

# DuPont™ ME101

## Silver Conductor

### Product Description

DuPont™ ME101 is part of the DuPont suite of materials developed for In Mold Electronic applications. ME101 is a silver conductive ink capable of withstanding thermoforming and overmolding temperatures. This composition can be used for Antenna applications and interconnecting circuitry enabling fully integrated 3-dimensional functional electronic devices.

### Product Benefits

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

### Processing Conditions

#### Substrates

Polycarbonate, surface treated polyester

#### Screen Printing Equipment

Reel-to-reel, semi-automatic or manual

#### Ink Residence Time on Screen

>1 Hour

#### Screen Types

Polyester, stainless steel

#### Typical Drying Conditions

Box oven: 120°C for 20 minutes

Reel-to-reel: 120°C for 4 minutes

#### Clean-Up Solvent

Ethylene diacetate

### Table 1 - Composition Properties

Test	Properties
Solids (%) @ 150°C	69.0 – 73.0
Viscosity (Pa.s) [Brookfield RVT, #14 Spindle 10 RPM, 25°C]	60 – 90
Dried Print Thickness (µm)	8 – 14
Thinner	DuPont™ 8260
Shelf Life (months)	6

### Table 2 - Typical Physical Properties

Test	Properties
Resistivity (mΩ/sq/mil)	~15
Coverage (cm <sup>2</sup> /g @ 10µm)	150
Abrasion Resistance [ASTM pencil hardness]	1H
Adhesion X-Hatch	No Transfer

Tables 1 and 2 show anticipated typical physical properties for DuPont™ ME101 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

### Drying

After printing, ME101 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 DuPont™ ME101 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.

## 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 the Material Safety Data Sheet (MSDS).



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For more information on DuPont™ ME101 or other DuPont products, please visit our website.

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