Supplementary Materials: Effect of the Polyketone Aromatic Pendent Groups on the Electrical Conductivity of the Derived MWCNTs-Based Nanocomposites

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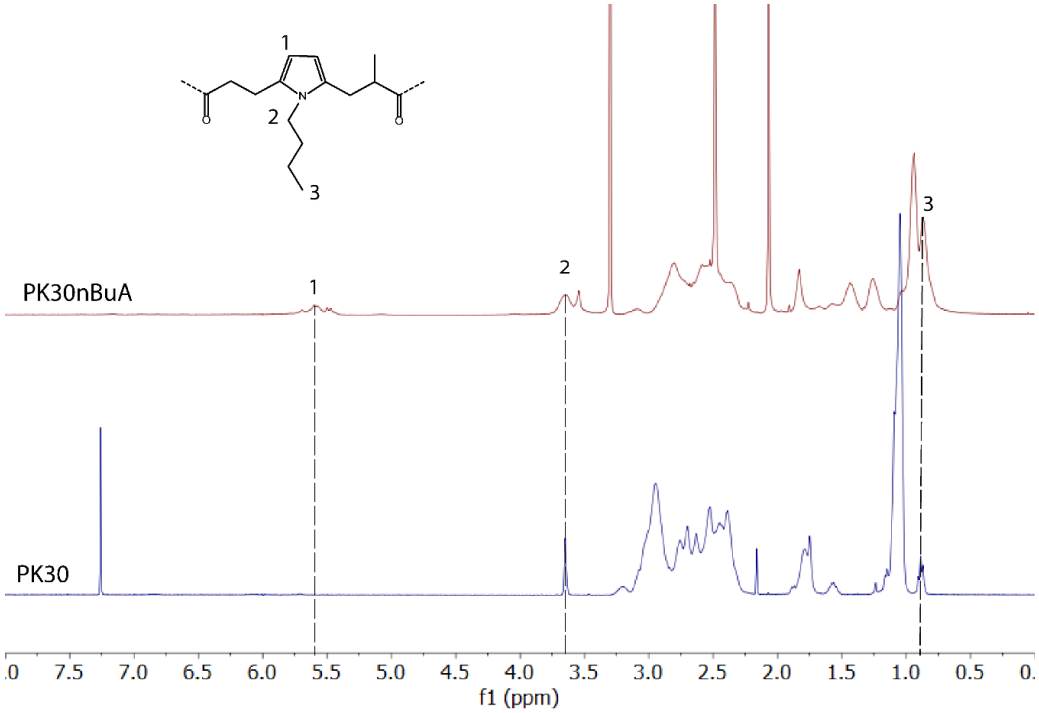
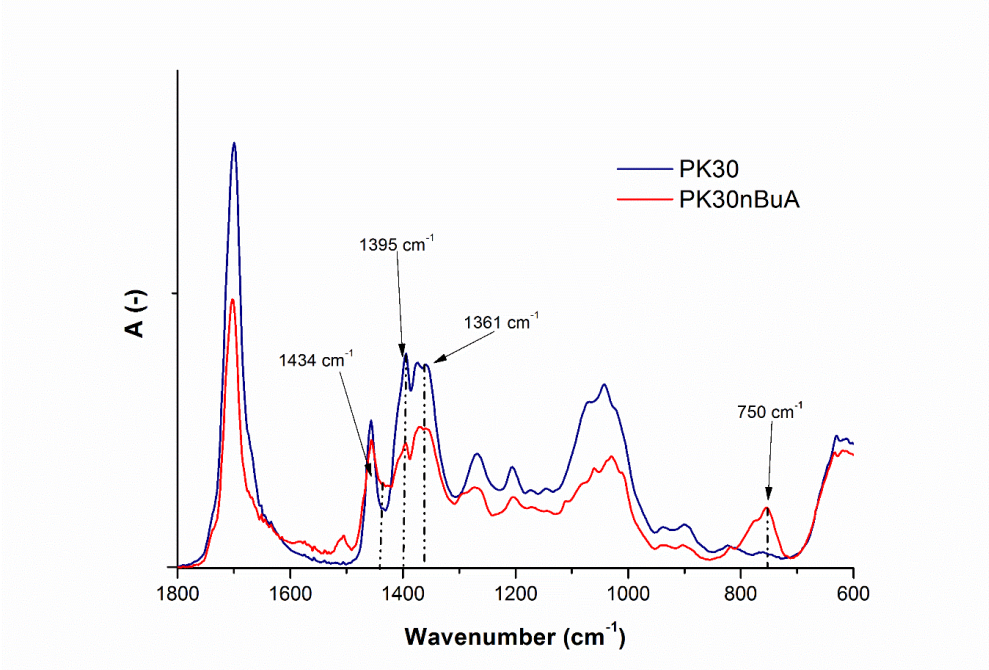
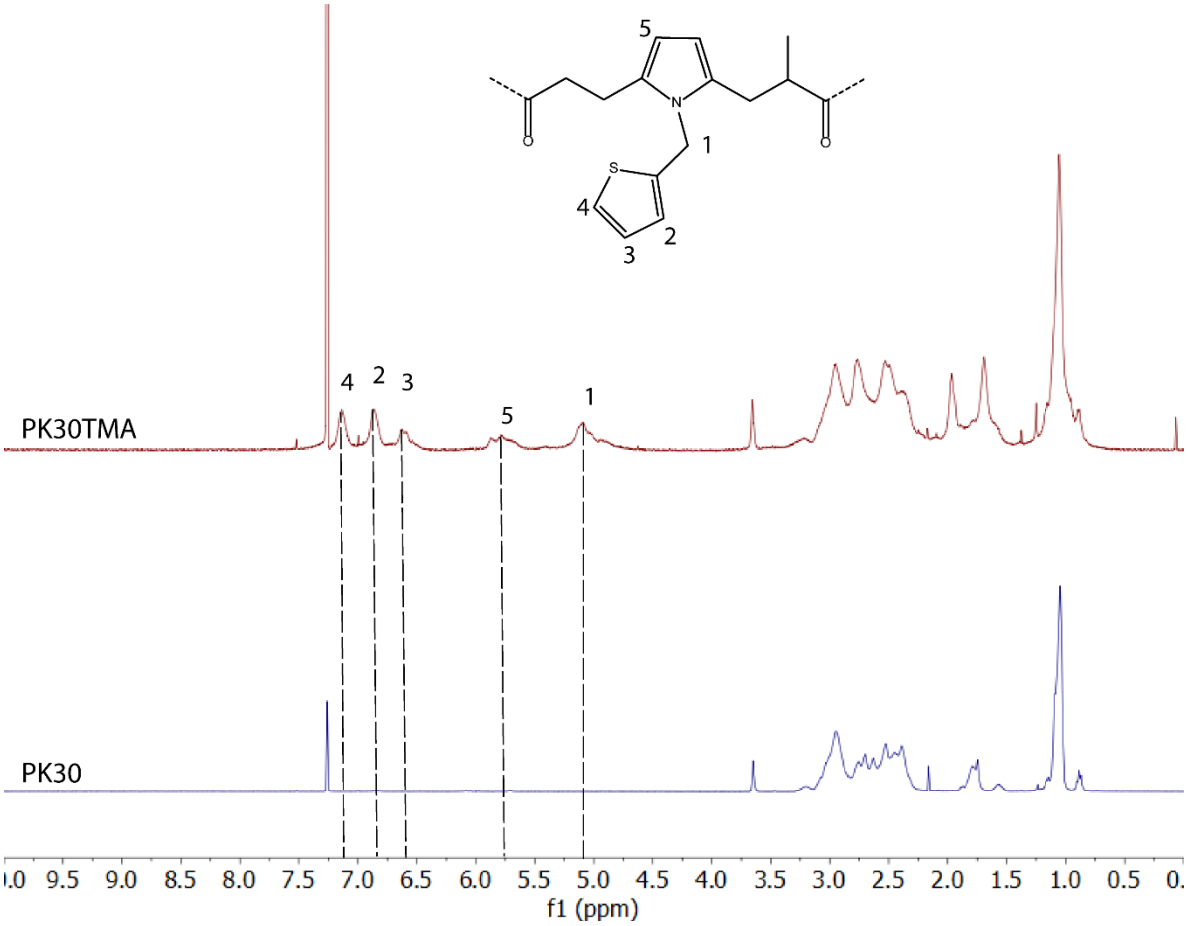


a)

