

Counterion association to cationic polyelectrolytes in methanol/water mixtures

Barraza, Raúl G.

Rios, Hernán E.

The effect of the nature of the medium on the chloride and bromide condensation to a cationic polyelectrolyte was studied. Methanol/water mixtures were used as solvent in order to vary continuously the properties of the medium. The counterion-polyion interaction was studied by the determination of the Eisenberg interaction parameter (f^*) by means of electrical conductivity measurements. Results indicate that f^* parameters increase while the limiting electrical conductivity is rapidly decreasing. This apparently anomalous phenomenon is interpreted as a preferential solvation of the polyelectrolyte which brings about a conformational change, as revealed by the intrinsic viscosity behavior of the solutions. This change could induce an increase in the average distance between charges without further dissociation, which could explain the observed behavior of the f^* parameter. It is concluded that the actual dielectric constant which governs the polyion-counterion interaction in the polyelec