Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Information

Polymer Dispersed Liquid Crystal based Switchable Glazing Fabricated via Vacuum Glass Coupling

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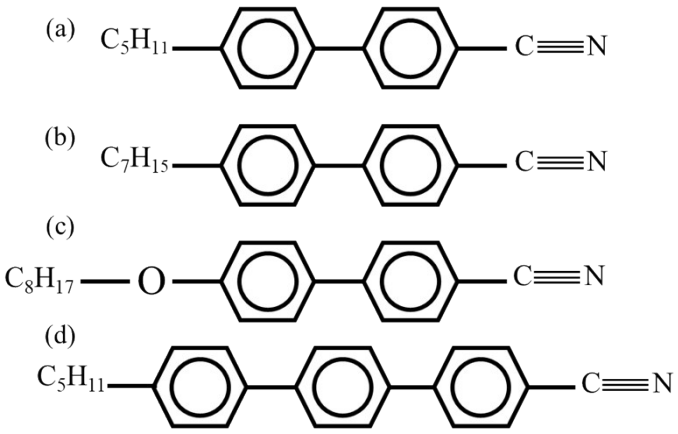

Figure S1: Chemical Structure of LC E7 where (a) 4-pentyl-4'-cyanobiphenyl (51%), (b) 4-heptyl-4'-cyanobiphenyl (25%), (c) 4-octyloxy-4'-cyanobiphenyl (16%), and (d) 4-pentyl-4'cyanobiphenyl (8%) are mixed.

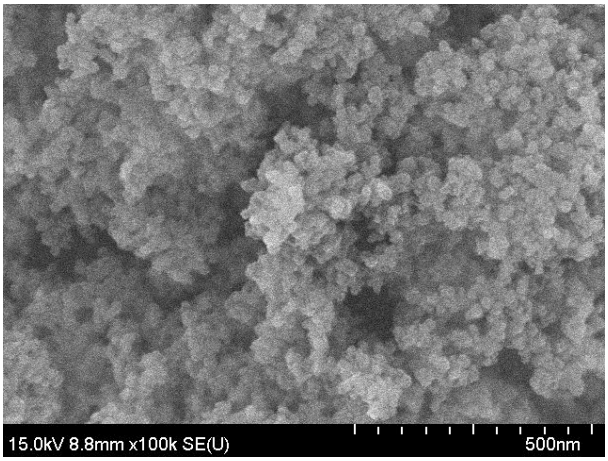

Figure S2: SEM image of SiO_2 nanoparticles, dissolved in ethanol and dried on a substrate.

Table S1: Characteristics of SiO_2 nanoparticles.

Purity (%)	97.3+
Color	white
Average Particle Size (nm)	16
Specific Surface Area (m^2/g)	150-550
Loss of Weight in Drying (wt%)	5,4
Loss of Weight on Ignition (wt%)	9,4
PH	6.0
Bulk Density (g/cm^3)	<0.05
True Density (g/cm^3)	2,2
Elemental Analysis (%)	SiO_2 : Silane Mg Ca S Fe 97.3 : 2.0 0.005 0.022 0.0126 0.0056

