Electronic Supplementary Material (ESI) for RSC Advances.

Electronic Supplementary Information for the article of

Panoptically exfoliated morphology of Chlorinated polyethylene (CPE)/Ethylene methacrylate copolymer (EMA)/Layered silicate nanocomposites by novel *in-situ* covalent modification using poly(ε-caprolactone)

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Synthesis of poly (ε-caprolactone) (PCL)

The formation of poly (ε-caprolactone) polymer and the chemical structure was confirmed by ^{1}H and ^{13}C NMR analysis in $CDCl_3$ and it is shown in **Fig. S1** (a). In the ^{1}H NMR spectrum, signals are assigned as follows: δ 1.40 ppm for H-(3), δ 1.64 ppm for H-(2,4), δ 2.33 ppm for H-(1) and δ 4.11 ppm for H-(5) which characterizes the polymer chain. The ^{13}C NMR spectrum of PCL shown in **Fig. S1** (b), demonstrating peaks at 174.12 ppm for carbonyl carbon (C-1') and 34.17 ppm, 24.82 ppm, 26.15 ppm, 28.69 ppm, and 64.30 ppm for (C-2'), (C-3'), (C-4'), (C-5') and (C-6') respectively. The proton peak observed at around 7.26 ppm is because of trace amount of $CHCl_3$ present in $CDCl_3$ solvent. The GPC analysis of poly (ε-caprolactone) macromolecules obtained from the PCL-g-20A and PCL-g-30B masterbatches is shown in **Fig. S1** (c).

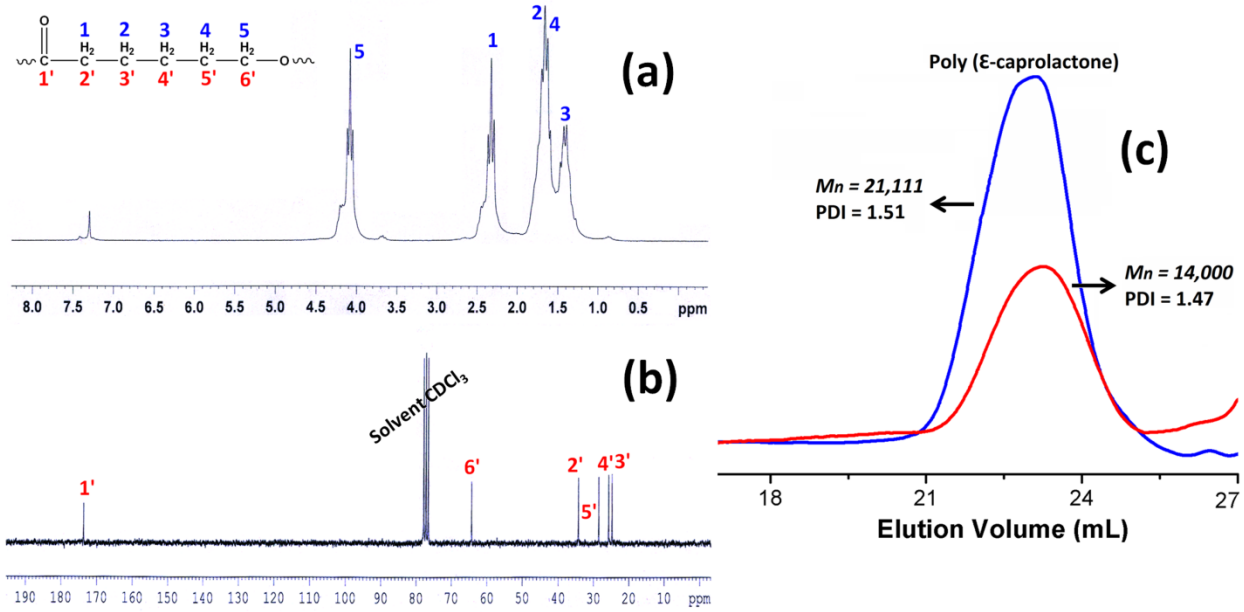

Figure S1. (a) ^{1}H NMR and (b) ^{13}C NMR spectra of PCL in $CDCl_3$ and (c) GPC of prepared PCL polymers extracted from PCL-g-20A and PCL-g-30B masterbatches

