

## Metalon® Conductive Inks for Printed Electronics

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## Metalon® CI-004

### Copper Inkjet Ink for Polyimide Substrates

#### **Product Overview**

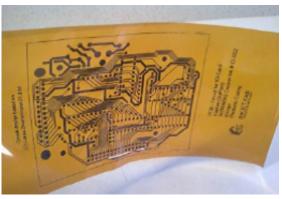
**CI-004** is a nanosized metallic copper formulation, dispersed in a polymeric matrix suitable for high resolution inkjet printing. CI-004 is formulated to provide excellent conductivity, flexibility and adhesion with polyimide. CI-004 can be used in a variety of printing equipment and can deliver drop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

#### Safety and Handling

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

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



#### Contact us today to learn more.

For detailed application information or additional assistance: <a href="mailto:inkstechnicalsupport@novacentrix.com">inkstechnicalsupport@novacentrix.com</a>
Ink can be ordered at <a href="mailto:store.novacentrix.com">store.novacentrix.com</a>



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



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