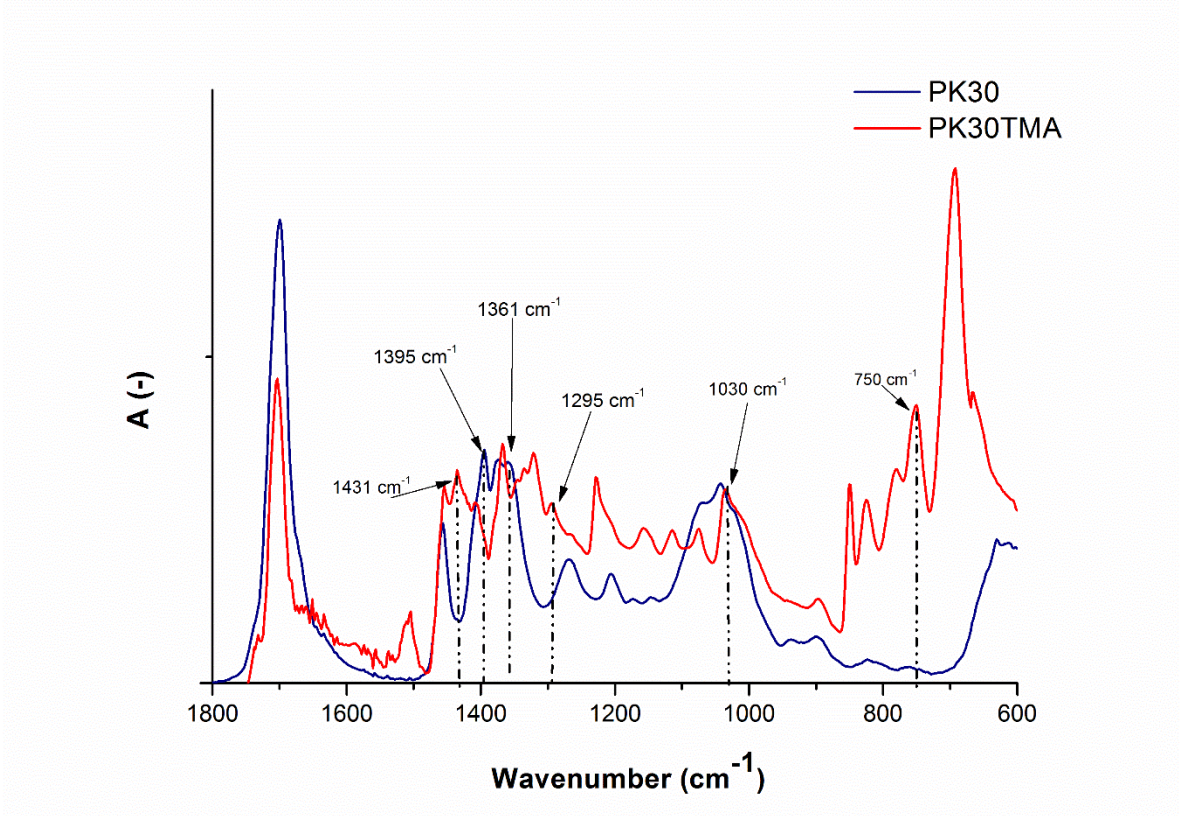


b)

Figure S1: a) ^{1}H-NMR and b) FT-IR spectra of modified pristine PK30 and PK30nBuA. 1395 cm^{-1} (CH_2 twisting) 1361 cm^{-1} (CH_2 wagging), 1434 cm^{-1} (pyrrole ring stretching), 750 cm^{-1} (aromatic C-H out-of-plane aromatic rings)

