

Supporting information

Inkjet Printing of Benzocyclobutene-based Polymer as a Low-k Material for Electronic Applications

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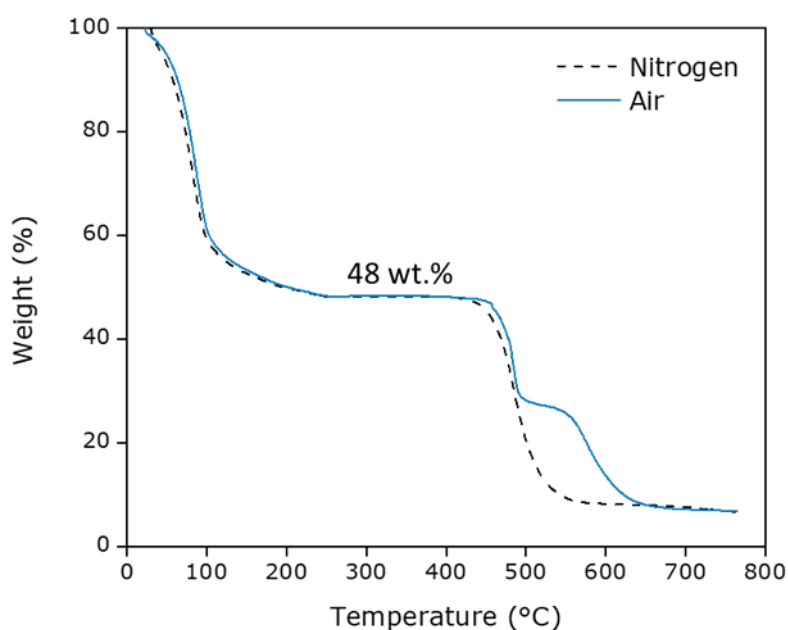


Figure S1. Thermogravimetric analysis performed on Cyclotene commercial resin in Nitrogen and air atmosphere. By examining the weight loss, it was possible to determine the mass concentration of polymer in the solution, corresponding to 48%, i.e., the plateau going from 200°C to 500°C.

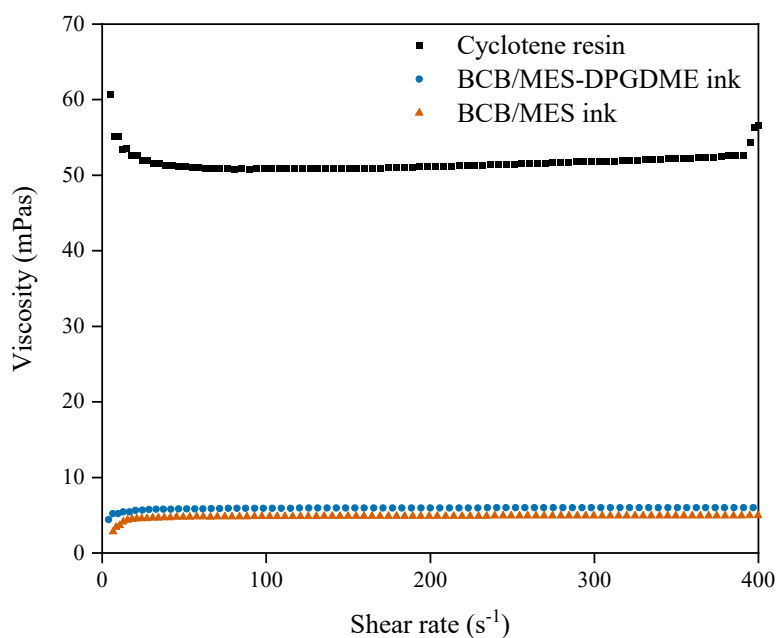


Figure S2. Rheological analysis on Cyclotene commercial resin, BCB/MES-DPGDME and BCB/MES inks. It is possible to observe that increasing the dilution of the commercial resin helped reducing the viscosity by one order of magnitude. In addition, the Newtonian behavior of the ink in the measurement range is shown.