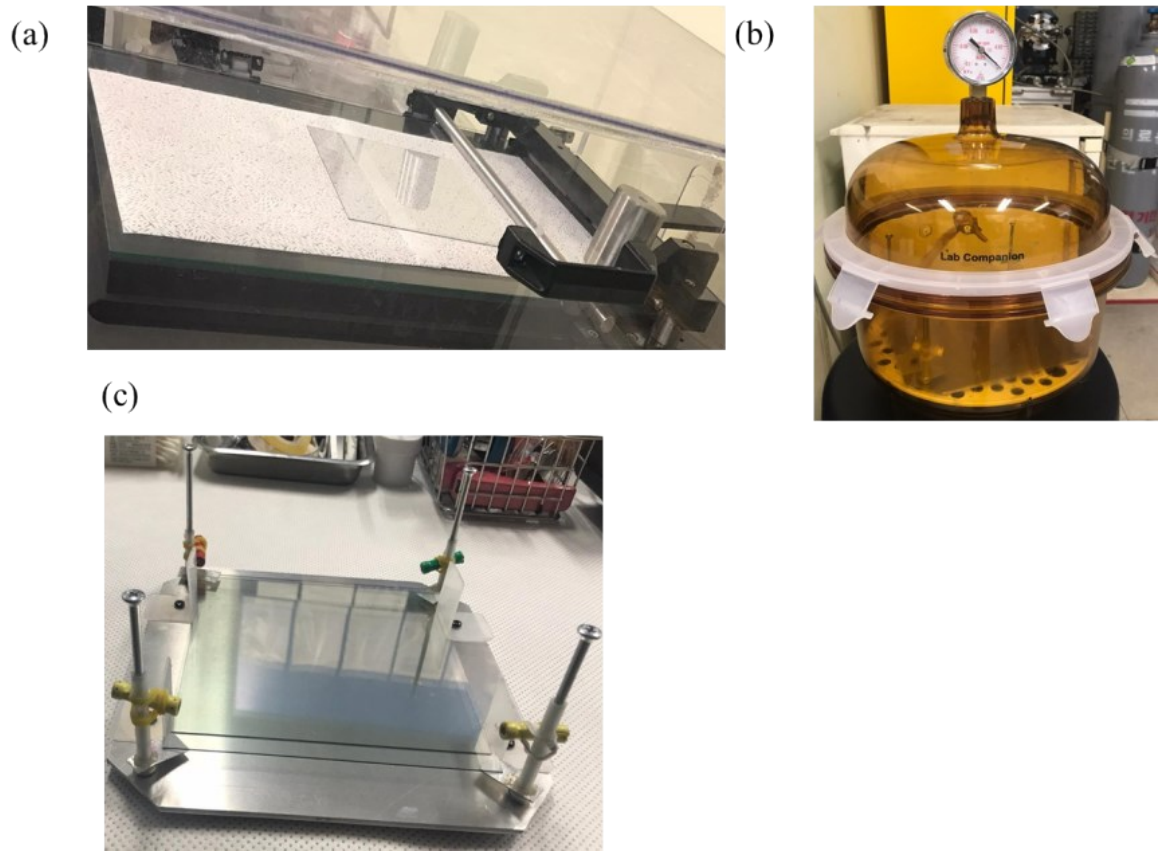

Figure S3: (a) Wire-bar coater was used to coat the PDLC mixture. (b) In a vacuum chamber a vacuum assembly holds the top and bottom glasses for vacuum coupling. (c) Vacuum assembly was designed to hold the top and bottom glasses for vacuum coupling.

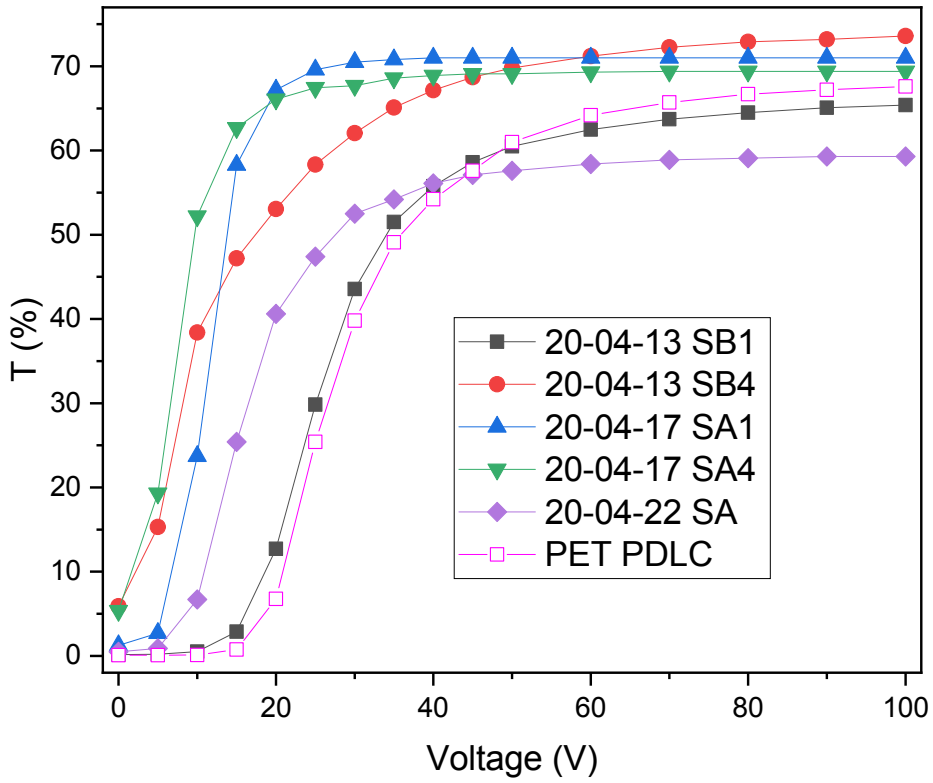

Figure S4: Transmittance-versus-voltage curves for various PDLC samples fabricated in different conditions, as shown in Table S1.

Table S2: Fabrication conditions for samples

Sample number	substrate	method	Bead	Thickness (μm)
20-04-13 SB1	glass	Injection	O	88
20-04-13 SB4	glass	Bar coating	O	20
20-04-17 SA1	glass	Injection	X	75
20-04-17 SA4	glass	Bar coating	X	50
20-04-22 SA	glass	Bar coating	O	25
PET PDLC	PET	Roll-to-Roll	X	25