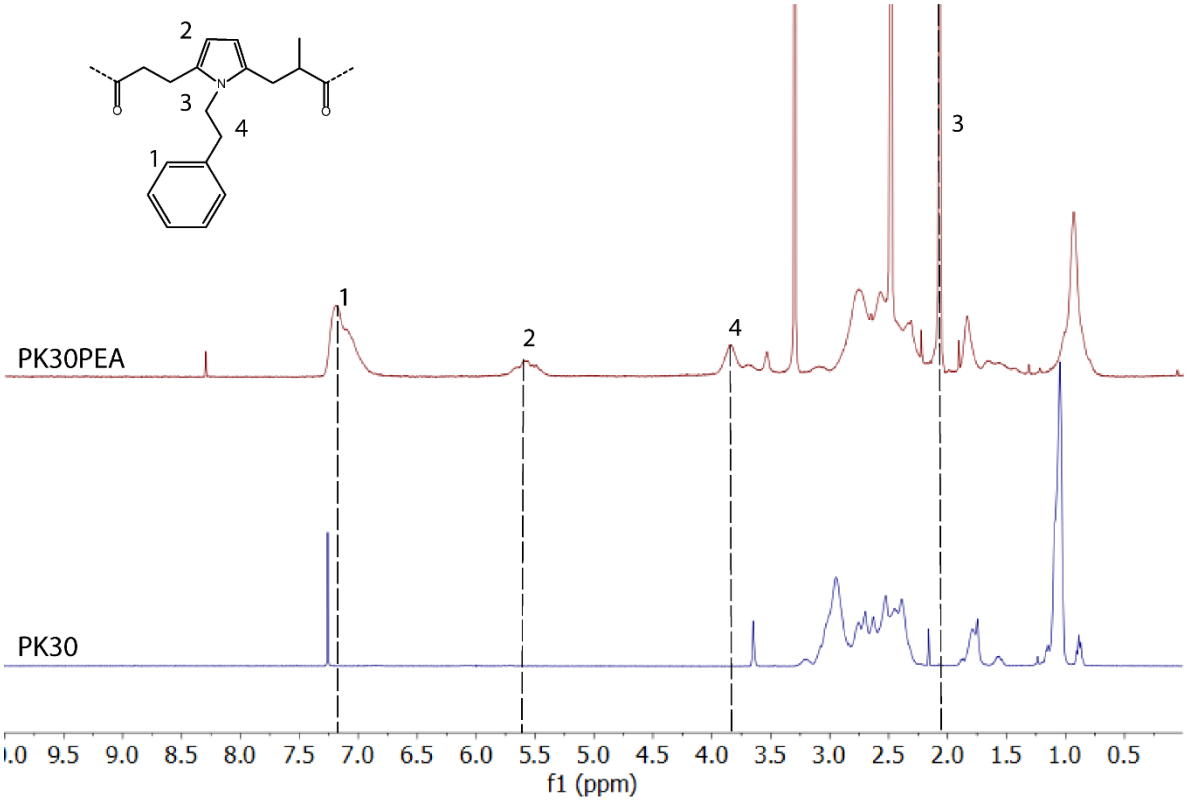


a)

