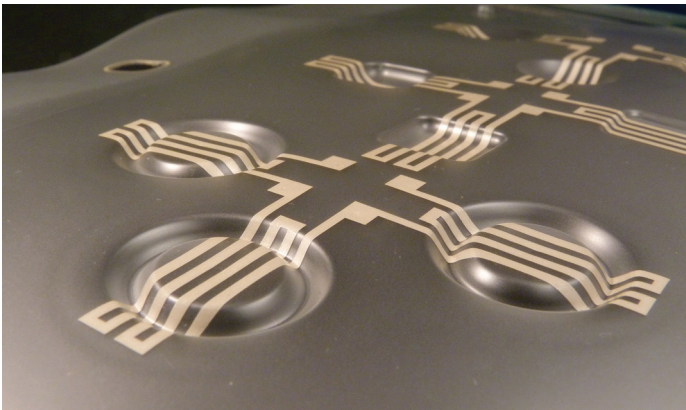


# DUPONT™ ME601

SILVER CONDUCTOR



## PRODUCT DESCRIPTION

ME601 is part of the DuPont suite of materials developed for In Mold Electronic applications. ME601 is a stretchable silver conductor capable of withstanding thermoforming and overmolding temperatures. This composition can be used for Capacitive Switch applications and interconnecting circuitry enabling fully integrated 3-dimensional functional electronic devices.

## PRODUCT BENEFITS

- Excellent adhesion on graphic inks
- Excellent performance after thermoforming and injection molding

## 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

## Typical Circuit Line Thickness

8 – 12 Microns

Printed with SD 56/36 (280mesh) stainless steel or 77 – 48 PET Screen

## Clean-Up Solvent

Ethylene glycol diacetate

**Table 1. Composition Properties**

| Test  | Properties   |
|---|--------------|
| Solids (%) @ 150°C  | 52.0 – 56.0  |
| Viscosity (Pa.s) [Brookfield 0.5 x RVT, #14 Spindle 10 RPM, 25°C] | 35 - 60      |
| Thinner   | DuPont™ 8265 |
| Shelf Life (months)   | 6            |

**Table 2. Typical Physical Properties**

| Test  | Properties |
|---|------------|
| Sheet Resistivity (mΩ/sq/mil)   | ≤35        |
| Resistivity after Thermoforming (mΩ/sq/mil)                           | ≤300***    |
| Coverage (cm <sup>2</sup> /g)<br>[using screen type 325 s/steel mesh] | 200        |
| Abrasion Resistance (H) [ASTM pencil hardness]                        | ≥H         |
| Adhesion (B) [ASTM x-hatch, no material removal]                      | 5          |

\*\*\*Results can vary some depending upon the degree of elongation after thermoforming.

Tables 1 and 2 show anticipated typical physical properties for DuPont™ ME601 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

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.



## DUPONT™ ME601 SILVER CONDUCTOR

### THERMOFORMING

Thermoforming performance of ME601 can vary depending on the build structure, processing conditions, thermoforming technique, and equipment used and 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).

### FOR MORE INFORMATION ON DUPONT™ ME601 OR OTHER DUPONT MICROCIRCUIT MATERIALS, PLEASE CONTACT YOUR LOCAL REPRESENTATIVE:

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CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see "DuPont Medical Caution Statement," H-50102-5 K-28950 (11/15)