CopPair Technical Data Sheet (TDS)
Two-Part Conductive 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 ActiveX solvent well before opening. Then, add its full volume to the MetalX powder, close the lead and shake well. Using a spatula start mixing in increasing sear till a uniform smooth paste is obtained. Let the ink rest 5 minutes - the ink is then ready for use. Watch ink preparation video here.
For small sample preparation, mix 1 gram of ActiveX with every 4.5 grams of MetalX.

- **Pot life:** once mixed, the ink should be within 48 hours
- **Screen printing:** using PE or SS screens, mesh 125 or lower
- **Curing process in forced-air conveyor/box oven:** 5 minutes at 150°C *

*Please note, the CopPair process is triggered by temperature, follow the curing profile above for optimal performance. Curing at lower temperatures harms the ink’s performance.

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

Composition properties:
- **Viscosity:** 7,000-10,000cP
- **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:** 125 or smaller
- **Emulsion:** resistant to solvent – should be tested locally before use
- **Clean-up:** multiple water/solvent cased cleaner are possible, test locally before use
**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.

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<td>50 microns</td>
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<td>Untreated PET</td>
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<td>Treated PET</td>
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**Soldering 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