

EN

Technical Data Sheet

**Bectron®**

**CP 6680**

Printed Electronics  
Thermoformable conductive silver ink

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## Description

Bectron® CP 6680 is a single component, thermal drying conductive silver ink for In-Mold Electronics.

Key Properties:

- Single component, no mixing required
- Solvent based
- Fast processing
- Very good screen open time
- Optimized for In-Mold Electronics
- Excellently thermoformable
- Low sheet resistivity
- Good adhesion to various substrates

## Areas of application

Bectron® CP 6680 is designed to be used in Printed Electronics applications such as thermoformed conductive tracks for In-Mold Electronics.

Compatibility with the following inks has been proven:

- Carbon ink Bectron® GP 9580
- Insulating ink Bectron® DP 8442
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- Conductive Silver ink Bectron® CP 6681

The material shows excellent adhesion to various substrates.

Material	Adhesion
PC film	+++
PET film untreated	+++
PET film treated	+++
ELAN-Film® HT 180	+++
Bectron® DP 8444	+++

## Processing methods

**Pre-treatment:** The components to be treated should be clean dry and free from grease. Compatibility between the silver ink and the substrates should be checked prior to use. Prior to application material shall be allowed to warm up to room temperature. Manual stirring before use is recommended. Avoid air entrapment during stirring.

**Application:** Bectron® CP 6680 can be applied by manual flat-bed and semi-automatic screen printing. Keep product container closed when it is not in use to prevent solvent evaporation. Do not return product to the original container. The characteristics of Bectron® CP 6680 after thermoforming depends on the process parameters such as temperature and strain. It is recommended to overprint the silver ink with a protective coating before performing injection molding.

**Screen printing equipment:** Semi-automatic, manual flatbed

**Screen types:** 70-100 1/cm stainless steel or polyester

**Printing Speed:** >140mm/s

**Tension:** 25 N/cm, EOM ~ 10-15µm

**Squeegee:** 75° Shore A, polyurethane at 70° angle

**Cleaning:** Universal solvent-based screen cleaner

**Used Screen:** For the values on page 4 in "Typical physical film properties" a Polyester Screen 71-48 was in use.

### **Curing/Post-curing/Drying**

Box oven: approx. 10 min at 120°C. A fast initial drying is recommended for good thermoforming results. May differ for other drying systems.

### **Storage and stability**

Product should be stored in its original sealed container to avoid any potential contamination at a temperature between 5°C and 25°C. Store accordingly to any specific instruction listed on the product label. Product should be used prior to the expiring date marked on the label. Solvent will evaporate when keeping the material at higher temperatures. This will create a negative impact to the printable characteristics.

### **Handling precautions**

Refer to the safety data sheet and comply with regulations relating to industrial health and waste disposal.

## Sales specifications

Properties	Conditions	Test Method	Value	M/U
Cross-cut test	23 °C	DIN EN ISO 2409 (Internal Test L42a)	ISO 0	
Appearance of the ink		Visual	Silver-grey	

## Typical application ink properties

Properties	Conditions	Test Method	Value	M/U
Shelf life	5 - 25 °C	Internal Test	3	months
Drying conditions	120 °C	Internal Test A26	10	min

## Typical physical ink properties

Properties	Conditions	Test Method	Value	M/U
Viscosity	23 °C - D=100/s, PP25	DIN 53019 (Internal Test V18/b/c)	17000 ÷ 21000	mPa·s
Density	21,5 °C	ISO 2811-2 (Internal Test S11)	2,55 ÷ 2,65	g/cm <sup>3</sup>
Coverage		Calculated	280 ÷ 300	cm <sup>2</sup> /g
Nonvolatile content	120 °C - 50 min - 1 g	DIN EN ISO 3251 (Internal Test T11b)	76 ÷ 78	%

## Typical physical film properties

Properties	Conditions	Test Method	Value	M/U
Sheet resistivity	Non-stretched	DIN EN 62899-2 (Internal Test U22)	25	mΩ/sq/mil
Resistivity	Initial state - track: 0.5mm x 100mm 10µm layer thickness	Internal Test U20	9	Ω
	50% stretched - track: 0.5mm x 100mm 10µm layer thickness		70	Ω

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