
Article:
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Supporting Information

pH-Responsive Non-ionic Diblock Copolymers: Protonation a Morpholine End-group to Induce an Order-Order transition

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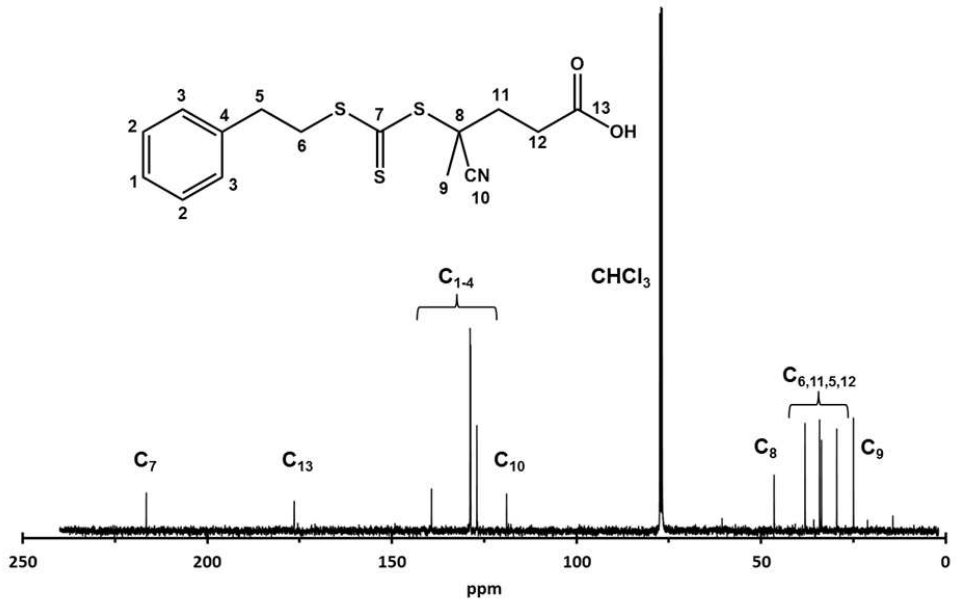

Figure S1: ^{13}C NMR spectra obtained for PETTC RAFT agent in $CDCl_3$ at 298 K

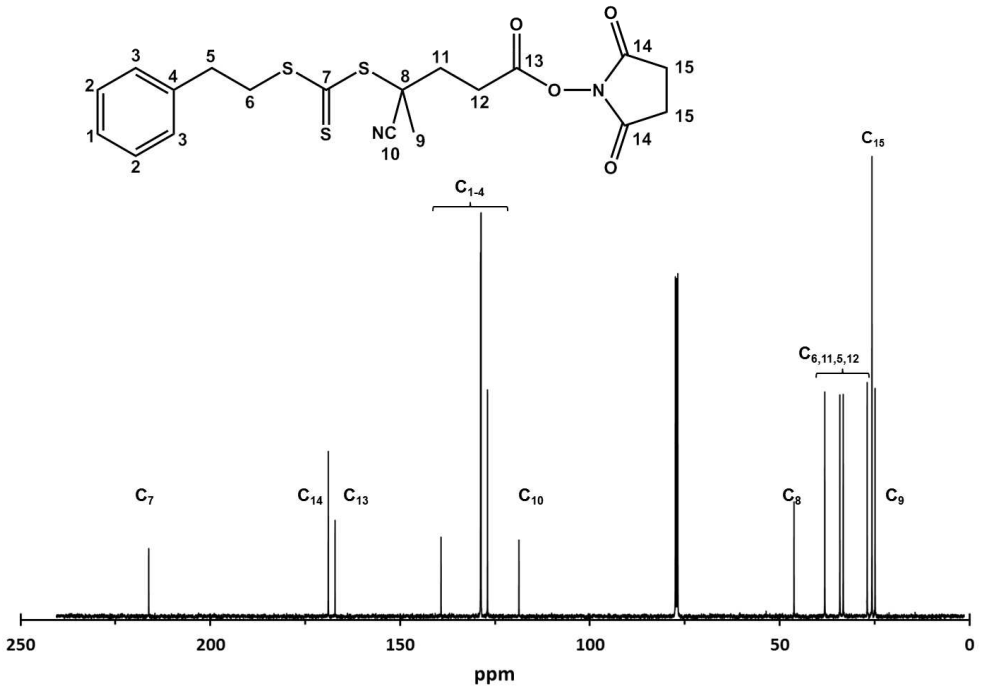

Figure S2: ^{13}C NMR spectra obtained for SPETTC RAFT agent in $CDCl_3$ at 298 K

