

Journal

J. Colloid and Interface Sci., vol.338, pp.480-485 (2009)

Title

Role of electrolytes in the preparation of nanoparticles via the emulsion polymerization of vinyl pivalate

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Abstract

By controlling both the kind of ion and the ionic strength of electrolytes in an emulsion polymerization system of vinyl pivalate composed of 1% sodium lauryl sulfate as a surfactant, preparation of nanoparticles of polyvinylpivalate having a diameter of about 25 nm were succeeded. The use of high concentrations of lithium chloride and lithium sulfate ($\sim 1.0 \text{ mol L}^{-1}$) prevented the nanoparticles from coalescing and produced nanoparticles sizes ranging from 25 to 50 nm. Ammonium acetate and sodium acetate, on the other hand, accelerated the coalescence of the nanoparticles. These phenomena were examined in detail and found to be similar to the Hofmeister phenomena and the combination rule proposed by Craig et al.