

**Title of Article :** Study of Influence of Zinc Plated Mild Steel Deterioration in Seawater Environment

**Author(s):** Durodola B.M. Olugbuyiro J.A.O., Moshood S.A., Fayomi O.S., Popoola A.P.I.

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**Abstract:** The corrosion resistance of electrolytic zinc-coating on mild steel in seawater was investigated. Mild steel samples were zinc electroplated at voltage varied (0.6, 0.8, 1.0, 1.5 V) and for plating time also varied (20, 30, 40, 50, 60 minutes). Focused ion-beam scanning electron microscopy was used to observe the surface morphology of the plated surface. The visual observation of plated samples revealed that samples plated at 0.6 V for 20 and 60 minutes; 0.8 V for 30 minutes and 1.0 V for 40 minutes showed the best physical properties such as colour, brightness, fineness, streak and strong adhesion. The plated samples were then subjected to seawater environment for 30 days. The electropotentials mV (SCE) was measured daily. Weight loss was determined at intervals of five days for the duration of the exposure period. Experimental result showed little corrosion attack on the zinc-plated samples on the fifteenth and twenty-fifth day's exposure. The severity of attack decreases with increasing weight of zinc coated on substrate. Significant increases in the corrosion resistance were achieved for the plated samples compared with that of the substrate. The pH of the seawater became more alkaline at the end of the thirty days test.

**Keywords:** Zinc plating; Mild steel; Corrosion resistance; Seawater

