# Micromax™ ME102

## Electronic Inks and Pastes

### Silver Conductor

Micromax™ ME102 is part of the Micromax™ suite of materials developed for In Mold Electronic applications. Micromax™ ME102 is a high conductivity silver ink capable of withstanding mild thermoforming.
This composition is ideal for antenna and feater applications, as well as interconnecting circuitry, enabling fully integrated 3-dimensional functional electronic devices.

### Product benefits

- High conductivity silver composition for In Mold Electronics
- Excellent adhesion directly on Polycarbonate
- Excellent performance after thermoforming and injection molding
- Excellent RFID – Antenna performance
- Compatible with Canatu CNB™ transparent conductive film

### Product information

| | | |
|---|---|---|
| Solvent or thinner | Micromax™ 3610 | |
| Solid content | 70.4 - 77.5[1] | % |

[1]: 150 °C

### Rheological properties

| | | |
|---|---|---|
| Viscosity | 30 - 50[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 | 150[4] | $cm^2/g$ |
| Recommended film thickness, dried | 5 - 10 | µm |

[3]: box oven

[4]: at 10µm

### Typical mechanical properties

| | | |
|---|---|---|
| Adhesion, cross hatch | 5B[5] | class |

[5]: ASTM D3359-78

### Electrical properties

| | | |
|---|---|---|
| Surface resistivity | ≤15[6] | mOhm per square |

[6]: at 25.4µm

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## Storage and stability

| | |
|---|---|
| Shelf life | 6[7] months |

[7]: 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
  - 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™ ME102 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 up to ~30% can be achieved.

## Properties

Typical Physical Properties

| Test | Properties |
|---|---|

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| | |
|---|---|
| Maximum Stretch Capability (1mm trace) (%) | ~ 30 |
| Abrasion Resistance, Pencil Hardness (ASTM D3363-74) [H] | 1 |

Information in this datasheet shows anticipated typical physical properties for Micromax™ ME102 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).



Revised: 2023-06-26 Source: Celanese Materials Database