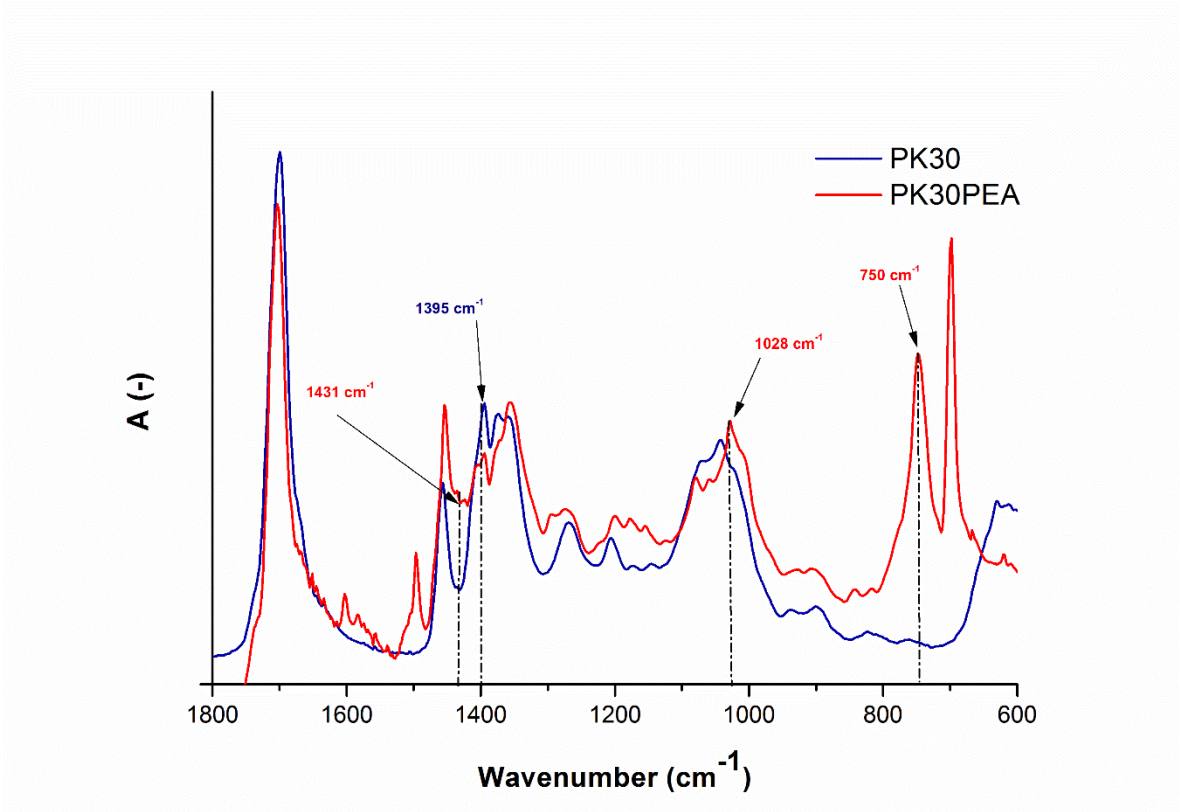


b)

Figure S2: a) ^{1}H-NMR and b) FT-IR spectra of modified pristine PK30 and PK30TMA. 1395 cm^{-1} (CH_2 twisting), 1361 cm^{-1} (CH_2 wagging), 1431 cm^{-1} and 1345 cm^{-1} (pyrrole and thiophene ring stretching), 1073 cm^{-1} (thiophene C-C bending), 750 cm^{-1} (aromatic C-H out-of-plane aromatic rings)



a)



b)

Figure S3: a) ^{1}H-NMR and b) FT-IR spectra of modified pristine PK30 and PK30PEA.
1395 cm^{-1} (CH_2 twisting), 1431 cm^{-1} (pyrrole ring stretching), 1028 cm^{-1} (pyrrole C-C), 750 cm^{-1} (aromatic C-H out-of-plane aromatic rings).

