

Supporting Information

Bespoke Cationic Nano-objects via RAFT Aqueous Dispersion Polymerisation

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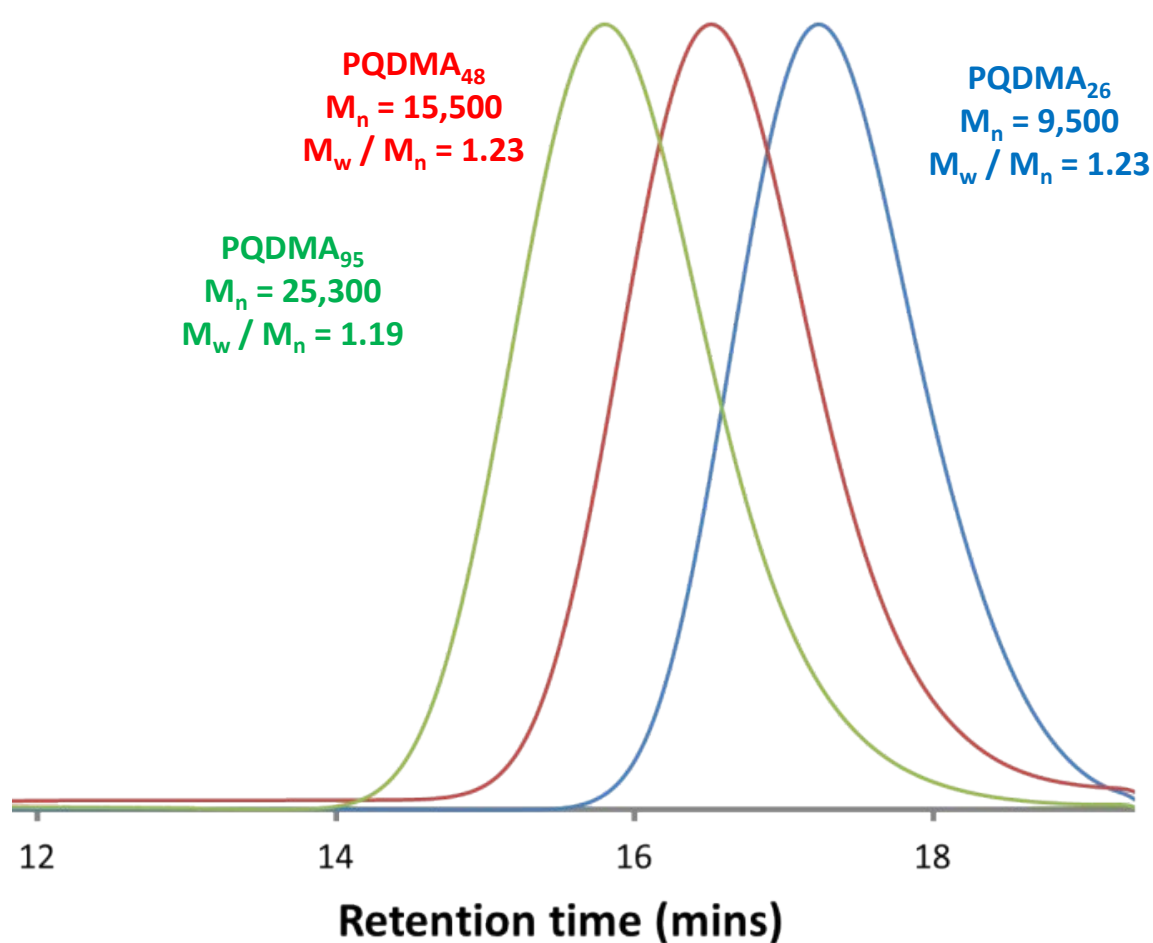


Figure S1. Aqueous gel permeation chromatograms recorded for a series of poly[2-(methacryloyloxy)ethyl] trimethylammonium chloride (PQDMA) macro-CTAs.

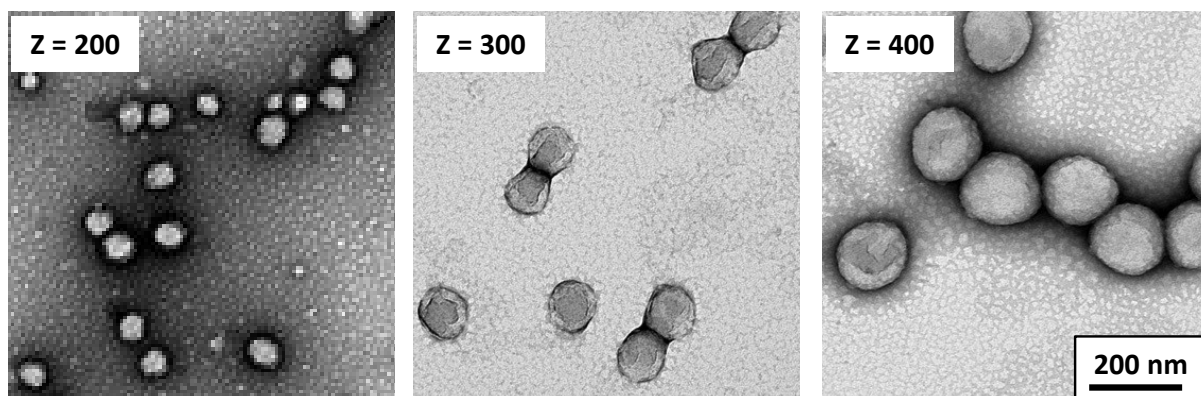


Figure S2. Transmission electron microscopy images obtained for PQDMA₂₆-PHPMA_z (where $z = 200, 300$ and 400) diblock copolymer spheres synthesised by RAFT aqueous dispersion polymerisation of HPMA at 10 % w/w solids. The scale bar shown applies to all three images.

