Supporting Information

Multiple Functionalization of Tungsten Disulfide Inorganic Nanotubes by Covalently Grafted Conductive Polythiophenes

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Figure SI-1. The Powder Resistivity Measuring System.

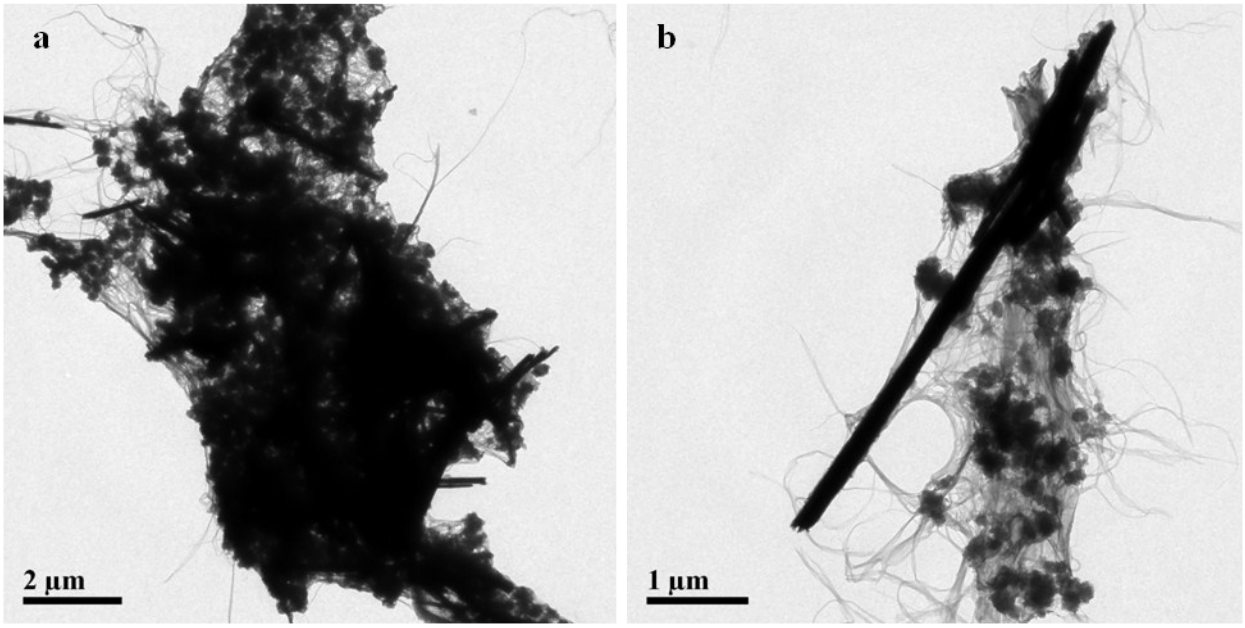

Figure SI-2. TEM (a, b) images of PEDOT bulk polymerization in the presence of non functional-WS_2 INTs.

In order to compare the TGA analyses involving both of the polyTh-WS_2 INTs composites and the crude polymers, the TGA measurements were also performed for all of the crude polymers. Figure SI-3 shows the DTG plots of the polyTh-WS_2 INTs composites and the corresponding crude polymers. According to this figure, the same DTG pattern is also observed for the polymer-modified INTS and their respective crude polymers.

