Product Data Sheet

Product Catalog Number: **Sicrys™ PC60DB-1**

General Information

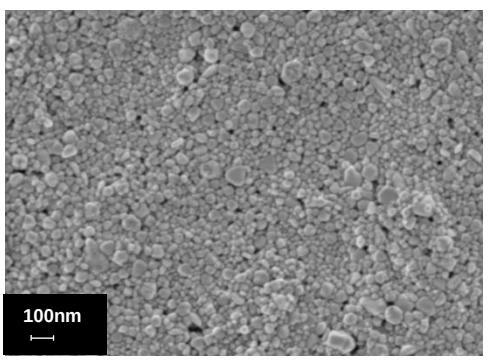
Sicrys™ PC60DB-1, a conductive high viscous ink based on single-crystal **copper nanoparticles** in diethylene glycol butyl ether (DGBE), has been designed for **LIFT (Laser Induced Forward Transfer)** digital printing and laser sintering. The ink offers:

- Uniform and reproducible donor layer with low drying speed
- Stable accurate jetting in different types of laser systems, wide working window of jetting parameters
- High speed printing (20-50kHz), allowing high throughput
- Narrow patterning on plastic and glass substrates (line width ~50 µm, height ~0.5 µm, spacing ~50 µm)
- Laser sintering of LIFT printed pattern, providing good electrical properties

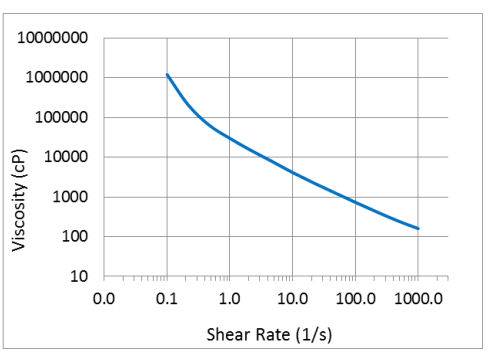
Ink Properties

Ink Properties	Typical Values
Metal Loading, Cu (w/w)	60 %
Particle Size (Lumisizer®)	d50 = 50 nm d90 = 120 nm
Specific Gravity	2.10 g/ml
Viscosity* Profile (Malvern Kinexus Pro+)	Shear rate 1/s - 32000 cP Shear rate 1000/s - 160 cP
Surface Tension (Pendant Drop Method)	26 dyn/cm
Particle Size and Morphology (HRSEM)	See HRSEM image

** - Viscosity is very sensitive to small changes in metal loading*



Nano Cu, HRSEM Image, x100,000



Viscosity profile

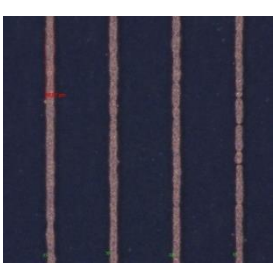
Electrical Properties

Laser Sintering#	**Resistivity** (4PP)
LIFT printed line (~1-2 µm thick) on glass or plastic substrate	≤ 5 µΩ·cm (≤ 3 bulk)

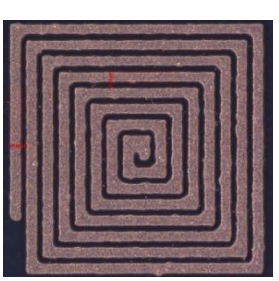
 # - Parameters should be optimized depending on line geometry and substrate

Product Applications

LIFT digital printing
Printed electronics
Additive electronic manufacturing



LIFT printed lines, width 43 µm
Courtesy of TNO



LIFT printed RFID antenna
Courtesy of TNO

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