

Title: Aniline Effect On Concrete Steel Rebar Degradation In Saline And Sulfate Media.

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Abstract: Electrochemical potential monitoring experiments were performed on mild steel rebars embedded in concrete admixed with aniline inhibitor and fixed amount of sodium chloride salt partially immersed in sulfuric acid and sodium chloride solution. The open circuit potential corrosion monitoring technique was employed and the potential readings were taken in accordance with ASTM C 876. Repressive attribute and consistency of the inhibitor was then estimated by the Weibull probability density distribution as an extreme value statistical modeling approach to study performance effectiveness and to predict the most efficient inhibitor concentration in each media. Aniline effect on the compressive strengths of the reinforced concrete samples was also investigated and reported. Varying concentrations of the inhibitor were used and its performance improved as concentration changed in NaCl medium, while no particular order of performance was noted in sulfuric medium. In the statistically analyzed experimental results for each of the inhibitor concentrations employed, 0.34 and 0.41 M aniline admixed samples were identified as exhibiting the best inhibiting quality in sodium chloride while 0.14 M aniline was predicted as showing the lowest probability of corrosion risk in sulfuric acid medium. The overall effective inhibitive performance in sulfuric acid was less when compared to the sodium chloride medium. Concrete sample admixed with 0.41 M aniline had the highest improvement in compressive strength in both media.