
CORROSION INHIBITION: THE INVESTIGATION OF LANOLIN ON THE CORROSION OF 1018 CARBON STEEL IN COMMERCIAL SEA WATER

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There is a high demand for an environmentally friendly and cost-effective corrosion inhibitor. Due to the relatively low viscosity (high capillary action), commercially available polymeric lanolin has been used as a biodegradable corrosion inhibitor in addition to a natural lubricant for marine steel applications. In this work, corrosion of lanolin-saturated 1018 steel was investigated while completely submerged in stagnant seawater under local atmospheric conditions. Samples were immersed in commercial sea salt solution and analyzed at regular intervals. Determination of corrosion rate change, hardness variation and variation in surface microstructure of each specimen was executed on both standard and lanolin-treated 1018 steel specimens. At this point in the work, lanolin-treated 1018 steel samples retain polymeric coat and infer a high resistance to corrosion under long-term submersion. SEM-based analysis has inferred substantial corrosion attack occurring at the standard sample periphery compared to lanolin-treated samples. The addition of lanolin to the surface of the sample displayed a relatively low consistency in corrosion rate calculations compared to the standard sample.