

Cyclic nitrones as novel organic corrosion inhibitors for carbon steel in acidic media

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ABSTRACT

The corrosion inhibition capabilities of new cyclic nitrones contg. hydrophobic substituents are described. A no. of new cyclic nitrones were synthesized. Corrosion inhibition efficiencies of these org. inhibitors were detd. by gravimetric and electrochem. methods, using C steel as the substrate metal and 1 M HCl at 60° as the corrosive environment. Conc. of inhibitor was varied between 50 and 400 ppm. All compds. exhibited excellent corrosion efficiencies that ranged between 90.0 and 98.3% in 1 M HCl at 60°. Tafel tests corroborated these results. The inhibitors were tested in acidic medium. It is unknown how these inhibitors will function in the presence of other ions that are typically present in natural corrosive environment. All org. compds. presented are new and this is the 1st time their corrosion inhibition characteristics were evaluated.