Supporting Information

Preparation and Characterization of Lignosulfonate-Acrylonitrile Copolymer as a Novel Carbon Fiber Precursor

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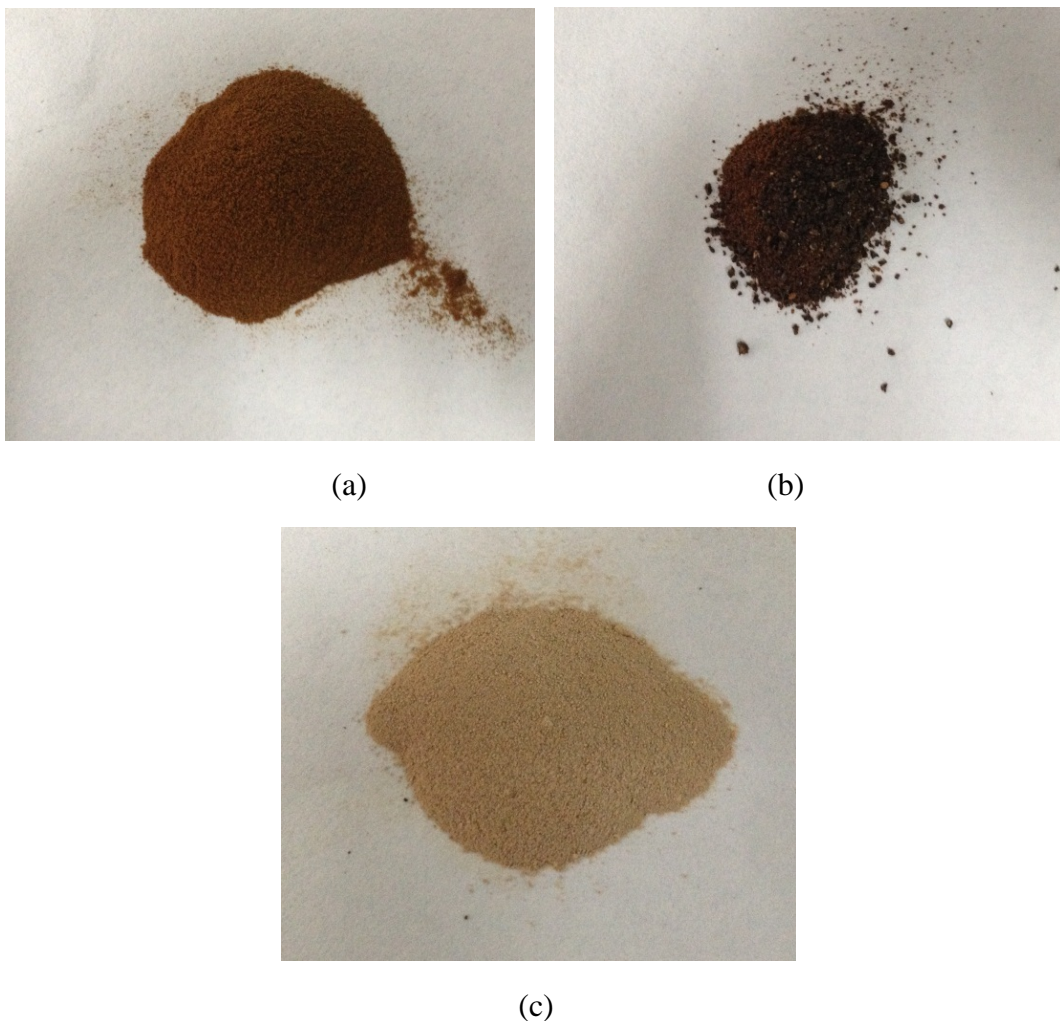
Figure S1. Photographs of (a) LS, (b) esterified LS, (c) LS-AN copolymer

For determining the relative content of LS in the copolymer, thin films of LS/PAN homopolymer blends with different given weight proportions were prepared for FTIR analysis to make the calibration plot. The method used was as follows: first, solutions consisting of about 10% of LS/PAN blends in DMSO were prepared, then thin films of the solutions were cast onto glass slices, finally they were dried at 60 $^{\circ}$C under vacuum to remove DMSO, leaving thin films. **Figure S2** shows the FTIR spectra of LS/PAN homopolymer blends with different given weight proportions. With the increasing of LS content in the blends, the absorption peak at 1510 cm^{-1} gradually increases, while the absorption peak at 2243 cm^{-1} decreases accordingly. A linear plot of $A_{1510cm^{-1}}/A_{2243cm^{-1}}$ against X_{LS}/X_{PAN} was obtained and shown in **Figure S3**.

