

Research article

Novel Cationic Gemini surfactants: Preparation, characterization and Breaking of Water-in-Crude Oil Emulsions

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ABSTRACT:

A novel class of cationic Gemini surfactants $C_{14} - 2A - C_{14}$ and $C_{10} - 2B - C_{10}$ (where C_{14} and C_{10} represents the alkyl chain length of 10 and 14) synthesized and characterized by FT – IR , H^1 NMR, C^{13} NMR and mass spectra. Gemini surfactants aggregation behavior (determine critical micelles concentration CMC) were investigated by mean of electrical conductivity and obtained the surface tension at CMC point. It was found that $C_{14} - 2A - C_{14}$ and $C_{10} - 2B - C_{10}$ have superior surface activity. Cationic Gemini surfactants were used to treat the water in oil emulsions and study the effect of heat and setting time on the separation efficiency of water from crude oil. **Copyright © IJACSR, all rights reserved.**

Keywords: Cationic Gemini surfactants, electrical conductivity, critical micelle concentration, degree of micelle ionization, Water in oil emulsion.

1. Introduction:

In recent years, there is an increasing interest in novel forms of surfactants, particularly in Gemini surfactants, which consist of two conventional surfactants joined by a spacer at the head group, as they exhibit significant surface activity properties that cannot be achieved by conventional surfactants [1, 2, 3]. These