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POLYELECTROLYTE – SURFACTANT COMPLEXES

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Abstract

The formation of the polyelectrolyte – surfactant complexes has been studied. On this purpose has been measured the critical micelle concentration for every polyelectrolyte and surfactant which had been used. The phase behaviour of mixtures of a cationic polyelectrolyte (Praestol 611) and an anionic surfactant (sodium lauryl sulphate – SLS) has been studied. For a given polyelectrolyte concentration, with increasing surfactant concentration, three phase regions were identified. The first region is a single homogeneous phase. Within this region, at some surfactant concentration, above the critical aggregation concentration (*cac*), stable open – network 'particles' form, typically ≃ 100 nm in size, which are net positively charged. However, as the surfactant concentration is increased further, these particles aggregate and form a two – phase system: a separated gel phase, containing a high percentage of water co-existing with an aqueous surfactant phase. The rheological consequences of interactions of polyelectrolytes with surfactants of the opposite charge are experimentally studied.

Key words: polyelectrolyte, surfactant, complex polyelectrolyte – surfactant, rheologie

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