

Clays valorization as corrosion inhibitors for E400 reinforcing steel

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Abstract. The behavior of E400 steel, a constructional steel widely used in Senegal, was studied in aqueous NaCl solution in the presence of two types of clay: volcanic tuffs, and sedimentary montmorillonite. The protection efficiency of these compounds were electrochemically assessed (corrosion potential variation curves, polarization curves and electrochemical impedance spectroscopy) at various inhibitor contents. The results obtained showed that these inhibitors present an inhibitory efficacy of about 70% for an optimal concentration of 0.60% for the tuffs and 62% for a maximum content of 0.50% for montmorillonite.

Keywords: corrosion; inhibitor; steel; tuffs; montmorillonite; Tafel polarization.

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