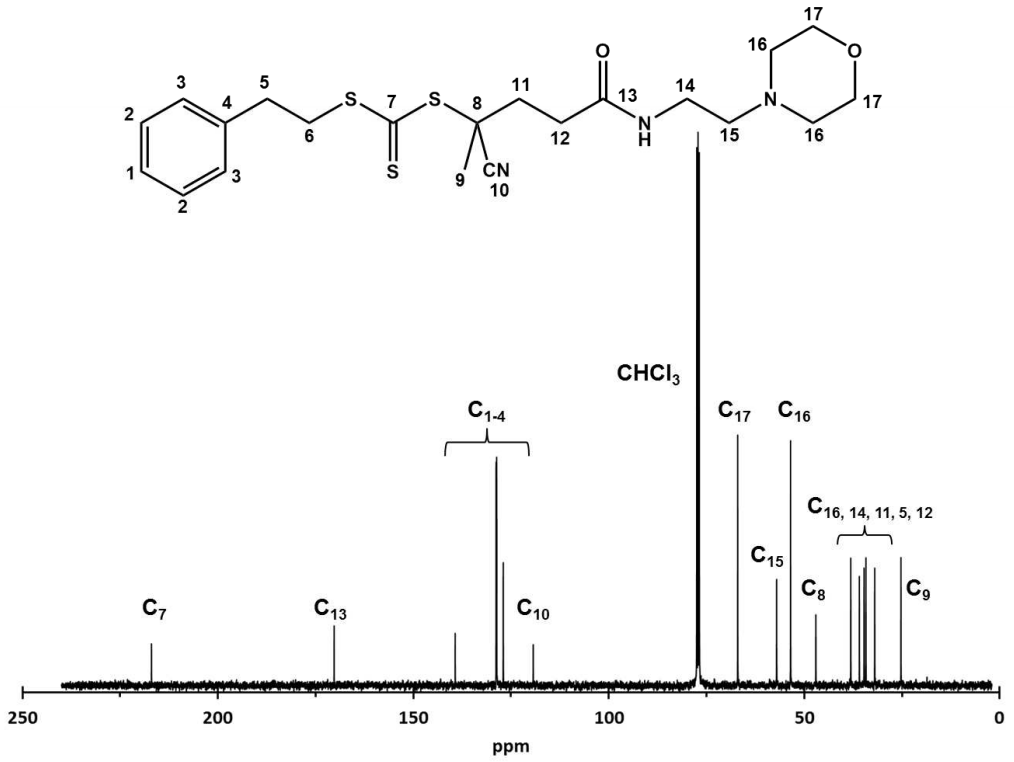

Figure S3: ^{13}C NMR spectra obtained for MPETTC RAFT agent in $CDCl_3$ at 298 K

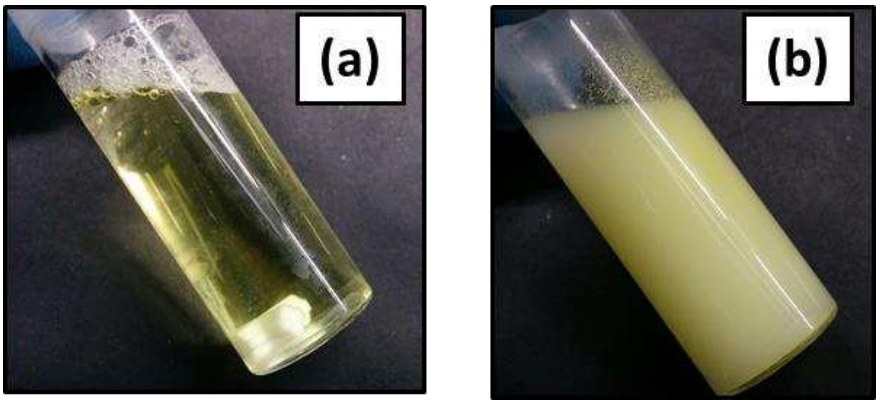

Figure S4: Digital images of MPETTC RAFT agent in water (0.5% w/w) at (a) pH 4.5 where MPETTC is soluble due to morpholine end-group protonation and at (b) pH 7.5 where MPETTC is insoluble

