

Effectiveness of Solvent Control on Performance of

Large-Area Flexible Polymer Solar Cell Arrays

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ABSTRACTS

We report herein a large area (24 cm²), series- and parallel- interconnected polymer solar cell arrays on flexible substrates: polycarbonate (PC) coated indium zinc oxide (IZO) as transparent electrodes. Different solvent systems, chlorobenzene (CB), dichlorobenzene (DCB), and dichlorobenzene/xylene (DCB/XY), have been incorporated in processing the polymer blend materials. Uniform film quality was achieved through controlling the evaporation rate of solvent systems. Complete solar cell arrays were fabricated to demonstrate the dependence of photovoltaic performance on various solvent systems. A major reduction of internal series resistance was observed in using the solvent mixture, DCB/XY. Hence an overall power conversion efficiency of 0.6% and maximum power output of 16.9 mW under AM1.5 conditions were accomplished in our large-area solar cell array design using optimized solvent system.