

# Conductive Silver Ink

## XTPL Ag Nanoink CL34

### PRODUCT DESCRIPTION & FEATURE

XTPL Ag Nanoink CL34:

- Is a conductive ink designed for various applications, mostly suited for printed electronics
- Designed with lower viscosity for alternative printing compatibility requirements
- Displays high uniformity and conductivity
- Can be printed on different substrates such as glass, silicon nitrides & oxides and foils (Kapton, PET, PEN, PDMS) or silicon wafers

### TYPICAL PROPERTIES

#### PRODUCT SPECIFICATION

Silver content [wt. %]	30 ± 2
Density [g.cm <sup>-3</sup> ]	1.50 ± 0.05
Average nanoparticles size [nm] (TEM)	35 – 50
Shape of nanoparticles	Spherical
Electrical resistivity [Ω.m]*	3.25 · 10 <sup>-8</sup>
Viscosity [cP] (25 °C, shear rate = 2 s <sup>-1</sup> )	200 – 400
Solvent(s)	Glycol(s)

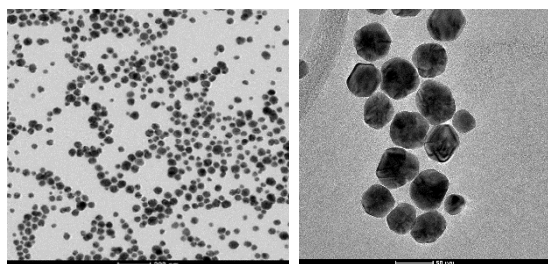


Fig. 1. TEM image of silver nanoparticles

### FEATURES

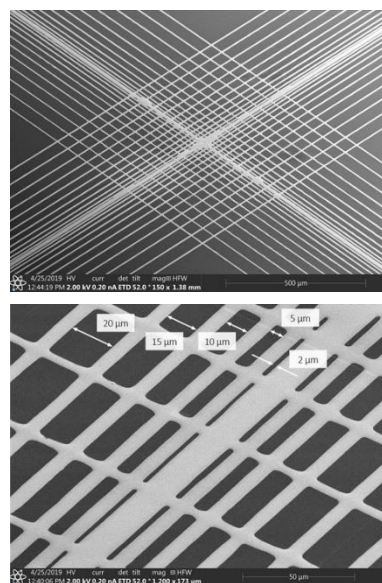


Fig. 2. SEM images of printed conductive line

### SAFETY AND HANDLING

Before using the product read the Material Safety Data Sheet (MSDS) and product label:

- Avoid skin and eye contact, XTPL Ag Nanoink CL34 can cause eye and skin irritation. If ingested, consult a physician immediately
- Use appropriate safety equipment (e.g. latex gloves, safety glasses)
- Wash hands thoroughly after handling

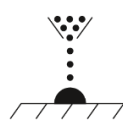
### STORAGE AND HANDLING

- Keep away from sunlight or other direct light sources. Store in between 4 – 6 °C, do not freeze
- Allow closed bottle to stabilize at room temperature prior to mixing, opening and use
- Mixing recommendation: mechanical agitation (e.g. vortex) and ultrasonication
- Minimize exposition of open bottle to external atmosphere to a maximum (prevention of solvent evaporation and spilling hazard)

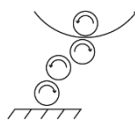
PARAMETER	VALUE
Material	Silver nanoparticles
Shape	Spherical
Solid content [wt. %] (2h, 185 °C)	34 ± 2
Silver content [wt. %]	30 ± 2
Density [g.cm <sup>-3</sup> ]	1.50 ± 0.05
Average nanoparticles size [nm] (DLS)	80 – 105
Average nanoparticles size [nm] (TEM)	35 – 50
Electrical resistivity [Ω.m]*	3.25 · 10 <sup>-8</sup> (50% Ag bulk conductivity)
Viscosity [cP] (25 °C, shear rate = 2 s <sup>-1</sup> )	200 – 400
Storage conditions	4 – 6 °C; stored away from sunlight or other direct light sources
Shelf life (under given storage recommendations)	≥ 3 months
Packaging	Polypropylene bottle
MSDS in English	Attached to the ink and available upon request

\*Sintering conditions: 300 °C; 20 minutes; Air or N<sub>2</sub>

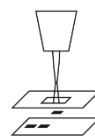
### Compatible with:



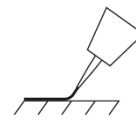
Aerosol jet



Flexography



LIFT



XTPL Ultra-Precise  
Deposition

### Used abbreviations:

DLS: Dynamic Light Scattering

TEM: Transmission Electron Microscopy