FTIR Characterization of Cloisite 20A masterbatch

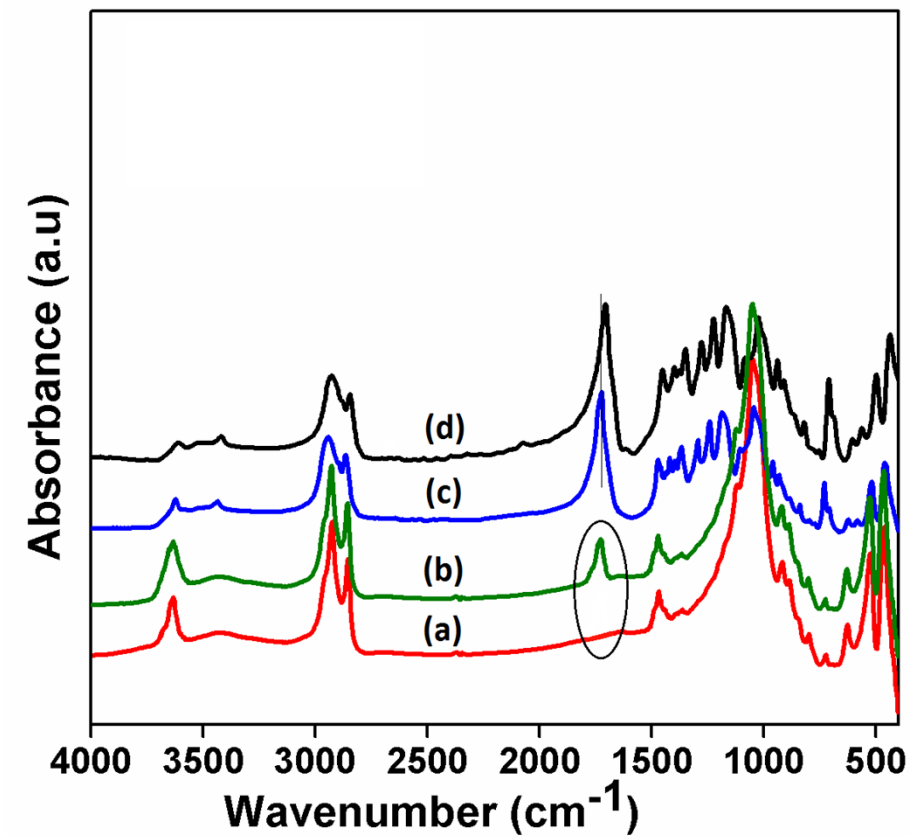

Figure S2: FTIR spectra of (a) Cloisite 20A, (b) THF washed PCL-g-20A (c) PCL-g-20A masterbatch and (d) pure PCL polymer.

