

# Interaction of a Cationic Surfactant with an Oppositely Charged Polymer

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## Abstract

The interactions between the cationic surfactant Dodecyltrimethylammonium Bromide (DTAB) and anionic polymer sodium carboxymethyl cellulose (Na-CMC) in aqueous medium were studied at 300K over different concentrations of Na-CMC by tensiometry, conductometry, viscometry, turbidimetry and fluorimetry. Aggregation of surfactant was attained in two steps, the first being the monomeric adsorption of surfactants on anionic sites of the polymer saturating at lower concentrations of surfactant and the second one being the formation of micelles by surfactants at higher concentrations. Mainly, two types of interactions prevailed throughout namely, electrostatic and hydrophobic interactions. Due to the variation of the interactions depending on the concentrations of polymer, there has been considerable differences in the behavioural pattern of the profiles for the lower concentrations of polymer compared to that of the upper ones.

**Keywords:** Anionic Polymer, Cationic Surfactant, Electrostatic Interaction, Hydrophobic Interaction, Micellization