

Abstract

The Thesis deals with the co-assembly behaviour of cationic diblock copolymers poly(2-vinyl pyridine)-*b*-poly(ethylene oxide), P2VP-*b*-PEO, and poly(ethylene oxide)-*b*-poly(2-(N, N, N', N'-tetramethyl guanidinium) ethyl acrylate), PEO-*b*-PGEA, with *closo*-dodecaborate anion, $[B_{12}H_{12}]^{2-}$, in aqueous solutions. Formation of stable PEO-*b*-PGEA/ $[B_{12}H_{12}]$ nanoparticles was investigated by static and dynamic light scattering and 1H NMR spectroscopy, and they were visualized as spherical nanoparticles by cryo-TEM imaging. According to the NMR results, both studied diblock copolymers form core-corona micelles with dodecaborate. The micellar molar mass and the aggregation number of PEO-*b*-PGEA/ $[B_{12}H_{12}]$ micelles were obtained in water and 0.156 M NaCl solution by standard Zimm method. For this, refractive index increment was evaluated by refractometer. The studied nanoparticles are promising for the boron delivery in medicine.