Thresholding of TEM images of the PCL modified masterbatches

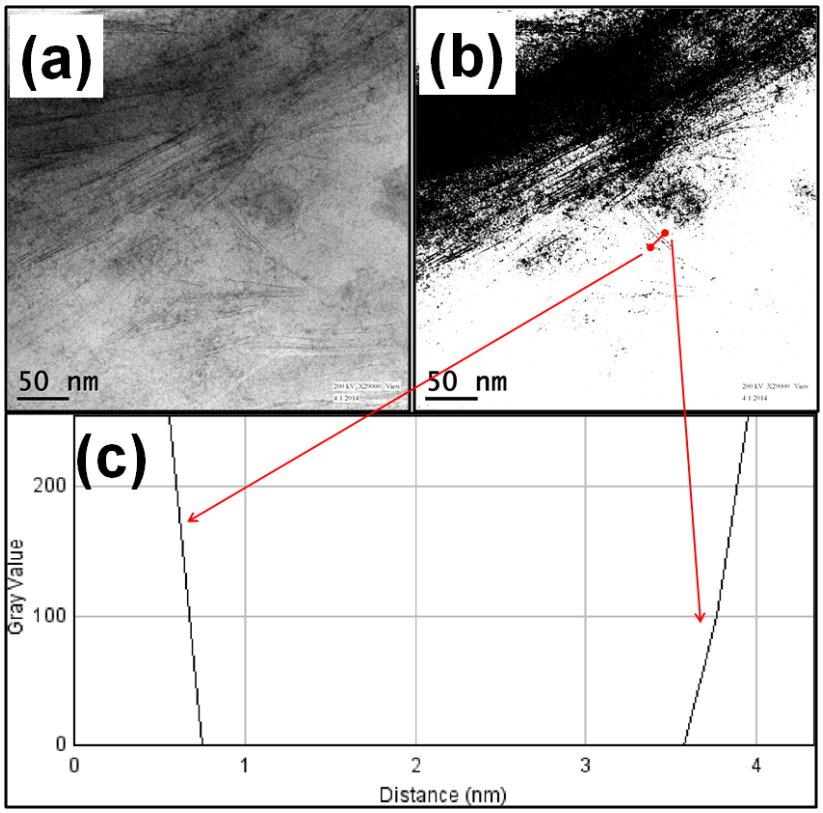

Figure S3: (a) TEM image of PCL-g-20A (b) Processed and Threshold image of PCL-g-20A (c) Plot of gray value versus distance.

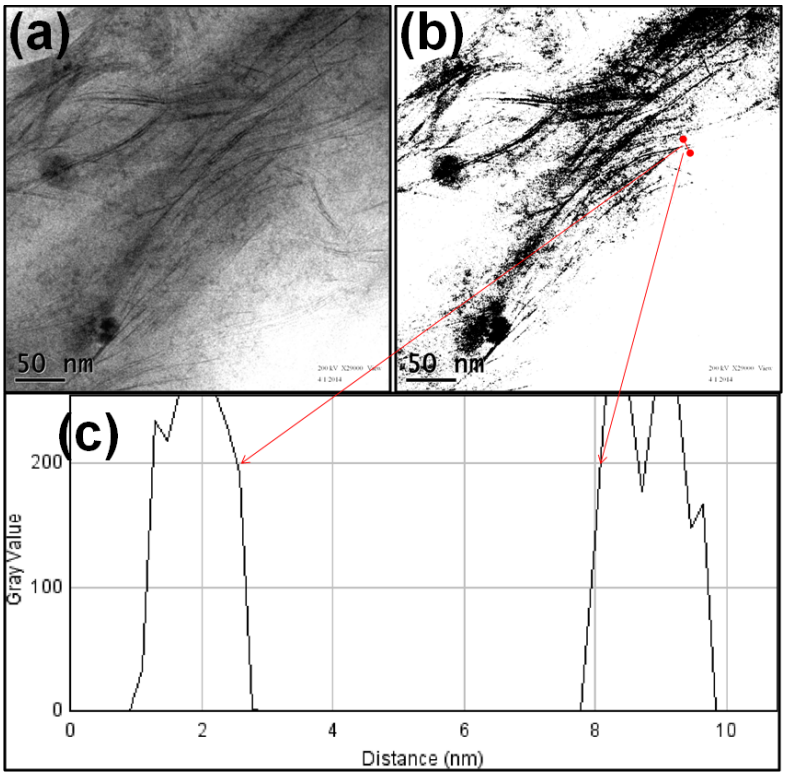

Figure S4: (a) TEM image of PCL-g-30B (b) Processed and Threshold image of PCL-g-30B (c) Plot of gray value versus distance.