Abstract:

Luminescent coatings may provide low-cost techniques for studying the corrosion mechanism of coatings and for getting an early indication of corrosion processes. Here, a series of conducting copolymers and their nanocomposites has been synthesized and the effect of adding bulky moieties and/or nanocomposite formation on the solubility, thermal stability, corrosion inhibition, and photoluminescence of these copolymer coatings has been investigated. A significant enhancement in both solubility and thermal stability of the copolymers has been demonstrated upon the nanocomposite formation or presence of bulky groups. The nanocomposites displayed an inhibition efficiency of 97% for mild steel corrosion in an acidic environment which is much higher than that of the corresponding copolymers. Interestingly, the as-prepared copolymers and nanocomposites with tert-butyl group displayed an aggregation

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