Swelling behavior of N-isopropylacrylamide gel particles in ternary system

정상철, 배영찬*
한양대학교
(ycbae@hanyang.ac.kr*)

Poly(N-isopropylacrylamide) in water-Tetrahydrofuran in ternary system measured the lower critical solution temperature (LCST) phase diagram in several water-Tetrahydrofuran composition. The Poly(N-isopropylacrylamide) phase diagram in ternary system was measured by thermooptical analysis (TOA). The swelling behavior of N-isopropylacrylamide gel particles in ternary system was measured by a photon correlation spectroscopy (PCS) technique. Theoretically, Flory-Huggins model is used to describe the phase behavior of Poly (N-isopropylacrylamide) in ternary systems. For cross-linked N-isopropylacrylamide gel particles in ternary system, we combined Flory-Huggins theory as a mixing contribution and Flory-Erman theory as an elastic contribution. Molecular interaction parameters obtained from the Poly(N-isopropylacrylamide) solution are directly used in the prediction of swelling ratio curves for N-isopropylacrylamide gel.