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Electrochemical and Surface Investigation of *Quinoline-8-sulphonyl chloride* as Corrosion Inhibitor for Mild Steel in Acidic Medium

R. Ganapathi Sundaram, and M. Sundaravadivelu

¹Department of Chemistry, The Gandhigram Rural Institute-Deemed University,
Gandhigram – 624 302, Tamilnadu, India

Abstract: The primary objective of this study is to examine the corrosion inhibition performance of *quinoline-8-sulphonyl chloride* (QSC) on Mild Steel in 1 M H₂SO₄ solution by electrochemical, weight loss, Scanning Electron Microscopy (SEM) and Energy Dispersive X-ray spectroscopy (EDX) methods. From the Weight Loss (WL) method, it is observed that the corrosion rate has been decreasing with the addition of inhibitor concentration, which indicates that, the formation of protective film on the surface of mild steel. Electrochemical studies showed that QSC is a good corrosion inhibitor for mild steel in acid solution. Tafel plots indicate that QSC is a mixed inhibitor. The data, which is obtained from all methods, show that the adsorption of the used inhibitor obeys Langmuir adsorption isotherm. SEM and EDX techniques confirmed the formation of protective film on the surface of mild steel.

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