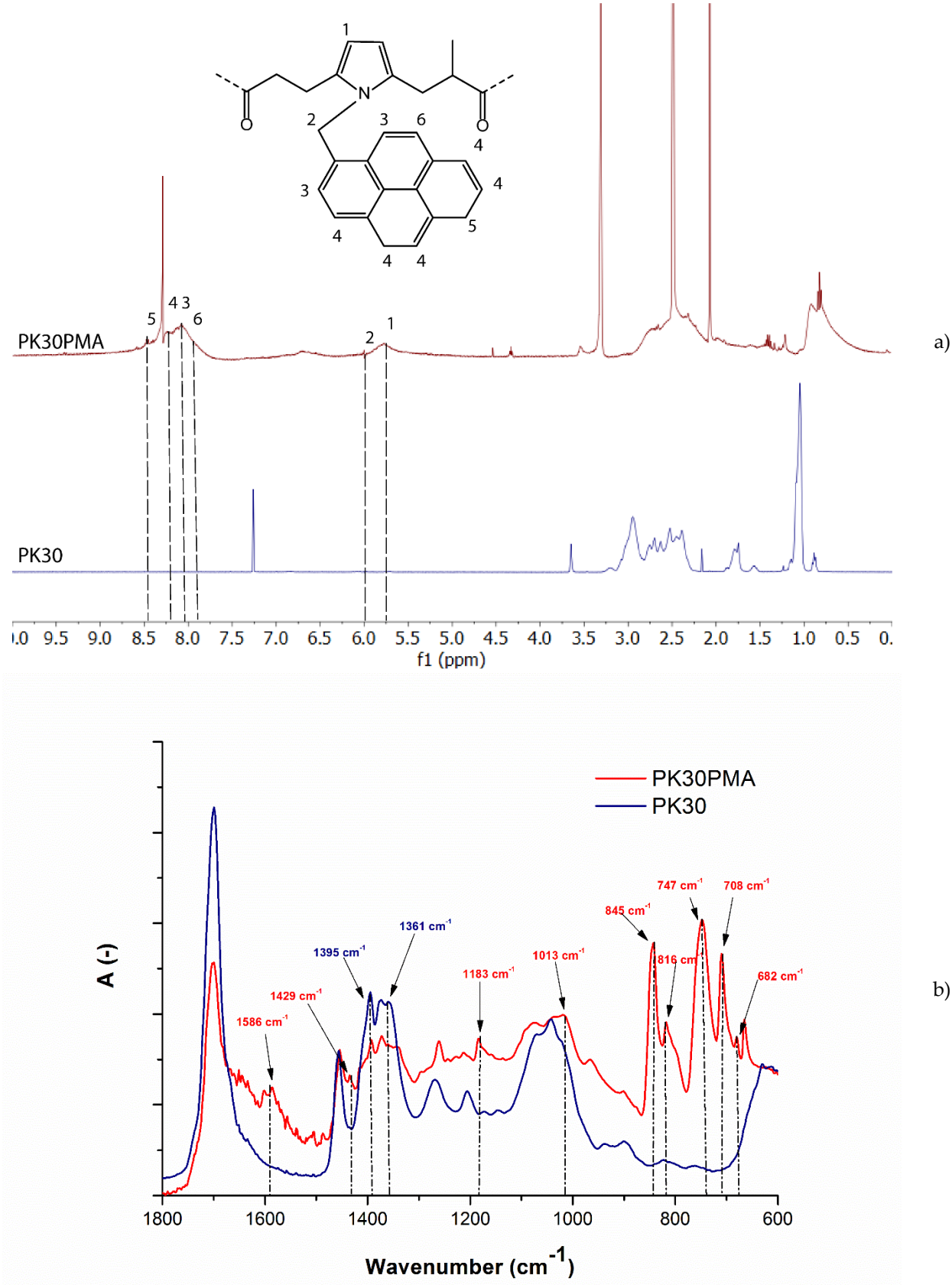


Figure S4: a) ^{1}H-NMR and b) FT-IR spectra of modified pristine PK30 and PK30PMA. 1395 cm^{-1} (CH_2 twisting), 1361 cm^{-1} (CH_2 wagging), 708 cm^{-1} and the moderate absorptions at 1183 and 747 cm^{-1} are assigned to the out-of-plane vibrations of the three adjacent C-H bonds of the pyrene ring and the newly formed C-C bond between pyrene units, respectively. In addition, the strongest peaks at 845 cm^{-1} and the weak peaks at 1429 and 1686 cm^{-1} were assigned to the C=C bonds of the pyrene. Two new peaks at 816 and 682 cm^{-1} are attributed to the two adjacent C–H bonds of the pyrene ring and the newly formed C–C bond between pyrene units, respectively.

