Thermoresponsive Tetrablock Terpolymers: Effect of Architecture and Composition on Gelling Behavior

Anna P. Constantinou, Neil F. Sam-Soon, Dean R. Carroll, Theoni K. Georgiou[*]

Department of Materials, Imperial College London, Royal School of Mines, Exhibition Road, SW7 2AZ, London, UK

Experimental

All polymers were synthesized with sequential Group Transfer Polymerization. The GPC traces for all terpolymers and the precursors are shown in Figure A1 to confirm the successful sequential one-pot syntheses.

In Figure A2 the rheology curves for all themoresponsive polymers are displayed. Note that they were solubility issues for some polymers.

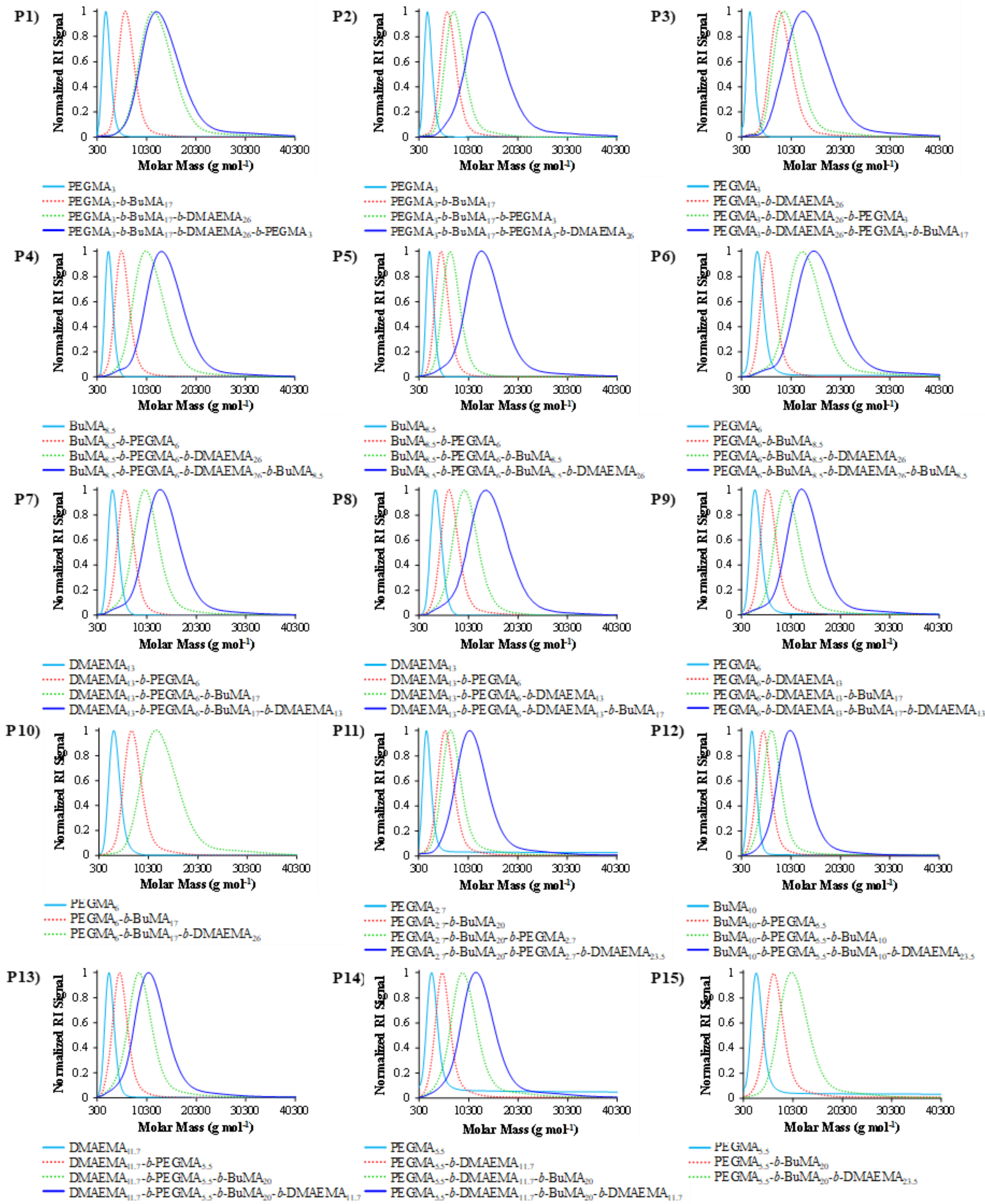

