

Viscosity behavior and surface and interfacial activities of hydrophobically modified water-soluble acrylamide/N-phenyl acrylamide block copolymers

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ABSTRACT

The viscosity response and surface activity and interfacial activity of associative water-sol. polymers, which were prepd. by aq. micellar copolymn. from acrylamide and small amts. of N-Ph acrylamide (1.5 and 5 mol %), were studied under various polymer concn., shear rate, temp., and salinity. The copolymer solns. exhibit increased viscosity due to intermol. hydrophobic assocns., as the soln. viscosity of the copolymers increased sharply with increasing polymer concn., esp. above a crit. overlap concn. An almost shear-rate-independent viscosity (Newtonian plateau) was also displayed at high shear rates, and typical non-Newtonian shear-thinning was exhibited at low shear rates and high temps. The copolymers exhibited high air-water and oil-water interfacial activity, as the surface tension and interfacial tension decreased with increasing polymer concn. and salinity.