

Transparent Silver Precursor Ink for Printable and Flexible Electronics

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Herein, we report a naive chemical route to develop the silver precursor ink with long term stability, which possesses characteristics features of an optimal ink and covers a practical approach in flexible electronics via multiple techniques. The obtained transparent silver ink shows an excellent and economical way towards printable electronic devices. The silver electrodes are fabricated by nozzle-jet printing and ink pen writing the silver ink that yielded very high conductivities (10^6 – 10^7 S/m) close to the bulk silver ($\sim 10^7$ S/m) after sintering at 70–100 °C. The adhesion and conductivity of printed silver is greatly stable even after several mechanical bending. High quality nano-crystalline and pin holes free silver patterns are observed on flexible PET and PI substrates. The probable mechanism for the formulated silver ink is deduced. The precursor ink formulation process can possibly terminate the need for costlier methods such as gravure printing and paves the way to industrial manufacturing of prudent electronic devices.