

Abstract

Conducting polymers such as polyaniline (PANI) present many advantages because their easy synthesis, low cost, tunable doping properties, modifiable electrical conductivity and better stability compared to other polymers. In this study, the hybrid conducting nanocomposite; inorganic/organic was chemically synthesized by in-situ polymerization in aqueous medium within the addition of 50 wt % HY zeolite free acids environmentally friendly, using 5 to 30 wt % of TiO_2 with respect to aniline monomer. The elaborated compounds were characterized by several methods such as: FTIR, XRD, TGA, adding the conductivity measurements. The FTIR spectra indicate the interaction of PANI chains with HY zeolite, and is identical with the interaction between PANI/ HY and TiO_2 . The TiO_2 vibrations bands increase with its contents. In comparison to PANI/ HY, the conductivity value increases till 20 wt% of TiO_2 , which constitutes the percolation threshold, for the higher contents of TiO_2 the conductivity is still lower and may be due to the partial blockage of conductive path and reduction of conjugation length between PANI chains by excess of TiO_2 nanoparticles within the PANI / HY