Figure A1. GPC chromatograms of the tetrablock terpolymers (P1-P9 and P11-P14), the triblock terpolymers (P10 and P15), and their liner precursors. The GPC chromatograms of the homopolymer, diblock, triblock, and tetrablock (if there is) are shown in light blue solid, red dotted, green dotted, and blue solid lines, respectively.

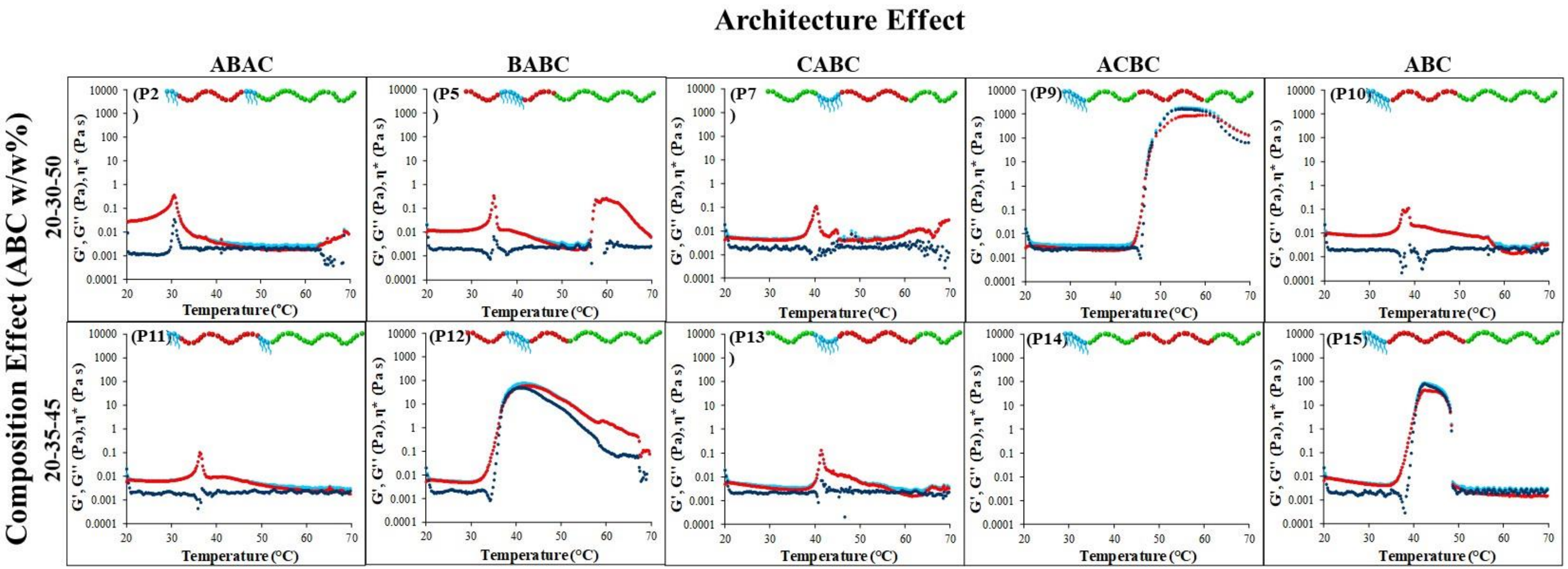

Figure A2. Rheological results of temperature ramp measurements performed on polymer solutions in phosphate buffered saline (PBS) at a concentration of 15 w/w%. The effects of architecture and composition on the gelation are shown from the left to the right and from the top to bottom, respectively. The shear storage modulus (elastic modulus, G′), the shear loss modulus (viscous modulus, G″), and the complex viscosity (η*) are shown in dark blue, red, and light blue, respectively. The rheological result of P14 was not recorded as the polymer was not soluble.