

The Effect of Anionic, Cationic and Nonionic Surfactants on the Uncatalyzed Bromate Oscillator

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The response of an uncatalyzed bromate oscillator with phenol as substrate to the increasing concentrations of cationic (CTAN), anionic (SDS) and nonionic surfactants (Brij-30 and Triton X-100) was monitored at (25 ± 0.1) °C under stirred batch conditions. Addition of the surfactants influenced the oscillatory parameters: a slight increase of the induction period of the first series of oscillations, a significant increase of the induction period of the second series of oscillations and a gradual decrease of the oscillation numbers of both series until complete disappearance at a certain surfactant concentration. The changes in the oscillatory parameters have been ascribed to solubilization of phenol and of bromination products in the micelles, to inhibition of bromination of the aromatic substrate due to bromine solubilization, and to the catalytic effect of the charged micelle surface.

Key words: Bromate Oscillator; Micelles; Sequential Oscillations.