

TITLE HIGHLY CHARGED HOLLOW LATEX PARTICLES PREPARED VIA SEEDED EMULSION POLYMERIZATION

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ABSTRACT The carboxylated hollow latex (HL) particles possessing high surface charge density were conveniently prepared by using poly(styrene-co-acrylic acid) (P(St/AA)) as seed particles and methyl methacrylate (MMA)/divinylbenzene (DVB)/AA as monomers. Without seed removal, the hollow structure was simply tuned by adjusting the monomer/seed ratio and the monomer content. The monodisperse, spherical, and non-collapsed HL particles with double shell having the void of 280 nm were obtained from P(St/AA) seeds of 300 nm. The conductimetric back titration, SEM, TEM, and dynamic light scattering measurement revealed that the surface charge density, surface roughness, and size of HL particles significantly increased when applying the stepwise charging monomers/initiator. The highly charged HL particles would be well dispersed in coating film providing good optical properties, for example, opacity and whiteness.