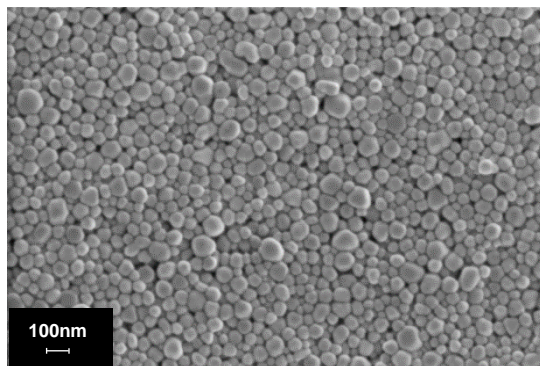


General Information

Sicrys™ I54DMG4-50 is a photovoltaic metallization conductive ink based on single-crystal **silver nanoparticles** in diethylene glycol mono methyl ether (DGME). The ink is designed to provide excellent efficiency and improved inkjet printing of fine grid lines. The ink is compatible with numerous print heads, e.g. Xaar, Dimatix Fujifilm, Konica Minolta and Ricoh. The ink is suitable for various emitters, able to be co-fired with back side aluminum conductors and used as a seed layer for plating. Can be stored at room temperature.

Ink Properties

Properties	Typical Values
Solids (w/w)	54 %
Ag Particle Size (Lumisizer®)	d50 = 70 nm d90 = 125 nm
Specific Gravity	2.00 g/ml
Viscosity (Brookfield, Cone Spindle 40, 25°C)	20 cP
Surface Tension (Pendant Drop Method)	34 dyn/cm
Open Time (Ricoh E3 printhead, 35°C)	3 min
Ag Particle Size and Morphology	See HRSEM image

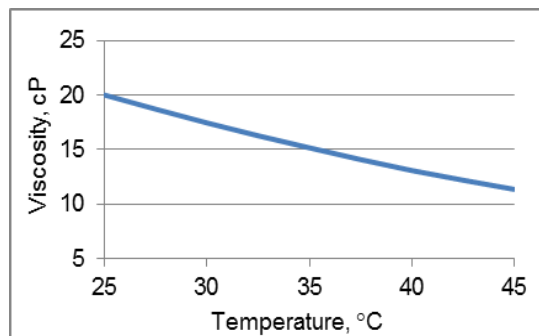


Nano Ag, HRSEM Image, x100,000

Electrical Properties

Spike Firing Profile	Resistivity (4PP)
Peak temperature: 700°C*	≤3 μΩ·cm (<2 bulk)
Time at peak temp.: <8s*	

* - Firing profile should be optimized by customer



Viscosity Profile

Compatible Printheads[#]

Ink works well, among others, with printheads:

XAAR-1001, KM1024, KM1024i, Ricoh E3



All technical information is based on data obtained by qualified technical persons and is believed to be reliable. No warranty is either expressed or implied with respect to results of possible infringements on patents.

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