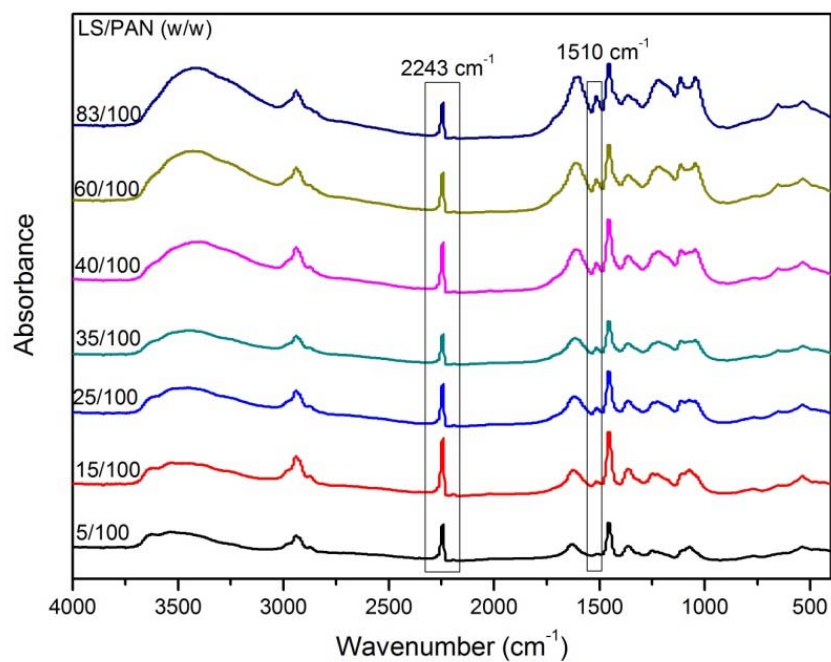**Figure S2** FTIR spectra of LS/PAN homopolymer blends with different weight ratios

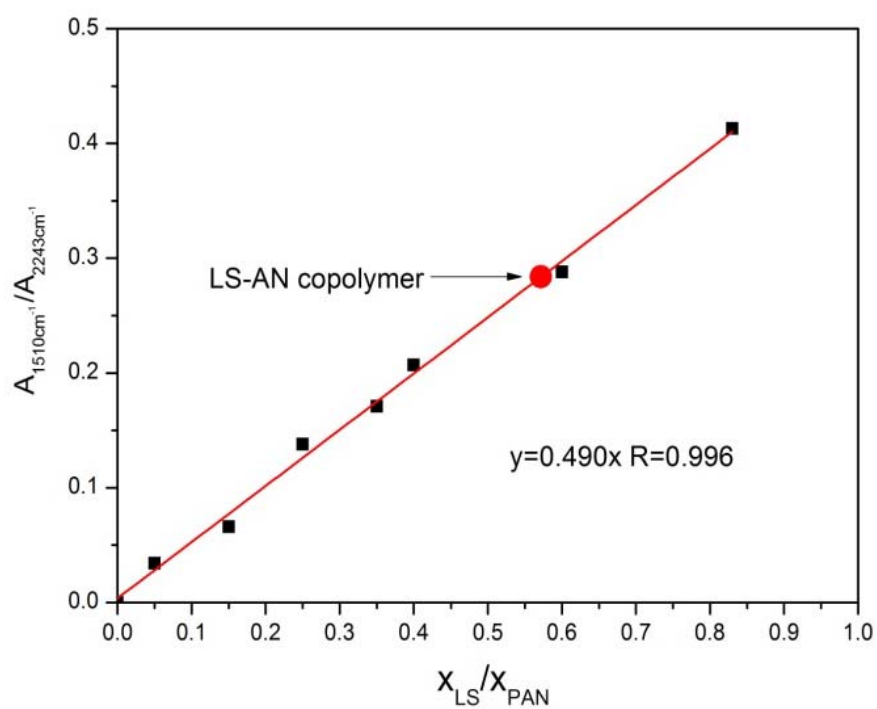**Figure S3** Calibration plot of $A_{1510cm^{-1}}/A_{2243cm^{-1}}$ against X_{LS}/X_{PAN}