Electronic Supplementary Material (ESI) for Polymer Chemistry

The use of carbon paste electrode mixed with multiwall carbon nanotube/polyimide composites as electrode for sensing ascorbic acid

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Mass spectrum (*m*/*e*): calculated for $C_{40}H_{30}N_4O_7$= 678.6. Found 677.2. ^{1}H NMR (d_6-DMSO): δ= 8.40 (s, 1H, due to H_4), δ= 8.05-8.03 (d, 1H, due to H_8), δ= 7.63-7.60 (2H, due to H_7, H_9), δ= 7.29-7.23 (t, 4H, due to H_2, H_6), δ= 7.17-7.12 (t, 4H, due to H_3, H_5), δ= 6.87 (t, 1H, due to H_1)

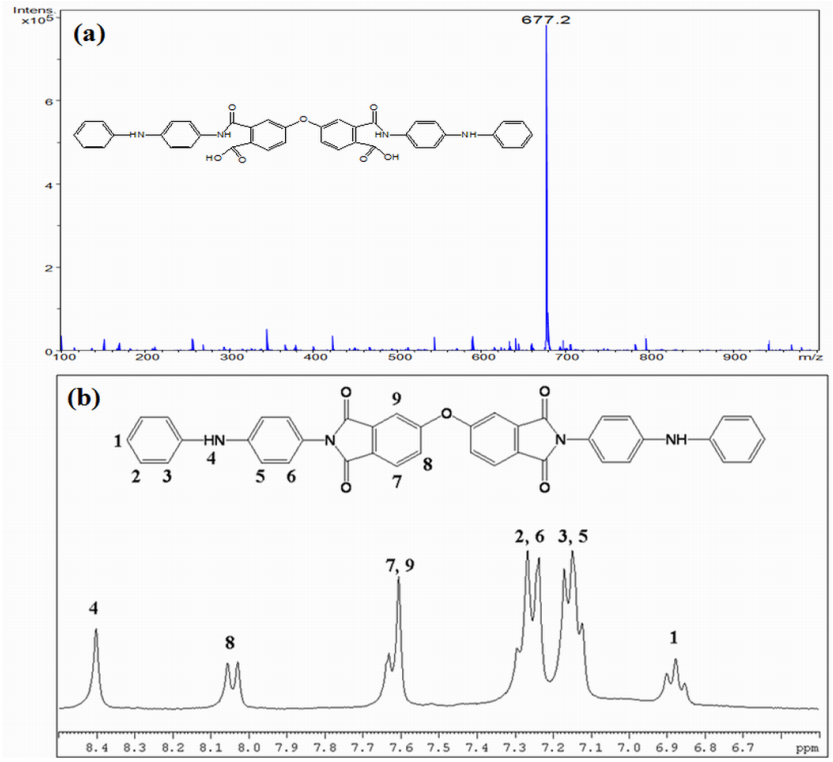

Fig. S1 (a) Mass of oligoaniline and (b) ^{1}H NMR of imidic monomer of oligoaniline.

The detailed characterizations for imidic monomer of oligoaniline was listed as follows: FTIR (KBr, cm^{-1}): 3380 (s, υ_{NH}), 1774 (m, $\upsilon_{C=O}$ asymmetric stretching), 1708 (vs, $\upsilon_{C=O}$ symmetric stretching), 1592 (s, $\upsilon_{C=C}$ of benzenoid rings), 1521 (vs, $\upsilon_{C=C}$ of benzenoid rings), 1323 (s, υ_{C-N}), 1102 (m, δ_{CH}), 890 (m, δ_{CH}), 740 (m, imide ring deformation).

