

## Metalon® Conductive Inks for Printed Electronics

novacentrix.com

### Metalon® CI-004

#### Copper Inkjet Ink for Polyimide Substrates

##### Product Overview

CI-004 is a nanosized metallic copper formulation, dispersed in a polymeric matrix suitable for high resolution inkjet printing. CI-004 is formulated to provide excellent conductivity, flexibility and adhesion with polyimide. CI-004 can be used in a variety of printing equipment and can deliver drop sizes as low as 4 picolitres.

##### Applications

CI-004 ink is designed to be compatible with polyimide to fabricate electronic circuitry common in flexible printed circuit boards. Applications include: LED lighting, microelectronics, membrane switches, and sensors & antennas.

##### General Use, Storage and Shelf Life

The product should be kept sealed in its container and stored at room temperature (<25°C). The shelf life of unopened containers is six months from date of shipment.



CI-004 printed on polyimide after a reducing formic acid/argon atmosphere processed @250°C 45 minutes.

Before use, please ensure that the ink is mixed thoroughly for a few minutes taking care to avoid introducing air to the ink. Filter the ink ( $\leq 5 \mu\text{m}$  glass microfibre or nylon) prior to filling up the reservoir.

##### Safety and Handling

For safety and handling information, please refer to the Material Safety Data Sheet (MSDS).

<b>Typical Compositional Properties</b>	<b>Solids Content</b> (Weight %) ..... 20
	<b>Viscosity [cP]</b> (Brookfield DVE @ 10 rpm, 20°C) ..... ~ 30
	<b>Surface Tension [mN/m]</b> (Static) ..... 31
	<b>Density [g/ml]</b> ..... 1.15
<b>Typical Electrical &amp; Physical Properties (Sintered)</b>	<b>Bulk Resistivity</b> [ $\mu\Omega\text{-cm}$ ] ..... ~ 12
	<b>Adhesion</b> (ASTM D3359) ..... 5B



Contact us today to learn more.

For detailed application information or additional assistance: [inktechnicalsupport@novacentrix.com](mailto:inktechnicalsupport@novacentrix.com)  
 Ink can be ordered at [store.novacentrix.com](http://store.novacentrix.com)



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<b>Processing</b>	<b>Printing Equipment</b>	Industrial piezo inkjet print heads such as: Dimatix Sapphire, Konica Minolta KM512, Dimatix DMP2850-10 pl
	<b>Line Resolution</b>	As low as 50 µm @ 900 DPI <i>(Depending on deposition equipment and DPI)</i>
	<b>Line Thickness/Height</b> <i>(sintered)</i>	~ 500 nm <i>(Depending on drop volume)</i>
	<b>Substrates</b>	Designed for polyimide although others can be used
	<b>Clean up solvent</b>	Acetone, isopropanol
	<b>Surface Preparation</b>	Clean & dry, no grease or contaminants <i>(Plasma treatment can also be used)</i>
	<b>Typical Drying Conditions</b>	Can be dried in standard convection ovens and vacuum ovens @ 60°C, 30 – 60 minutes, <b>or</b> IR dryer @ 80°C, 15 minutes, <b>or</b> Forced air convection @ 80°C, 5 – 10 minutes
	<b>Typical Sintering Conditions</b>	Photonic sintering (NovaCentrix PulseForge®), <b>or</b> Laser – 808-1064nm, <b>or</b>  Reducing atmosphere of argon or nitrogen, with 3% formic acid vapor @ 250°C for 45 minutes dwell time
	<b>Shipping and Packaging</b>	Standard sample order is 100g or multiples of 100g. Bulk packaging is also available.



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