Electronic Supplementary Information

Reversible dispersion-precipitation of single-walled carbon nanotubes using pH change and addition of organic component

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Synthesis of C18AA

10.22 g (0.12 mol) of methyl acrylate was added to 2.0 g (7.12 mmol) of octadecylamine in 15 mL of methanol. The solution was stirred at 40 °C for 3 days and the solvents and excess methyl acrylate were then removed by rotary evaporation. 3-[(2-Methoxycarbonyl-ethyl)-octadecyl-amino]-propionic acid methyl ester (C18ME) was obtained as a viscous liquid. C18ME (3.2 g) and ethylenediamine (17.8 g, 0.30 mol) were dissolved in 15 mL of methanol and the mixture was stirred for 1 week at room temperature. C18AA was obtained as a light yellow solid upon removal of the solvent and ethylenediamine by evaporation and freeze-drying. The crude solid was recrystallized from a mixed solvent of toluene and methanol. Yield: 90%.

^{1}H NMR ($CDCl_3$): δ 0.88 (t, 3H, CH_3), 1.25 (br, 28H, CH_2), 1.45 (br, 4H, $\mathbf{CH_2}CH_3$, $CH_2\mathbf{CH_2}CH_2N$), 2.36 (t, 4H, $CH_2\mathbf{CH_2}O$), 2.42 (t, 2H, $\mathbf{CH_2}N$), 2.73 (t, 4H, $N\mathbf{CH_2}CH_2CO$), 2.82 (t, 4H, $\mathbf{CH_2}NH_2$), and 3.29 (q, 4H, $NH\mathbf{CH_2}$). HRMS: Calcd for C18AA ($M+H^+$): 498.47; Found: 498.48.

Optical microscopic images

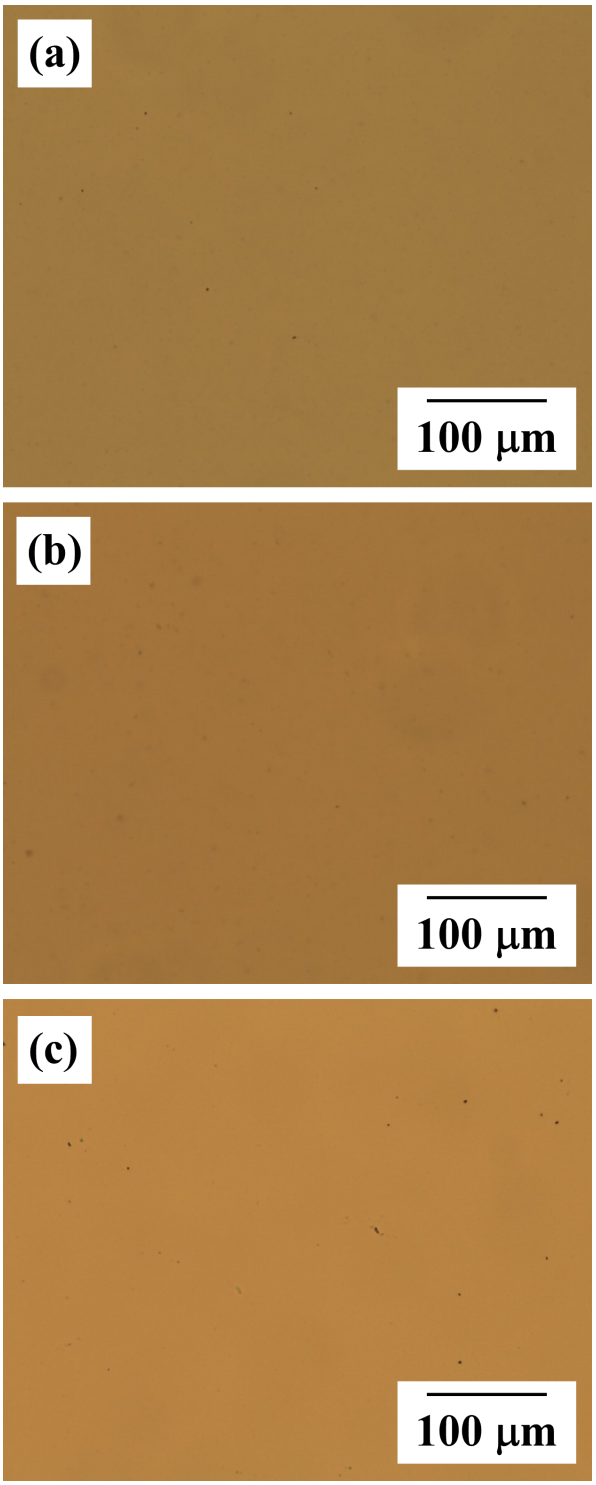

Figure S1. Optical micrographs of (a) SWCNTs dispersion in 2wt% C18AA aqueous solution at Figure 1, (b) re-dispersed SWCNTs dispersion at Figure 7e, and (c) re-dispersed SWCNTs dispersion at Figure 8e. The sample thickness was 150 μm.