Xerox® Silver Nanoparticle Ink for Pneumatic Aerosol Jet® Printing

PRODUCT FEATURES
- Hydrocarbon-based ink
- Compatible with a variety of substrates; PEN, PET, PI, PC, PC-ABS blend, glass
- Low annealing temperature (120 – 130°C) enabled by small and uniform primary silver nanoparticles (8 nm ± 2 nm)
- Resistivity up to 3x bulk silver
- Compatible with Xerox® UV Curable Dielectric (xdi-UV1-C/T)

PRODUCT PROPERTIES
Ink Vehicle...........................................Hydrocarbon
Silver Content ................................. 60 – 67 wt%
Particle Size, Zave..............................< 20 nm
Shear Viscosity (25°C, 400 s⁻¹)........... 8 – 15 cP
Surface Tension......................... 24 – 31 mN/m
Thermal Annealing......................... 120°C , < 1 h

MATERIAL PERFORMANCE (POST ANNEALING)*
Line Thickness...................................... 1 – 7 µm
Line Width........................................... 0.5 mm
Volume Resistivity .................. ~3.5 – 4.5x bulk Ag
Conductivity................................. > 9 x 10⁴ S·cm⁻¹

SAFETY AND HANDLING
Safety and handling information is available in the product Safety Data Sheet (SDS).

RELATED XEROX® PRODUCTS
Silver Nanoparticle Inks:
Piezo Inkjet........................................... xcm-nsIJ1
Ultrasonic Aerosol Jet®.................... xcm-nsUA1
UV Curable Dielectric................. xdi-UV1-C/T

ENGAGE US
electronic.materials@xerox.com
Xerox Research Centre of Canada
2660 Speakman Drive
Mississauga, Ontario
Canada L5K 2L1
(905) 823-7091 ext. 3350

Xerox® Silver Nanoparticle Ink for Pneumatic Aerosol Jet® printing is based on proprietary silver nanoparticle technology invented and produced at the Xerox Research Centre of Canada. Manufacturing of the nanoparticles and ink yield consistent lot-to-lot reproducible material, allowing for the production of printed electronic and IoT devices.

*Conductive traces printed using an Optomec Sprint system were achieved using the following conditions: 0.3 mm round nozzle at 10 mm/s, 630 sccm sheath gas (N₂), 620 sccm push gas (N₂).