

عنوان مقاله:

Synthesis and Characterization of PSt-b-PDMS-b-PVAc-b-PDMS-b-PSt pentablock copolymers by ATRP initiated by PVAc telomers from bulk telomerization in the presence of Co(acac)₂

محل انتشار:

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خلاصه مقاله:

Atom transfer radical copolymerization of St and PDMS starting with trichloromethyl-terminated PVAc macroinitiator was performed at 60°C in the presence of CuCl/PMDETA as a catalyst system. Well-defined PSt-b-PVAc-b-PSt and PSt-b-PDMS-b-PVAc-b-PDMS-b-PSt block copolymers were successfully synthesized through ATRP initiated with PVAc telomers (from bulk telomerization with and without Co(acac)₂ as the catalyst). Triblock and penta-block copolymers were characterized by FTIR, ¹H-NMR, DSC and GPC techniques. GPC results demonstrated that tri-block and penta-block copolymers, which were initiated by PVAc telomers from bulk telomerization with Co(acac)₂, show smaller polydispersity indices than those initiated without Co(acac)₂. GPC results have also revealed a linear dependence of the number-average molecular weight on the PDMS concentration as well as small polydispersity indices for the synthesized block copolymers. Meanwhile, the number average molecular weights calculated from ¹HNMR spectra were in very good agreement with the theoretically calculated value.

کلمات کلیدی:

ATRP, PVAc, PDMS, Polystyrene, block copolymers

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