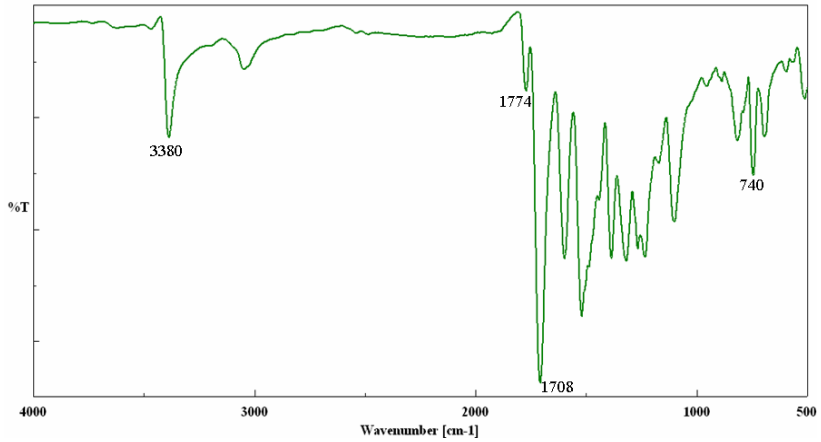

Fig. S2 FTIR spectra of the imidic oligoaniline

The detailed characterizations for EPAA was listed as follows: FTIR (KBr, cm^{-1}): 1711 cm^{-1} (vs, $\upsilon_{C=O}$ symmetric stretching), 1590 (s, $\upsilon_{C=C}$ of benzenoid rings), 1510 (vs, $\upsilon_{C=C}$ of benzenoid rings).

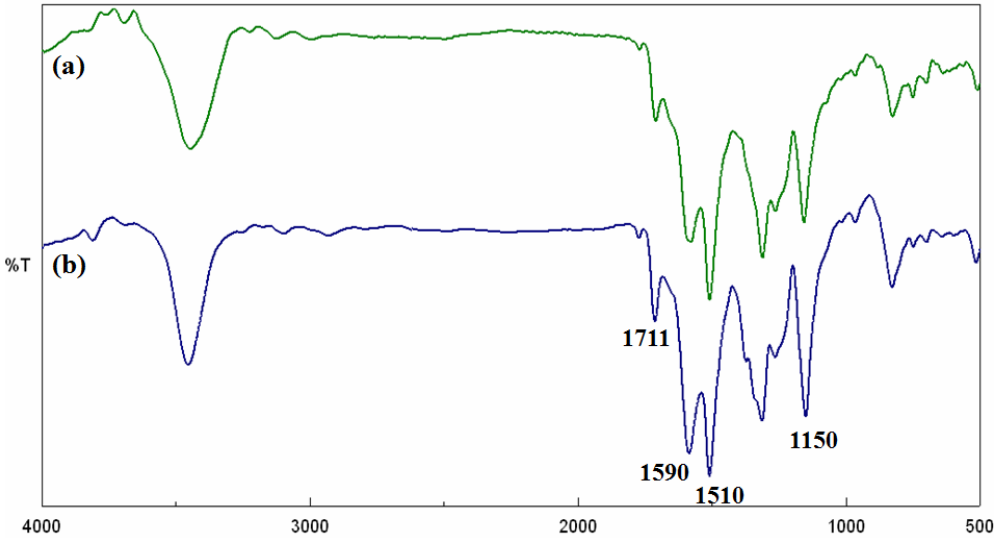

Fig. S3 FTIR spectra of (a) EPAA and (b) AF-MWCNT/EPAA composites

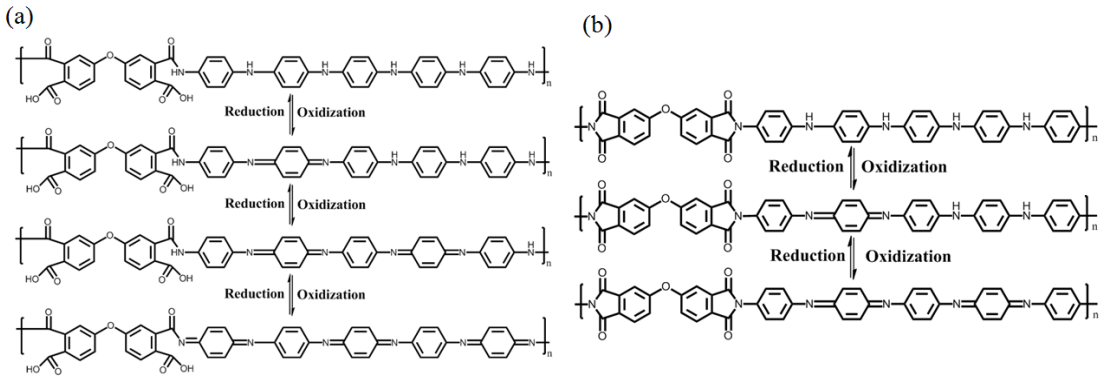

Fig. S4 Molecular structures of (a) EPAA and (b) EPI at various oxidation states

Table S1 The conductivity of AF-MWCNT/EPI	
AF-MWCNTs Loading [wt%]	**Conductivity (S/cm)**
0	**5.46×10^{-6}**
1	**1.32×10^{-5}**
3	**3.55×10^{-3}**
5	**3.31×10^{-1}**
10	**8.87×10^{-1}**