Optimization of Manufacturing process for Gap for the Control of Liquid Crystal Droplet Size and Driving Voltage in PDLC Devices

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PDLC films were composed of the with dispersed (droplets, swiss cheese) or interconnected (polymer ball) liquid crystal phase in polymer matrixes. When the electric field applied in the film, LC molecules are aligned in the polymer matrixes that could make transparent state. We manufactured the PDLC films as Photo-polymerization Induced Phase Separation of the reactive matrix (PIPS). The LC droplet size and morphology in PDLC films could be determined during the process. In this paper, we have tried to optimize the PDLC device performance with changing the manufacturing process.