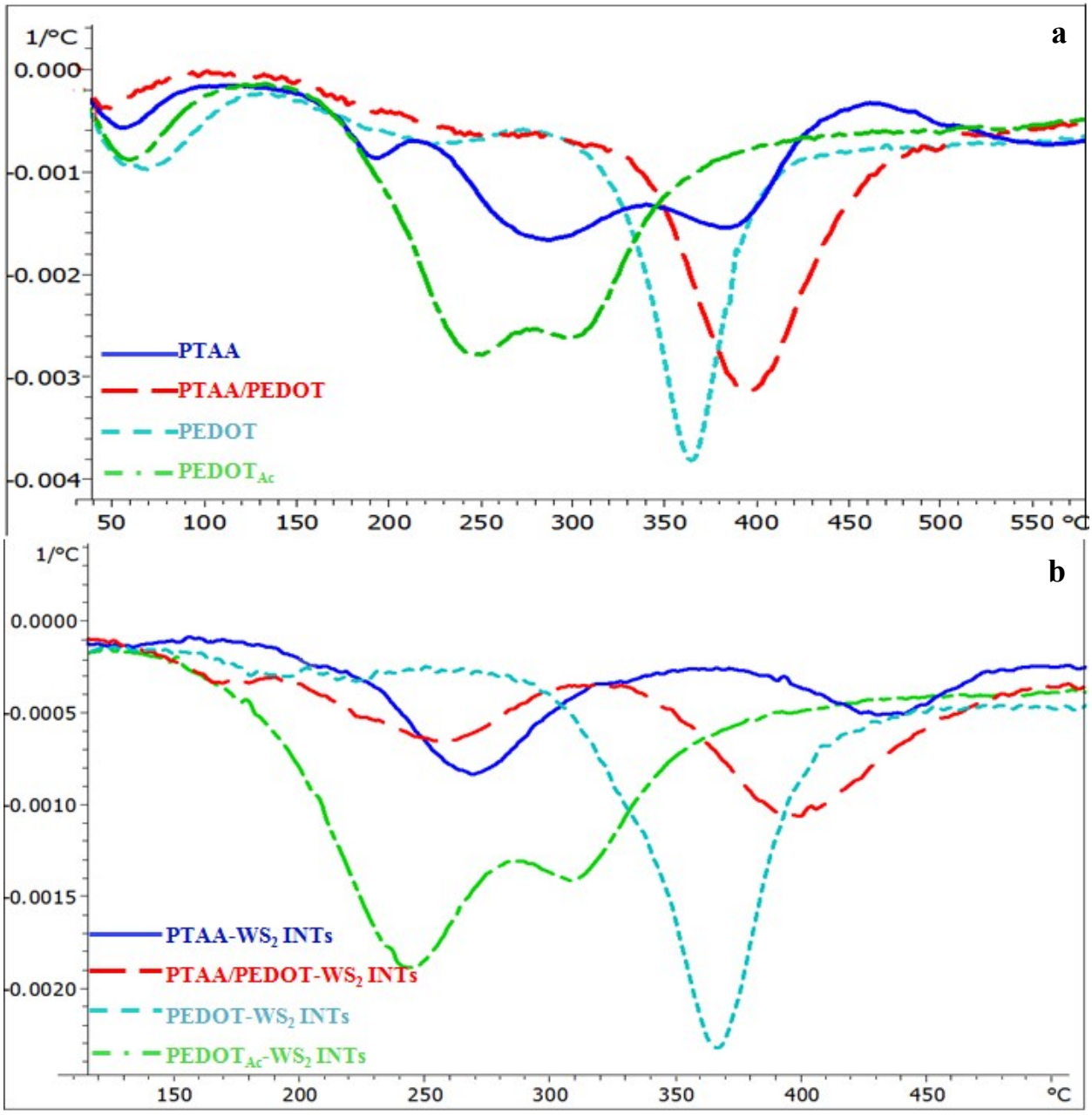

Figure SI-3. The 1st derivative (DTG) plots of (a) crude polyTh-polymers and (b) of the relating polyTh-WS_2 INT composites.

Figure SI-4 shows the FT-IR spectrum of the neat polyTh-polymers. It can easily be seen that the C=O stretch at ~1700 cm^{-1} is absent in the spectrum of the PEDOT-WS_2 INTs composites.

Moreover, the peaks that correspond to the C-O-C stretchings of the ethylenedioxy group/functionality at ~1200 and 1100 cm^{-1} clearly appeared in all of the three types of composites containing the PEDOT structure. As expected, such peaks are missing in the PTAA spectrum. The peaks in the range of 2980-3150 cm^{-1} are attributed to the C-H stretchings of the ethylene groups.

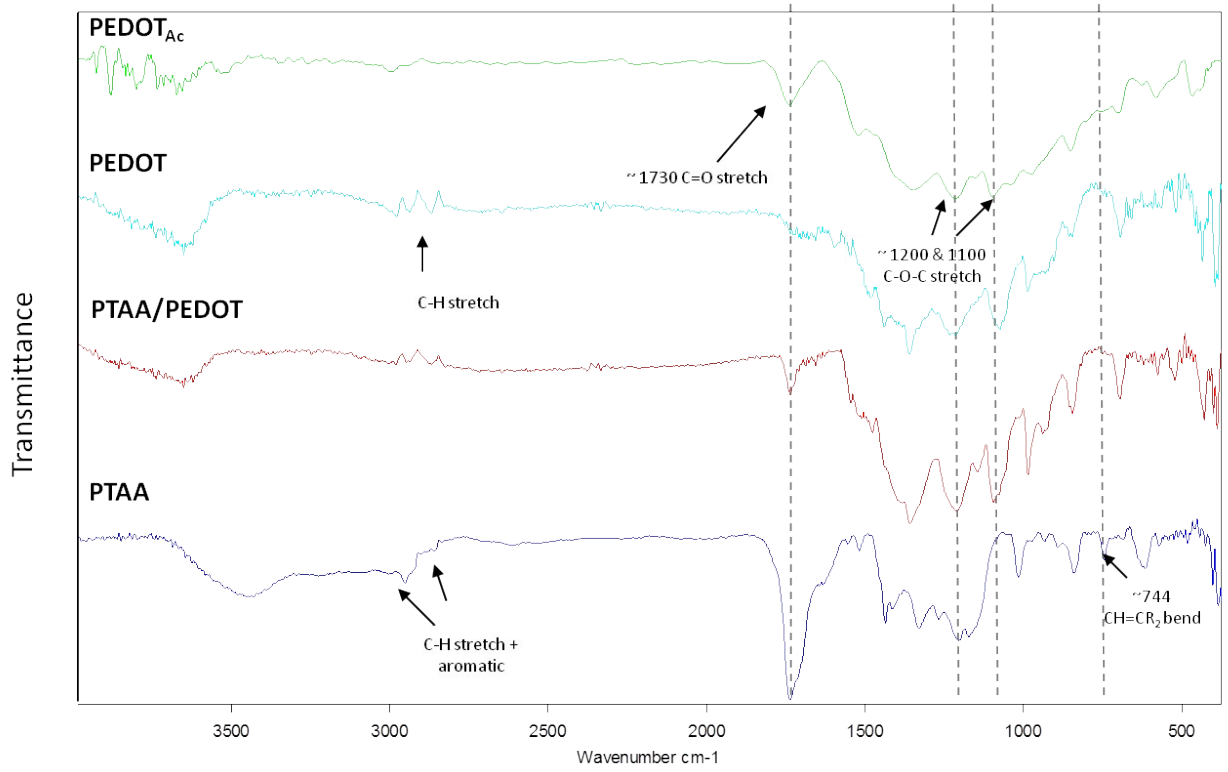

Figure SI-4. The FT-IR spectra of the entire crude polyTh-polymers.