

Title: Effect of synergies of K₂Cr₂O₇, K₂CrO₄, NaNO₂ and Aniline Inhibitors on the Corrosion Potential Response Of Steel Reinforced Concrete In Saline Medium.

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Abstract: Studies involving performance of corrosion inhibitors had been identified as one of the critical research needs for improving the durability of concrete structures. This paper investigates the effect of synergy on the performance of potassium chromate, sodium nitrite and aniline as inhibitors on the corrosion of steel-rebar in concrete in sodium chloride medium. The corrosion monitoring technique of the open circuit potential was employed for specimens of steel-reinforced concrete, with different synergistic admixtures of K₂Cr₂O₇, K₂CrO₄, NaNO₂ and Aniline, partially immersed in the marine simulating environment. Interpretation of the statistical modelling of the experimental results, for each of the synergistic concentrations of inhibitor admixtures studied, was done using ASTM C876. The modelled ranking from these predicted the synergistic combination of 3.0g (0.064 M) K₂Cr₂O₇ + 4.5g (0.145M) K₂CrO₄ + 3.0g (0.272M) NaNO₂ + 4ml (0.274M) Aniline as exhibiting optimal inhibiting quality on the corrosion of steel-reinforced concrete in the chloride medium considered.