

Application of Sodium Methyl Ester Sulfonate Anionic Surfactants as Corrosion Inhibitors for Carbon Steel in Oilfield Injection Water

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Abstract. In this study, the anticorrosive properties of a series of sodium methyl ester sulfonate anionic surfactants (Φ -MES) on a carbon steel "API 5L X70" were estimated in an oilfield injection water from a well of Hassi R'Mel region- Algeria, and are compared to those of sodium dodecyl sulphate. This class of surfactants was synthesized from fatty acids by photochemical process and exhibits good physicochemical properties and good biodegradability. The inhibition corrosion was evaluated by means of loss weight and linear polarization corrosion rate (LPR) techniques. The results suggested that the studied surfactants were a good inhibitors. Inhibition efficiency was found to increase with increase in concentration and chain length. Adsorption of inhibitors on the carbon steel follows Langmuir adsorption and the mechanism of adsorption is governed by physical forces.

Keywords: Oilfield Injection Water, Corrosion, Surfactants.