Product Data Sheet

Product Catalog Number: **Sicrys™ P75DB-1**

General Information

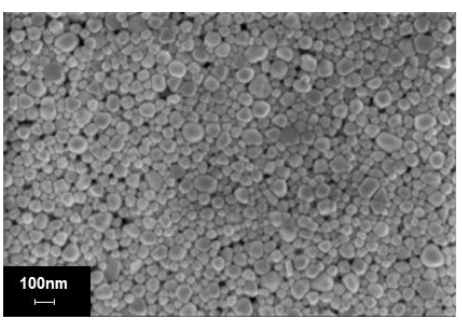
Sicrys™ P75DB-1, a conductive high viscous ink based on single-crystal silver nanoparticles in an organic solvent, has been designed for **LIFT (Laser Induced Forward Transfer)** digital printing and laser sintering.

The ink offers:

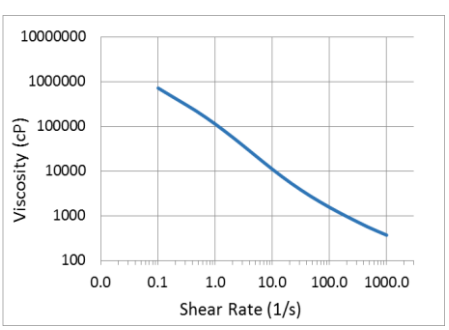
- Uniform and reproducible donor layer with low drying speed
- Stable accurate jetting in different types of laser systems, wide working window of jetting parameters
- High speed printing (20-50kHz), allowing high throughput
- Narrow patterning on plastic and glass substrates (line width ~50 µm, height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

Ink Properties

Ink Properties	Typical Values
Metal Loading, Ag (w/w)	75 %
Solvent	Diethylene Glycol Mono Butyl Ether (DGBE)
Particle Size (Lumisizer®)	d50 = 70 nm d90 = 120 nm
Viscosity Profile (Malvern Kinexus Pro+)	Shear rate 1/s - 120000 cP Shear rate 1000/s - 400 cP
Surface Tension (Pendant Drop)	28 dyn/cm
Particle Size and Morphology (HRSEM)	See HRSEM image



Nano Ag, HRSEM Image, x100,000



Viscosity profile

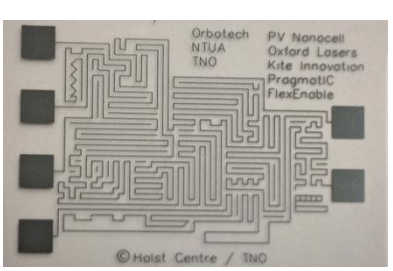
Electrical Properties

Laser Sintering*	**Resistivity** (4PP)
LIFT printed line (~1-2 µm thick) on plastic substrate	≤ 8 µΩ·cm (≤ 5 bulk)

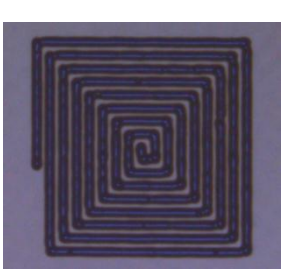
* Parameters should be optimized depending on line geometry and substrate

Product Applications

LIFT digital printing
Additive electronic manufacturing
Printed electronics: RFID, FPD, Sensors



LIFT printed highly dense maze
(3x4cm^2, 70 µm lines, <0.7s, 20kHz)
Courtesy of TNO/HiperLAM



LIFT printed RFID antenna
Courtesy of TNO

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Address: 8 Hamasger St., P.O. Box 236, Migdal Ha'Emek, 2310102 Israel
Phone: + 972 4 654 6881 Fax: + 972 4 654 6880 Email: info@pvnanocell.com
www.pvnanocell.com