ABSTRACT

THE SYNTHESIS AND CHARACTERIZATION OF TRIPHENYLTIN(IV) CHLOROBENZOATE AS ANTICORROSION FOR MILD STEEL

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In this research, the synthesis and characterization of triphenyltin(IV) 2-chlorobenzoate, triphenyltin(IV) 3-chlorobenzoate and triphenyltin(IV) 4-chlorobenzoate were successfully performed and the anticorrosion activity tests on mild steel for these compounds have been performed using potensiostat method. The preparations of triphenyltin(IV) chlorobenzoate compound series were commenced by the synthesis of triphenyltin(IV) hydroxide from triphenyltin(IV) chloride with NaOH in methanol. The triphenyltin(IV) hydroxide compound was then reacted with the ligands of 2-chlorobenzoic acid, 3-chlorobenzoic acid and 4-chlorobenzoic acid to produce triphenyltin(IV) 2-chlorobenzoate, triphenyltin(IV) 3-chlorobenzoate and triphenyltin(IV) 4-chlorobenzoate, respectively. The percentage yield of the synthesis of triphenyltin(IV) chlorobenzoate series at the optimum reflux time of 4 hours were 82.44; 82.87; and 98.08%. These compounds were well characterized by spectroscopy techniques of infra red (IR), ultraviolet (UV), 1H NMR and 13C NMR as well as based on the microelemental analysis. The results of anticorrosion test of the compounds synthesized toward mild steel showed that the percentage efficiency inhibition (%EI) values for the triphenyltin(IV) 2-chlorobenzoate, triphenyltin(IV) 3-chlorobenzoate and triphenyltin(IV) 4-chlorobenzoate were 61.55; 56.52 and 51.35%, respectively, at concentration of 100 ppm.

Keywords: anticorrosion, mild steel, potensiostat, triphenyltin(IV).