

Thermodynamic studies on some interpolymer interactions and stability of polycomplexes

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(Received 3 August 1993)

SUMMARY:

Stability constant and related thermodynamic parameters (ΔH° and ΔS°) of a multicomponent intermacromolecular complex consisting of poly(acrylic acid-co-acrylamide), poly(methacrylic acid-co-acrylamide) and poly(N-vinylpyrrolidone) have been determined using known methods. A distinct stepwise disintegration of the complex at different temperatures has been observed, and this could be correlated with the stability constant and thermodynamic parameters calculated at various temperatures.

ZUSAMMENFASSUNG:

Stabilitätskonstanten und zugehörige thermodynamische Parameter (ΔH° , ΔS°) eines intermakromolekularen Komplexes aus Poly(acrylsäure-co-acrylamid), Poly(methacrylsäure-co-acrylamid) und Poly(N-vinylpyrrolidon) wurden mit bekannten Methoden bei verschiedenen Temperaturen bestimmt. Dabei wurde eine stufenweise Auflösung des Komplexes in Abhängigkeit von der Temperatur beobachtet, die mit den Stabilitätskonstanten und den thermodynamischen Parametern korreliert wurde.

Introduction

Macromolecules with complementary binding sites interact with each other through secondary binding forces, such as electrostatic forces, hydrogen bonding, ion-dipole interactions, etc., to form intermacromolecular complexes^{1,2}. The study of these complexes is important both from applied and fundamental points of view due to their potential applications in various fields^{3,4}. During the last decade, considerable amount of work has been done in this direction^{1,2}. However, most of these investigations have been confined to the study of interactions involving non-ionic homopolymers, polyelectrolytes and

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