Advancing the Boundary of Insolubility of Non-linear PEG-Analogues in Alcohols: UCST transitions in Water–Ethanol Mixtures

– Supporting Information –

Peter J. Roth,* Mathieu Collin, Cyrille Boyer

Centre for Advanced Macromolecular Design, School of Chemical Engineering, University of New South Wales, UNSW Sydney 2052, Australia

Email: P.Roth@unsw.edu.au
Behaviour in Water

Figures S1–S6. Transmittance measurements of copolymers in water at varying concentrations.
**Figures S7–S12.** Transmittance measurements of selected copolymers in 2-propanol at varying concentrations.
Other Alcohols

![Transmittance curves of p(OEGMeA\textsubscript{0.29}-co-OEGPhA\textsubscript{0.71}) in various alcohols](image)

**Figure S13.** Transmittance curves of p(OEGMeA\textsubscript{0.29}-co-OEGPhA\textsubscript{0.71}) in various alcohols

Diblock Copolymer

![Transmittance of diblock copolymer p[[OEGMeA\textsubscript{0.55}-co-OEGPhA\textsubscript{0.45}]-b-DMA] in 2-propanol showing a cloud point of 45.2°C](image)

**Figure S14.** Transmittance of diblock copolymer p[[OEGMeA\textsubscript{0.55}-co-OEGPhA\textsubscript{0.45}]-b-DMA] in 2-propanol showing a cloud point of 45.2°C. The transmittance does not decrease to ~ 0 % due to the formation of aggregates caused by the soluble pDMA block.
Figure S15. Transmittance for copolymer p(OEGMeA_{45-co-OEGPhA_{55}}) in ethanol–water mixtures. Whereas the transmittances for samples containing 0 and 20% of ethanol decreased to below 0.1% (absorbance > 3), the sample containing 40% of ethanol became significantly less turbid (~ 3 % transmittance; absorbance ~ 1.5)

Figure S16. Section of a phase diagram of p(OEGMeA_{45-co-OEGPhA_{55}}) in ethanol–water.
Reproducibility

Figures S17 (top), S18 (middle), and S19 (bottom). Transmittance curves for three cool / heat cycles