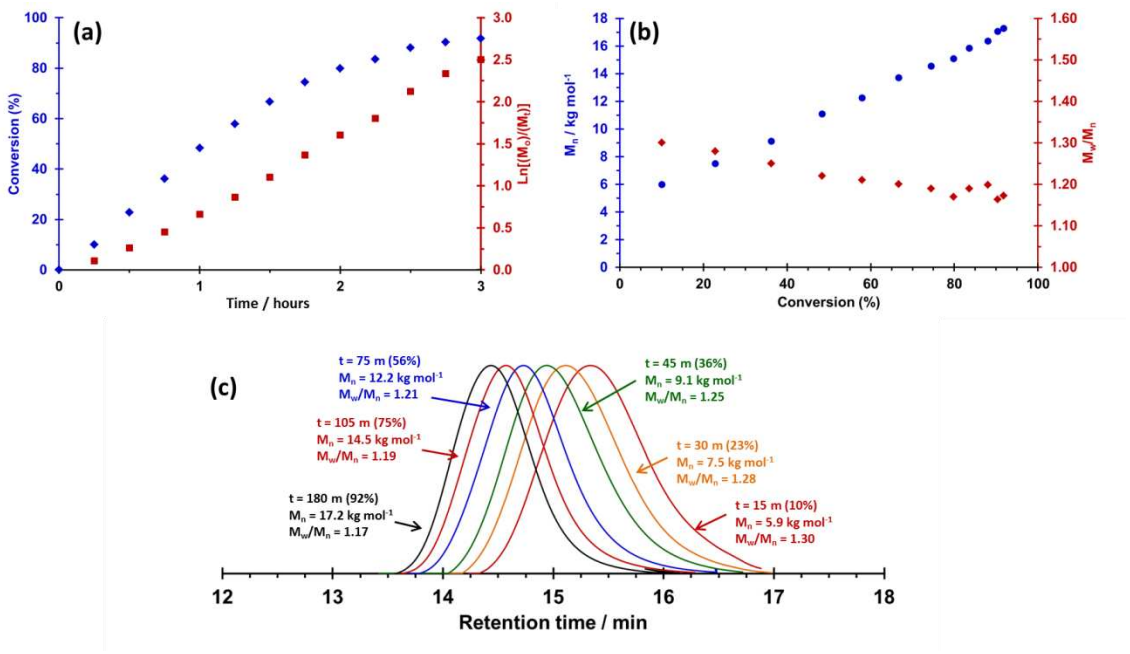

Figure S5: (a) Monomer conversion v. time, (b) number-averaged molecular weight (M_n) v. monomer conversion and (c) unimodal DMF GPC chromatograms obtained for the RAFT solution polymerisation of glycerol monomethacrylate in water at pH 2, 25% solids and 44 °C. A degree of polymerisation of 75 was targeted. [MPETTC]/[VA-044] = 5.0. M_w and M_n values were determined by DMF GPC calibrated with near monodisperse PMMA standards.

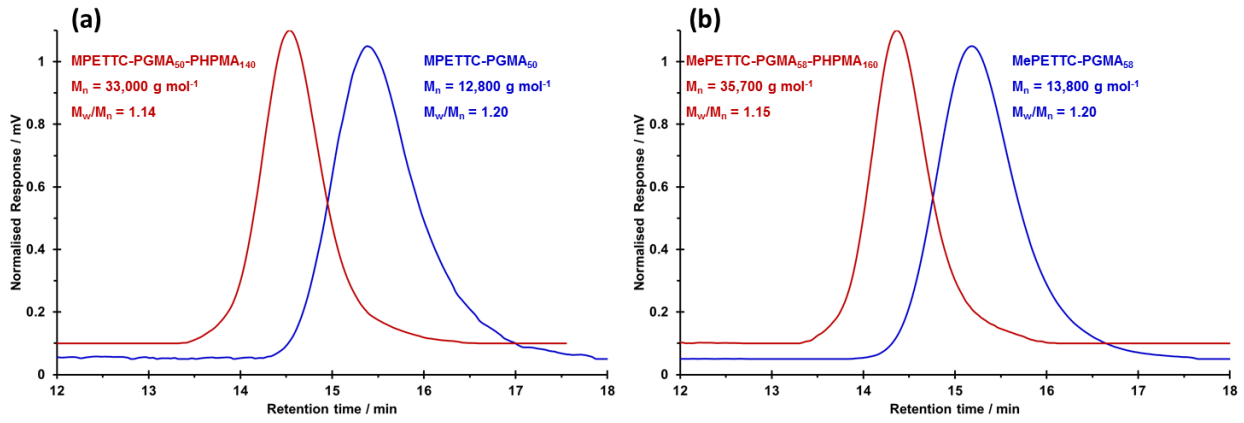

Figure S6: DMF GPC chromatograms obtained for (a) MPETTC-$PGMA_{50}$ macro-CTA and MPETTC-$PGMA_{50}$-$PHPMA_{140}$ diblock copolymer and (b) MePETTC-$PGMA_{58}$ and MePETTC-$PGMA_{58}$-$PHPMA_{160}$ diblock copolymer synthesised by RAFT aqueous dispersion polymerisation at pH 7.0 – 7.50. Number-averaged, M_n, and weight-averaged, M_w, molecular weights are relative to PMMA standards.

