

Photonic Sintering - Conductive Inkjet Ink

Putting you in Charge

XENON's high energy S-2100 Pulsed Light system has been proven to rapidly sinter **Xerox Research Center** silver nanoparticle ink for piezo inkjet printing systems in printed electronics applications.

Key Specifications – Model S-2100

- Max radiant pulse energy 11 J/cm² at wavelengths of 190 nm to 1100 nm
- Delivers high average pulse power up to 3.7 kW/cm²
- Achieve 0.1 Ω/□ resistivity
- Ease of programming pulse energy, duration and sequencing using operator controller.
- Programmable pulse duration from 100 to 3000 μs
- Programmable energy from 100 to 3,000 Joules
- Detached robust, air cooled lamp housings containing lamp, reflector and air filters.
- Storage and recall of all pulse settings and timing enables quick return to pulse recipe developed by operator.



XENON's S-2100 Pulsed Light sintering system provides the researcher the flexibility to easily program energy delivered to a target. Selecting from available lamp housings, such as the linear lamp model LH-840, (top photo below) or the spiral lamp model LH-910, (bottom photo below) provide unique exposure areas and energy profiles.

Results that count

Test Conditions	
Xerox Ink	Ag Inkjet Ink
After Sintering	0.1 Ω/□
Pulse Voltage	2,900 v
Pulse Duration	600 μs
Height	1.3-inch
Model LH-840, type B lamp spectra	



Xerox Silver Nanoparticle Piezo Inkjet Ink Product Code: xcm-nsIJ

Xerox silver nanoparticle ink is based on proprietary silver nanoparticles designed and created at the Xerox Research Centre of Canada.

Technology

- Low annealing temperature (120 °C) enabled by small and uniform particles (8 nm ± 2 nm)
- Benchmark resistivity: up to 1.5x bulk silver
- Excellent latency, >24 hr in printhead
- Hydrocarbon-based ink vehicle
- Customization available
- Produced at kilo-scale in XRCC pilot plant with consistent lot-to-lot reproducibility

Ink Characteristics

Viscosity	3 – 12 cps
Surface Tension	23 – 30 mN/m
Ink Vehicle	hydrocarbon
Metal Content	tunable
Particle Size	< 20 nm
Cure (thermal under ambient)	120 °C and above / 10 minutes or less

Materials Performance

Resistivity	up to 1.5x bulk
Conductivity	> 1 x 10 ⁵ S·cm ⁻¹

Conductive traces printed using a Dimatix DMP 2800 printer. Printed line widths were 55 – 95 µm and line thicknesses were 80 – 200 nm after cure.



Engage Us

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