

The purpose of this study is to prepare the polyaniline modified Multi-wall carbon nanotube (MWNT)/polystyrene (PS) nanocomposites . In this study , due to the presence of the strong Van der Waal force interaction , surface treated CNTs were carboxylated and surface thionyl chloride groups are prepared to improve the solubility of MWNT in solvents respectively . The polyaniline modified MWNT was prepared by grafted reaction and in situ polymerization respectively , and they were analyzed with FTIR , UV-Vis , UV-Vis-NIR , TEM , TGA , XPS and conductivity measurement .

The results illustrate that the MWNT was blighted by carboxylation which can be seem and proved by TEM and Particle size analyzer , respectively . The red shifting of UV-Vis-NIR spectra , the indicating the increaed conjugation length of polyaniline chain was found when MWNT was grafted with polyaniline molecules . Regarding to the measurement for the conductivity of polyaniline modified Multi-wall carbon nanotube nanocomposites , the o-ES and m-ES of conductivity is significantly increased because the modified MWNT created the confinuous conducting path with the hoop of grafted polyaniline . The polyaniline modified MWNT/PS nanocomposites were analyzed by SEM and conductivity measurement . Since the formation modified of continuous conducting path , the conductivity of polyaniline modified MWNT is increased three to four order compared to pure polyaniline.