Synthesis of Schiff Base Surfactants and Their Corrosion Inhibition Effect on Tubing Steel in Deep Oil Wells

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doi: 10.20964/2016.06.26

Received: 29 February 2016 / *Accepted:* 23 March 2016 / *Published:* 4 May 2016

In this work, we synthesized a series of Schiff base surfactants using chemical route. The properties of the surfactants including critical micelle concentration, maximum surface excess, minimum surface area and surface tension were determined. Results indicate the properties of the surfactants are highly related to their chain length. The corrosion inhibition effect of the Schiff base surfactants was evaluated on deep oil well tubing steel. Electrochemical impedance spectroscopy, polarization, polarization and weight loss experiments were carried out. Surfactant molecules were well absorbed on the carbon steel surface and can be described using Langmuir adsorption isotherm. The effect of several parameters were studied and discussed.

Keywords: Schiff base surfactant; Corrosion; Deep oil well; Tubing steel; Surface tension

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