

Graft copolymers from star-shaped and hyperbranched polystyrene macromonomers

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Abstract

Branched polystyrene macromonomers were synthesized by the slow addition of a stoichiometric amount of either 4-(chlorodimethylsilyl)styrene or vinylbenzyl chloride as a coupling agent to living polystyryllithium. Star-shaped macromonomers were produced by the addition of the coupling agent alone, and hyperbranched macromonomers resulted from the addition of the coupling agent along with styrene monomer. Star and hyperbranched graft copolymers were produced by the copolymerization of the macromonomers with styrene and methyl methacrylate. The copolymers were characterized by gel permeation chromatography coupled with multi-angle laser light scattering, ¹H NMR spectroscopy, and Soxhlet extraction to determine that the macromonomers were incorporated in high yields into the copolymers. © 2001 John Wiley & Sons, Inc. J Polym Sci Part A: Polym Chem 39: 3547-3555, 2001

Keywords

graft copolymers; macromonomers; hyperbranched; star polymers; living polymerization

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