

STABILITY CONSTANTS AND RELATED THERMODYNAMIC PARAMETERS OF SOME QUATERNARY INTERMACROMOLECULAR COMPLEXES INVOLVING POLYELECTROLYTES AND NONIONIC HOMOPOLYMERS

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ABSTRACT

Stability constants and related thermodynamic parameters (e.g., ΔH° and ΔS°) of some quaternary intermacromolecular complexes involving polyelectrolytes and nonionic homopolymers were determined at several temperatures. The various interacting forces involved in the complex formation are destabilized at different temperatures which are reflected in the enthalpy and entropy changes of the systems at various temperatures.

INTRODUCTION

The various aspects of polyelectrolyte complex (PEC) formation have been studied since time immemorial, particularly in view of their potential applications in various fields [1, 2]. It is expected that by incorporating various types of nonionic homopolymers in these complexes, their stabilities, properties, and potential applications could be appropriately modified from those of the original complexes. Keeping this object in mind, we have studied the interaction of poly(methacrylic acid) (PMA) with the following components: poly(ethylene imine) (PEI), poly(vinylpyrrolidone) (PVP), and poly(ethylene oxide) (PEO). The components were