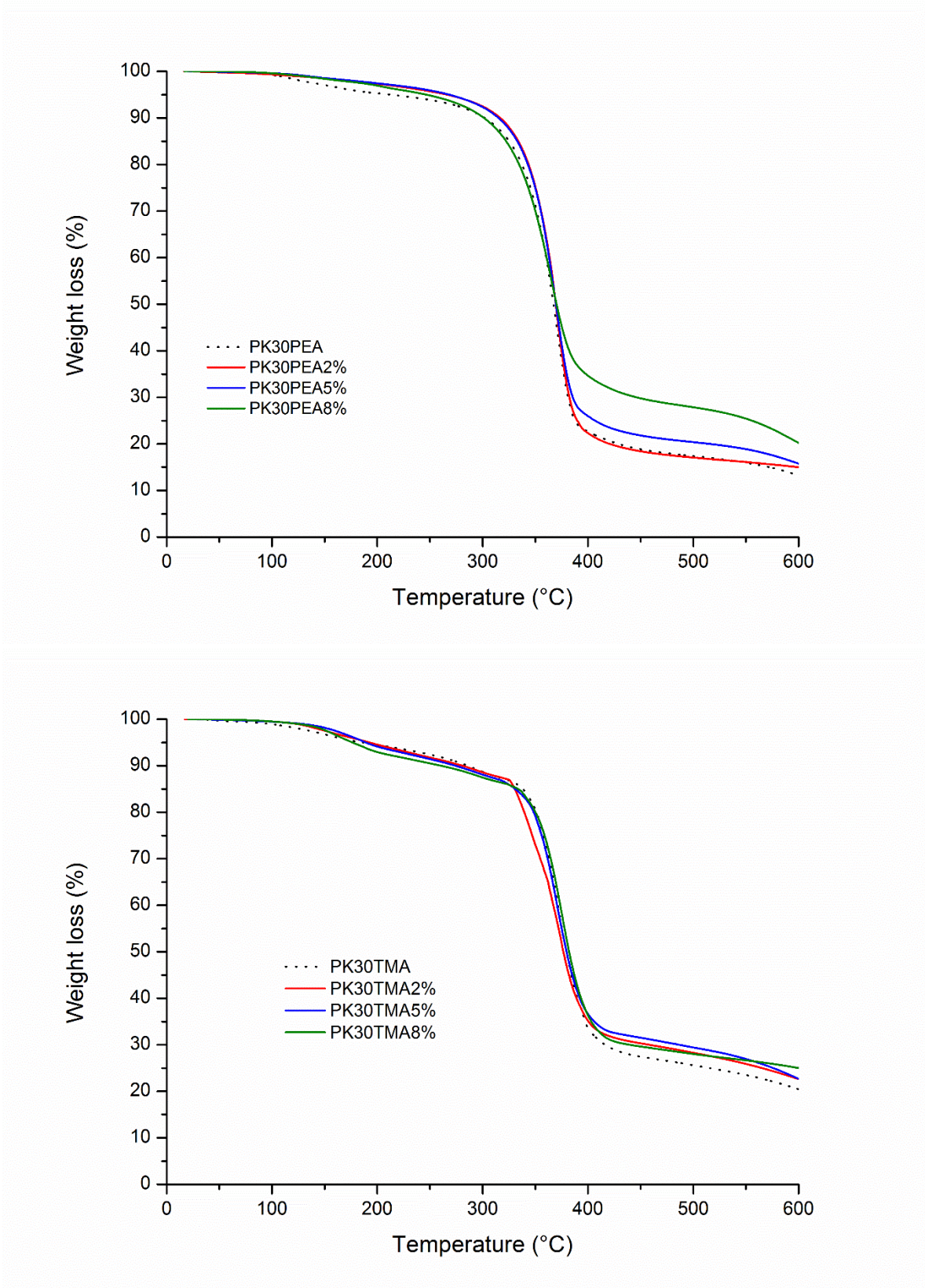


Figure S5: TGA curves of a) PK30PEA and b) PK30TMA with 2, 5 and 8 wt. % of MWCNTs.