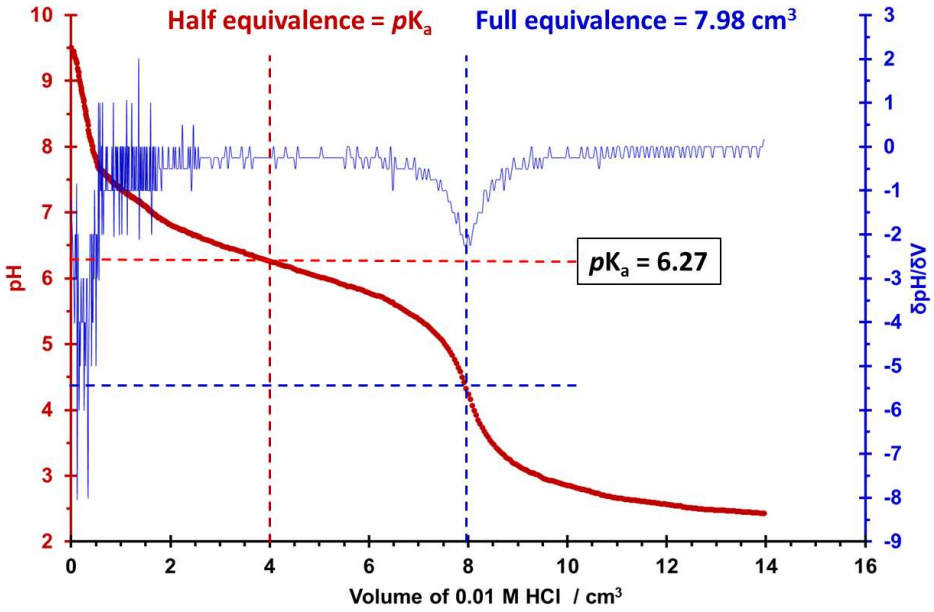

Figure S7: Acid titration curves to determine the pK_a of MPETTC-PGMA$_{50}$ macro-CTA in water to be 6.27.

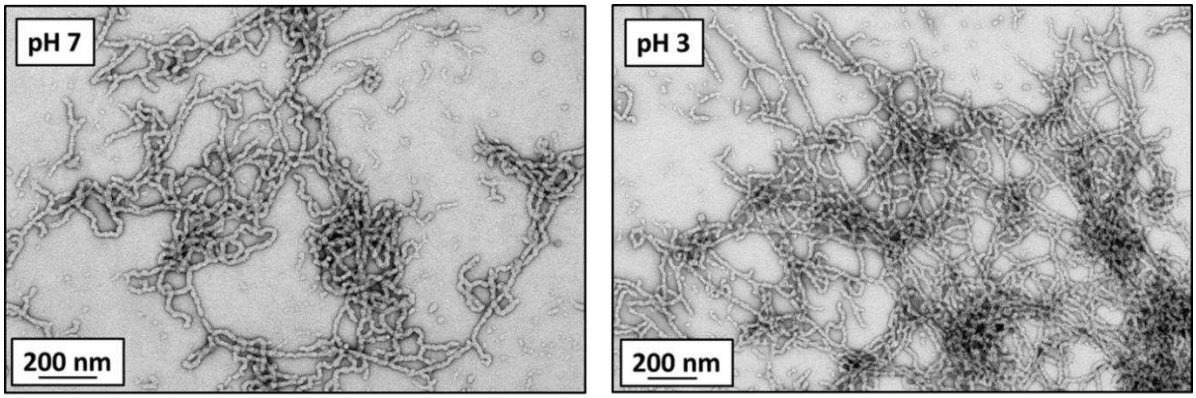

Figure S8: TEM images at pH 7 and pH 3 for MePETTC-PGMA$_{58}$-PHPMA$_{160}$ diblock copolymer worms synthesised by RAFT aqueous dispersion polymerisation at pH 7.0 – 7.5. As a non-ionic end-group control, no change in worm-like morphology is observed upon a pH change, as expected.