

# CF-001

## Coating Fluid for Thin Copper Film

*A nanocopper-based seed layer for printed electronics*

### Product Overview

CF-001 is a slot-die coatable ink formulation, designed to produce an ultra-thin copper seed layer on polyimide

CF-001 can cost-effectively replace thin copper foils and enables ultra-fine line processing

Ultra-thin copper seed film achieves thicknesses of  $<1 \mu\text{m}$  (typically 600 nm)



An image of CF-001 after copper film seed layer applied, photonic sintering, electroplating and etching

### Processing

<b>Deposition Method</b>	Slot-die (roll to roll coating)
<b>Coated Thickness</b>	Typically 600 nm (prior to electroplating)
<b>Line Width Resolution</b>	Typically $>3 \mu\text{m}$ (determined by photolithography equipment)
<b>Substrate</b>	Polyimide film
<b>Surface preparation</b>	Substrate should be free from grease or particulate
<b>Clean up solvent</b>	Isopropanol
<b>Typical Drying Conditions</b>	Forced air convection @ $120^\circ\text{C}$ , 10–15 minutes  IR dryer @ $120^\circ\text{C}$ , 10 minutes.
<b>Typical Sintering Conditions</b>	Broadband flash lamp  (e.g. Novacentrics Pulseforge™ and Xenon S-5000™)
<b>Post Sintering Process</b>	Standard semi-additive printed circuit board processes

## Applications

CF-001 copper film formulation is typically used for high density interconnects and is designed to be compatible with polyimide common in the electronics industry. Applications include:

- Microelectronic circuits
- Sensors & Antennas
- Toys & Gaming
- Mass production electronics

## 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.

Prior to use, please ensure that the ink is mixed thoroughly for a few minutes taking care to avoid introducing air into the ink.

Filtering is recommended prior to use.

## Safety and Handling

For safety and handling information relating to the use of this product, please refer to the Safety Data Sheet (SDS).

## Technical Support

Intrinsiq works closely with its customers to ensure this product is optimized for their process. For more product information or technical support, please contact your local representative.

**Intrinsiq Materials Ltd**  
**Building Y25, Cody Technology Park**  
**Ively Road, Farnborough**  
**Hampshire, GU14 0LX**  
**United Kingdom**  
**Sales Tel: +44 (0)1252 396 238**  
**+44 (0)7776 457 255**

**Email: [ianclark@intqm.com](mailto:ianclark@intqm.com)**

## Typical Compositional properties

<b>Solids content</b> (Weight %)	17.5 %
<b>Viscosity [cP]</b> (Brookfield DV-E @ 10 rpm 20°C)	9
<b>Surface Tension [mN/m]</b>	30
<b>Density [g/ml]</b>	1.12

## Typical Electrical & Physical Properties (Sintered)

<b>General Resistivity</b>	(Sufficient for electroplating)
<b>Adhesion</b> (Before plating) (ASTM D3359)	5B
<b>Adhesion</b> (After plating) (IPC-TM-650 Method 2.4.9)	9.5 N/cm
<b>Sintered Thickness [nm]</b> (Prior to electroplating)	~600

**Intrinsiq Materials Inc**  
**1200 Ridgeway Avenue**  
**Rochester**  
**NY 14615**  
**USA**  
**Sales Tel: +01 (585) 301 4395**  
**+01 (585) 899 0407**

**Email [mjcarmony@intqm.com](mailto:mjcarmony@intqm.com)**