

Synthesis and solution properties of poly(acrylamide-styrene) block copolymers with high hydrophobic content

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ABSTRACT

Hydrophobically assoc. of acrylamide/styrene block copolymers with a high hydrophobe content were prepd. using micellar copolymn. under various surfactant/initiator concn. conditions with the objective of detg. those that produce optimum soln. properties for enhanced oil recovery. Copolymer soly., aq. soln. viscosity and interfacial properties with air and oil were investigated. The influence of salt on the soln. properties also was studied. The nature of the hydrophobic sites and the onset of hydrophobic assocn. were studied by measuring the fluorescence of pyrene in polymer solns. Optimum soln. properties were attained for copolymers prepd. under high surfactant/initiator concn. conditions. The copolymers displayed substantial thickening properties at low concns. with enhanced thickening in the presence of salt. The interfacial tensions of the aq. solns. with decane and air also were reduced. The interfacial properties were slightly sensitive to salt concn. The copolymer solns. showed typical shear and temp. thinning behavior.