

عنوان مقاله:

Equilibrium Swelling Study of Cationic Acrylamide-Based Hydrogels in Aqueous Electrolyte Solutions

محل انتشار:

پنجمین کنگره بین المللی مهندسی شیمی (سال: 1386)

تعداد صفحات اصل مقاله: 7

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خلاصه مقاله:

Cationic acrylamide-based hydrogels were synthesized by free radical polymerization using methacrylamido propyl trimethyl ammonium chloride (MAPTAC) as the ionic co-monomer. Equilibrium swelling of the synthesized hydrogel was determined in various salt solutions at different concentrations and in distilled water as well. Equilibrium swelling results were analyzed and then modelled. To this end, thermodynamic approach based on Flory-Huggins, Flory-Rehner, and Donnan equilibria was used. The network parameters such as χ and C_M were calculated according to the experimental data. The results show that the synthesized hydrogel is a polyelectrolyte network since its final swelling ratio decreases by decreasing the salt solutions. In addition, the counter-ion effect was observed in the above-mentioned hydrogel. However, this effect faded in higher concentrations.

کلمات کلیدی:

Cationic Hydrogels, Equilibrium, Thermodynamic Model, Swelling

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