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
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.
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.

<table>
<thead>
<tr>
<th></th>
<th>Film Thickness: 50 microns</th>
<th>Film Thickness: 100 microns</th>
<th>Film Thickness: 150 microns</th>
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</thead>
<tbody>
<tr>
<td>Untreated PET</td>
<td>&lt;20%</td>
<td>&lt;40%</td>
<td>60%-80%</td>
</tr>
<tr>
<td>Treated PET</td>
<td>&lt;20%</td>
<td>&lt;40%</td>
<td>60%-80%</td>
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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