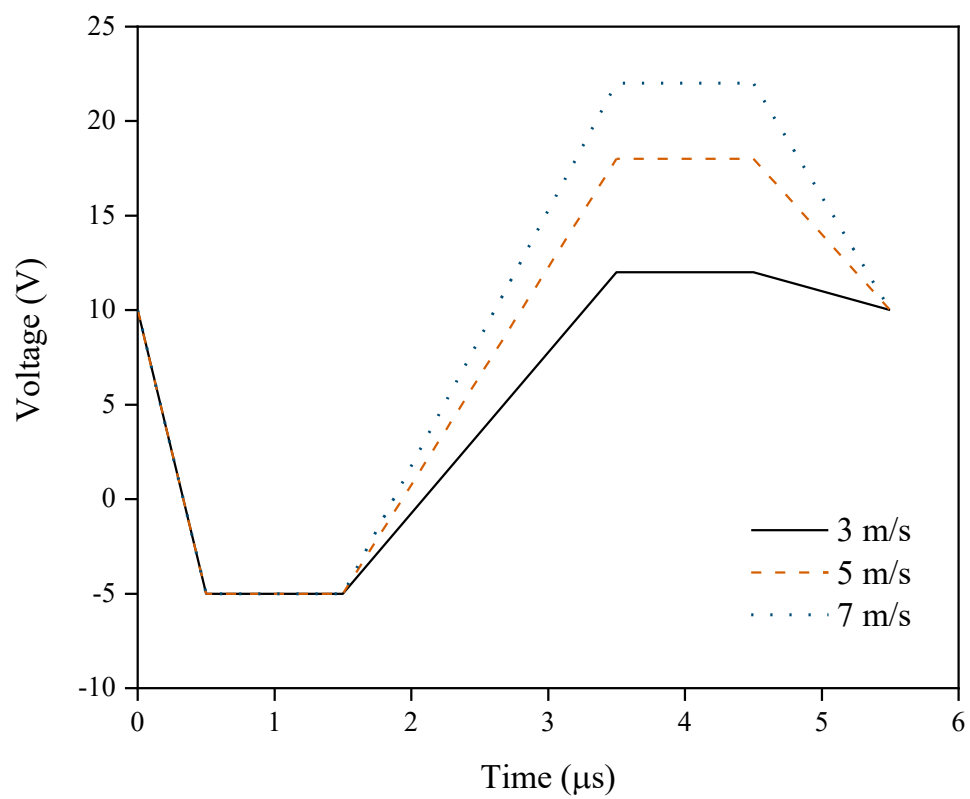


Figure S3. Waveforms applied to the ink to obtain three different ejection speed: 3, 5, and 7 m/s.

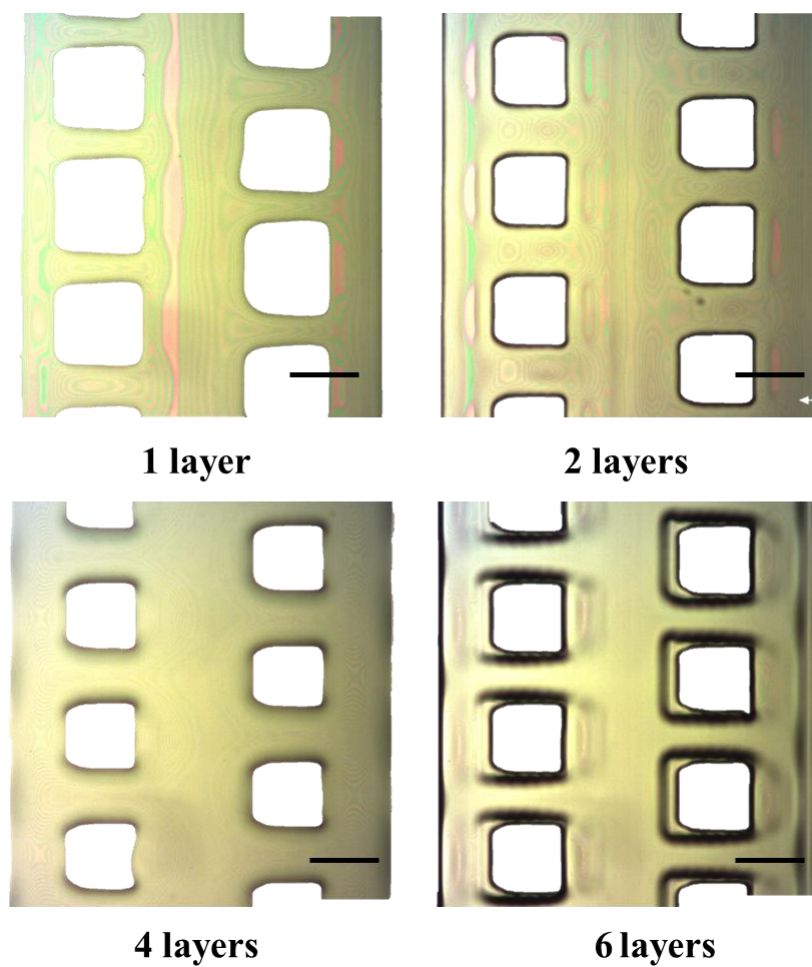


Figure S4. Images taken at the microscope of the bonding pattern printed with one, two, four and six layers. It is possible to observe that increasing the number of layers had a beneficial effect on the print quality up to the four-layer print. The six-layer pattern started to show some defects due to an excessive amount of material. Scale bars measure 200 μm .