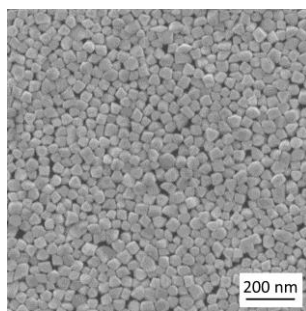
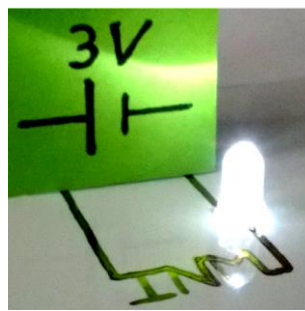


Sintering-free ink concept



Electron micrograph of dried metal nanoparticle ink



Circuit drawn using a fountain pen

## SINTERING-FREE INKS FOR PRINTED ELECTRONICS

### PRODUCT DATA SHEET

#### GENERAL INFORMATION

The inks are based on metal nanoparticles (gold or silver) modified with conductive polythiophene derivatives. They exhibit good colloidal stability in polar solvents for long periods. Inks with a wide range of physical properties can be formulated to make them suitable in different applications. Room temperature drying is sufficient to obtain excellent conductivity without any further treatment.

#### PHYSICAL INK PROPERTIES

- ▶ Solid content of the ink (w/w) [%]: 10 – 30
- ▶ Particle size [nm]: <100 (see SEM image)
- ▶ Density [g/mL]: 0.85 – 1.4
- ▶ Viscosity [cP]: 1 – 10
- ▶ Surface tension [mN/m]: 35 – 55

#### SOLVENT AND DURABILITY

- ▶ Solvent mixtures: water/methanol/ethanol/isopropanol/acetone
- ▶ Shelf life: solvent dependent; 2 weeks – 1 year

#### MATERIAL PROPERTIES

- ▶ Sintering conditions: no sintering required
- ▶ Resistance: 0.04 – 0.28 [ $\Omega$ /sq/mil]  
 $9.9 \times 10^{-7}$  –  $7.0 \times 10^{-6}$  [ $\Omega$  m]  
 35 – 250 x bulk
- ▶ Processing: inkjet printing, blade coating, etc.
- ▶ Suitable substrates: glossy paper/glass/polymer sheets

#### APPLICATION

- ▶ Printed electronics, circuits
- ▶ OPVs
- ▶ OLEDs
- ▶ Sensors

#### SAMPLING

- ▶ Testing samples are available upon request.



#### CONTACT

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