Supplementary Material (ESI) for Soft Matter

Supporting Information for

New Biocompatible Thermogelling Copolymers Containing Ethylene-Butylene Segments Exhibiting Very Low Gelation Concentrations

Vu Phuong Nam Nguyen,[a,b,1] *Ningyi Kuo,*[a,b,1] *Xian Jun Loh,**[a,c]

[a] Institute of Materials Research and Engineering (IMRE), A*STAR (Agency for Science, Technology and Research), 3 Research Link , Singapore 117602 (Singapore).
[b] Engineering Science Programme, Faculty of Engineering, National University of Singapore (NUS), 9 Engineering Drive 1, Singapore 117576 (Singapore)
[c] Melville Laboratory for Polymer Synthesis, Department of Chemistry, University of Cambridge, Cambridge, CB2 1EW (UK)

E-mail: XianJun_Loh@scholars.a-star.edu.sg

1. Synthesis of E1

15 g of PEG, 5 g of PPG and 0.2 g of PEB were dried in a 250-ml two-neck flask at 50 °C under high vacuum overnight. Then, 50 ml of anhydrous 1,2-dichloroethane was added to the flask. Following that, an equimolar of HMDI and four drops of dibutyltin dilaurate (~1.6 x 10^{-2} g) were added sequentially. The reaction mixture was stirred at 75 °C under a nitrogen atmosphere for 48 hrs. The resultant copolymer was precipitated in hexane. The copolymers were redissolved in chloroform and precipitated in diethyl ether.

2. Synthesis of E2

Typically, 15 g of PEG, 5 g of PPG and 1 g of PEB were dried in a 250-ml two-neck flask at 50 °C under high vacuum overnight. Then, 50 ml of anhydrous 1,2-dichloroethane was added to the flask. Following that, an equimolar of HMDI and four drops of dibutyltin dilaurate (~1.6 x 10^{-2} g) were added sequentially. The reaction mixture was stirred at 75 °C under a nitrogen atmosphere for 48 hrs. The resultant copolymer was precipitated in hexane. The copolymers were redissolved in chloroform and precipitated in diethyl ether.

3. Synthesis of E3

Typically, 10 g of PEG, 10 g of PPG and 0.2 g of PEB were dried in a 250-ml two-neck flask at 50 °C under high vacuum overnight. Then, 50 ml of anhydrous 1,2-dichloroethane was added to the flask. Following that, an equimolar of HMDI and four drops of dibutyltin dilaurate (~1.6 x 10^{-2} g) were added sequentially. The reaction mixture was stirred at 75 °C

under a nitrogen atmosphere for 48 hrs. The resultant copolymer was precipitated in hexane. The copolymers were redissolved in chloroform and precipitated in diethyl ether.

4. Synthesis of E4

Typically, 10 g of PEG, 10 g of PPG and 1 g of PEB were dried in a 250-ml two-neck flask at 50 °C under high vacuum overnight. Then, 50 ml of anhydrous 1,2-dichloroethane was added to the flask. Following that, an equimolar of HMDI and four drops of dibutyltin dilaurate (~1.6×10^{-2} g) were added sequentially. The reaction mixture was stirred at 75 °C under a nitrogen atmosphere for 48 hrs. The resultant copolymer was precipitated in hexane. The copolymers were redissolved in chloroform and precipitated in diethyl ether.