Product Data Sheet

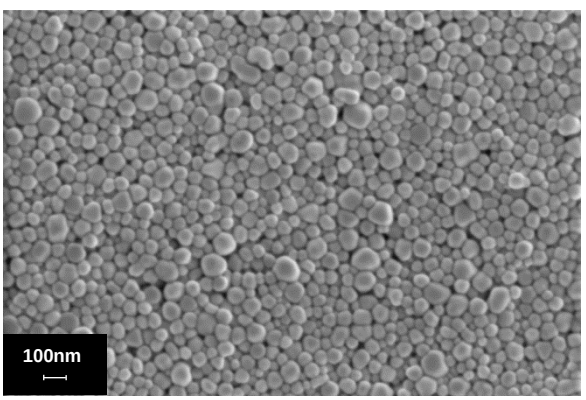
Product Catalog Number: **Sicrys™ I50TM-119**

General Information

Sicrys™ I50TM-119, a conductive ink based on single-crystal **silver nanoparticles** in triethylene glycol monomethyl ether (TGME), has been designed for inkjet printing and low temperature sintering applications. The ink offers a unique combination of properties, including high silver loading, low viscosity, storage at ambient conditions, long shelf life, reliable jetting and good printability. Printed patterns, sinterable at low temperatures, provide low electrical resistivity, good adhesion to a wide range of substrates and durability to humid and aqueous environments.

Ink Properties

Properties	Typical Values
Metal Loading, Ag (w/w)	50 %
Particle Size (Lumisizer®)	d50 = 70 nm d90 = 130 nm
Specific Gravity	1.90 g/ml
Viscosity (Brookfield, Cone Spindle 40, 25°C)	34 cP
Surface Tension (Pendant Drop Method)	29 dyn/cm
Open Time (Ricoh E3 printhead, 35°C)	10 min
Particle Size and Morphology (HRSEM)	See HRSEM Image

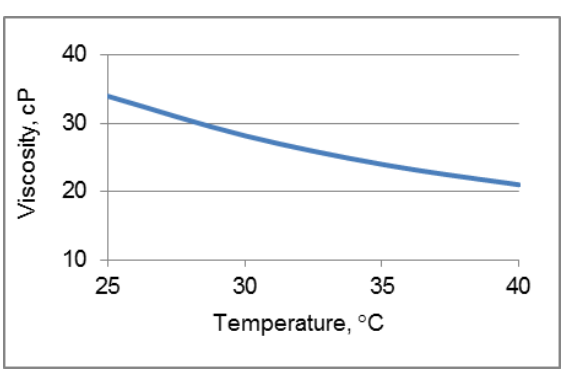


Nano Ag, HRSEM Image, x100,000

Electrical and Adhesion Properties

Substrate – Sintering	**Resistivity** (4PP)	**Sheet Resistance**
ITO - 150°C / 30 min	≤10 μΩ·cm (≤6.3 bulk)	30 mΩ/□ (3.5 μm)
Kapton - 150°C / 30 min	≤10 μΩ·cm (≤6.3 bulk)	20 mΩ/□ (6 μm)
PET - 130°C / 30 min	≤12 μΩ·cm (≤7.5 bulk)	15 mΩ/□ (8 μm)

Adhesion (not limited) to: Kapton®, FR4, PET, PC, ITO, glass, CTO (ISO-2409, no cuts)



Viscosity Profile

Environmental Reliability

Testing conditions (Substrate)	**Adhesion**
144 hr at 85°C/100% Relative Humidity (ITO)	Kept
30min Soaking in DIW (PET)	Kept

Compatible printheads[#]

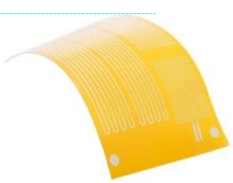
Ink works well, among others, with printheads:

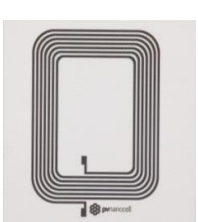
KM1024, KM1024i, Ricoh E3

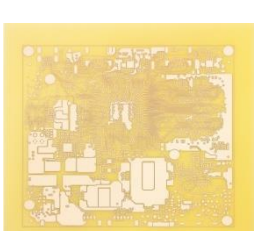
Product Applications

Digital Printing (Inkjet)

Printed Electronics







[#] - *Printheads listed here were tested and perform well. Other compatible printheads may also be applicable.*

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