

## **Coil-globule transition in aqueous solutions of quaternized poly(4-vinylpyridine) derivatives and sodium dodecyl sulfate**

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### **Abstract**

Aqueous solutions of cationic polyelectrolytes (quaternized derivatives of poly(vinylpyridine)) and an anionic surfactant (sodium dodecyl sulfate) were studied by potentiometric titration using surfactant-selective and bromide-selective electrodes, as well as by the methods of microelectrophoresis, viscometry, spectrophotometry, dye solubilization, and pH control. The experimental evidence obtained revealed a new phenomenon: at a certain concentration of surfactant in polymer solutions, once the macromolecular ion has been saturated with surfactant molecules, a noticeable fraction of surfactant ions is expelled from the polyelectrolyte complex, and the vacant sites are occupied by inorganic counterions. This structural transition was discussed within the framework of the theory of coil-globule conformational transition. Schematic representation of pretransition and posttransition states of the polyelectrolyte-surfactant associates was advanced.

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