

Abstract

The effect of aluminium in small additions (0.2, 0.4, 0.6 and 0.8 wt %) as alloying element on the corrosion behaviour of pure zinc as sacrificial anode was investigated in an aerated 0.5M NaCl solution. The electrochemical studies of the rotating zinc disc and zincaluminium electrodes were performed by means of the following electrochemical methods i.e., linear polarization resistance, potentiodynamic polarization, electrochemical impedance spectroscopy (EIS) and Evans diagrams. All the results showed a decrease in the corrosion current density value with increasing the percentage of Al in Zn indicating that there is an improvement of the alloys corrosion resistance with respect to the pure zinc. Besides, the highest Al composition (0.8 wt % in Al) deactivates the sacrificial zinc anode without passivates it