



---

## **TRANSPORT AND FLOCCULATION PROPERTIES OF SOME CATIONIC POLYELECTROLYTES**

**Luminita Ghimici, Stela Dragan\***

*"Petru Poni" Institute of Macromolecular Chemistry, Aleea Grigore Ghica Voda 41 A, Ro-6600 Iasi,  
Romania*

---

### **Abstract**

The dilute solution behavior of a polyelectrolyte with quaternary ammonium salt groups (N,N-dimethyl-2-hydroxypropylammonium chloride) located along the main chain, (PCA<sub>5</sub>), has been studied in order to obtain information about the effect of polymer concentration and polarity strength of the solvent onto its chain conformation in various mixtures of water/methanol. The conformational changes of polyelectrolyte chain were followed by viscometric and conductometric methods. The viscometric experimental data were plotted in the terms of Rao's equation. Straight lines were obtained in all cases, allowing the calculation of intrinsic viscosity,  $[\eta]$ . The intrinsic viscosity values decreased with increasing organic solvent content in the mixed solvents. Data from the conductometric studies emphasized the equivalent conductivity values,  $\Lambda$ , increase with decreasing concentration over the whole concentration range. At a given concentration the equivalent conductivity decreases with decreasing dielectric constant. The flocculating efficiency of this polycation on an aqueous suspension of bentonitic clay was also studied.

*Keywords:* polyelectrolyte, viscosity, conductivity, solvent mixture, flocculation

---

---

\* Author to whom correspondence should be addressed: Fax: +40.32.211299; e-mail: [lghimici@icmpp.tuiasi.ro](mailto:lghimici@icmpp.tuiasi.ro)