
- Excellent performance after thermoforming and injection molding

Product information

Solvent or thinner	Micromax™ 3610
Density	1.6 g/cm ³
Solid content	30 - 34 ^[1] %
[1]: 150 °C	

Rheological properties

Viscosity	40 - 75 ^[2] Pa.s
[2]: Brookfield RVT, #14 spindle, 10 rpm, 25 °C	

Application technique

Drying time	20 ^[3] min
Drying temperature	120 ^[3] °C
Theoretical coverage	200 - 400 ^[4] cm ² /g
Recommended film thickness, dried	8 - 12 µm
[3]: box oven	
[4]: 200 : at 10µm, 400 : at 5µm	

Typical mechanical properties

Adhesion, cross hatch	5B ^[5] class
[5]: ASTM D3359-78	

Electrical properties

Surface resistivity	≤750000 ^[6] mOhm per square	
Resistivity retention after crease, 180 °C, 1 cycle, 2kg	≤35 ^[7] %	ASTM F 1683
[6]: at 25.4µm, 5µm dried print thickness on ST505 PET Film		
[7]: ASTM F1683, 180 °, 1 cycle, 2kg		

Micromax™ ME201

Electronic Inks and Pastes

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

Processing

- **Substrates**
 - Polycarbonate, surface treated polyester
- **Screen types**
 - Polyester, stainless steel
- **Printing**
 - Reel-to-reel, semi-automatic or manual
- **Work life**
 - > 1 hour
- **Clean-up solvent**
 - Ethylene diacetate
- **Drying**
 - Box oven : 120°C for 20 minutes
 - Reel-to-reel : 120°C for 4 minutes
 - After printing, Micromax™ ME201 will interact with polycarbonate if left wet for extended periods. It is therefore recommended to dry as soon as possible after printing.
 - Drying is a critical processing step and in order to achieve optimum performance, sufficient temperature/time should be allowed to ensure complete removal of solvent.
 - Dry in a well-ventilated box oven or belt/conveyor furnace. Air flow and extraction rates should be optimized to ensure complete removal of solvent from the paste. A strong air flow may help to reduce the drying temperature combination. It will also aid in achieving the lowest as-printed resistance.
- **Thermoforming**
 - Thermoforming performance of Micromax™ ME201 can vary depending on the build structure, processing conditions, thermoforming technique, and equipment used. As such, parameters need to be assessed and optimized. If more precision is needed with printed symbols and structures, high pressure forming has shown to give more accuracy as it ensures more even stretch. Forming temperatures around 160°C can be used. Stretchability >50% can be achieved.

Properties

Micromax™ ME201

Electronic Inks and Pastes

Typical Physical Properties

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

Information in this datasheet shows anticipated typical physical properties for Micromax™ ME201 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).