



Copper Inks for Printed Electronics

# PrintCB CopPair Technical Data Sheet (TDS)

## Two Part Copper Ink for Screen Printing Applications

### Product Description

PrintCB *CopPair* is a high conductivity, two-part, copper ink used for printing of circuitry and traces in printed electronics by means of screen printing.

### Product Benefits

- Excellent screen-printing properties
- Sinters in air using standard curing equipment (forced-air, IR etc.)
- Fit for printing on various plastic substrates (Treated or Untreated PET, PA, PEN, Epoxy, paper, glass, Aluminum etc.)

**Preparation:** shake the solution well before opening. Then, add its full volume to the metallic mixture. Mixing slowly at first and gradually increase speed till a uniform smooth paste is obtained.

The ink now ready for use. Watch ink preparation video [here](#).

- **Pot life:** once mixed, the ink should be within 24 hours
- **Screen printing:** using PE or SS screens, 400 mesh or lower
- **Curing process in forced-air conveyor/box oven:**
- 5 minutes at 150°C

\*curing profile is system configuration dependent and should be optimized locally

- **Resistivity:** 25-30 mΩ/□/25 microns
- **Average particle size:** 5 microns
- **Typical layer thickness for a single pass:** 15 microns



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### Composition properties:

- **Viscosity:** 5,000-10,000cP
- **Thinner:** not required
- **Solids content:** >80%
- **Storage and shelf life:** container should be stored, tightly sealed, in a dry environment. Shelf life is approximately 6 months.

### Recommended Screen properties:

- **Mesh:** 300 or smaller
- **Emulsion:** resistant to solvent – should be tested locally
- **Clean-up:** CPS SCREEN CLEANER Vx or similar\*

\*Combinations of solvents such as PnP and water can also be used for clean-up. Please chose emulsion accordingly.

## ***Application Notes***

### **Substrates**

CI-003 Copper Ink is compatible for printing on a wide variety of films such as the following:

- Treated PETs such as Du Pont Milenex 453, Autostat CT or similar
- Untreated PET and Mylar
- High gloss label papers (application in development)

Films should be heat stabilized.



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## Adhesion

Tested using 3M 610 Scotch tape

- Treated PETs: no transfer
- Untreated PET: no transfer
- Paper: no transfer

## Environmental Testing

Changes in electrical properties:

- Dry heat (+85°C, 10 days): <+15%
- Humidity (+40°C, 95% RH, 10 days): <+20%
- Thermal shock (-40°C to +150°C, 30 min per cycle, 1000 cycles): <+15%

## Flexibility

Optimal flexibility is obtained on 50 micron thick films.

Testing procedure: 1 mm wide line printed on a film is wrapped/unwrapped twice (720°) around an 8mm radius cylinder. Changes in resistance are recorded after 10 cycles.

	Film Thickness: 50 microns	Film Thickness: 100 microns	Film Thickness: 150 microns
Untreated PET	<20%	<40%	60%-80%
Treated PET	<20%	<40%	60%-80%

## WSoldering of Components

Once cured, components can be bonded to the ink using low-temperature (typically bismuth-tin) solder pastes and then reflowed, similar to SMT processing. To maintain good mechanical strength, adhesive-based bonding the component to the surface is highly recommended.

For further information please contact: [info@printcb.com](mailto:info@printcb.com)