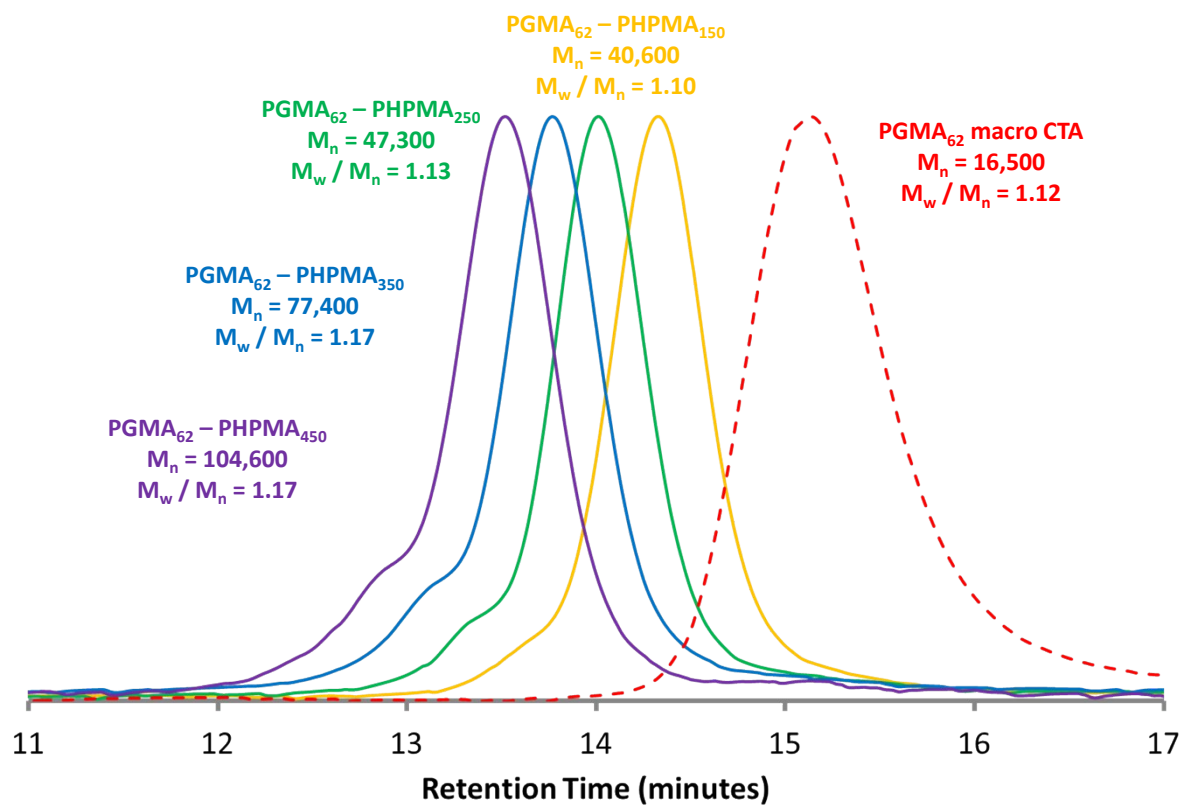
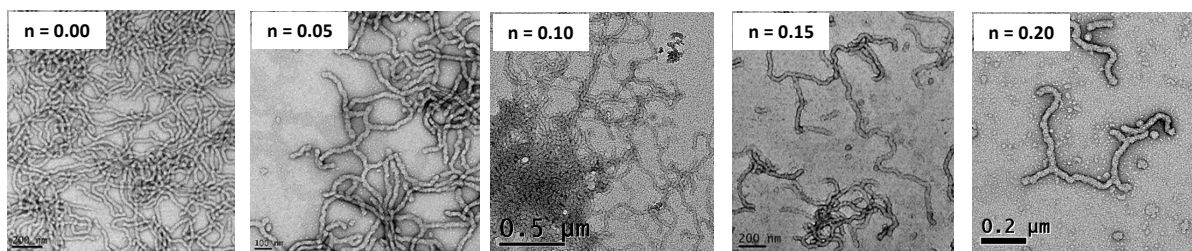


Figure S3. DMF gel permeation chromatograms recorded for a series of PGMA₆₂-PHPMA_z (where $z = 150, 250, 350$ and 450) diblock copolymers synthesised at 20 % w/w solids. The corresponding PGMA₆₂ macro-CTA precursor is also shown as a reference.



PQDMA molar content (n)	20 % w/w	17.5 % w/w	15 % w/w	12.5 % w/w	10 % w/w	7.5 % w/w	5 % w/w	2.5 % w/w
0.00	Gel	Gel	Gel	Gel	Gel	Gel	Gel	Liquid
0.05	Gel	Gel	Gel	Gel	Gel	Liquid	Liquid	Liquid
0.10	Gel	Gel	Gel	Gel	Liquid	Liquid	Liquid	Liquid
0.15	Gel	Gel	Gel	Liquid	Liquid	Liquid	Liquid	Liquid
0.20	Gel	Gel	Liquid	Liquid	Liquid	Liquid	Liquid	Liquid

Figure S4. Determination of the critical gelation concentration (CGT) and corresponding transmission electron microscopy images for $([1-n] \text{PGMA}_{62} + [n] \text{PQDMA}_{95}) - \text{PHPMA}_{200}$ diblock copolymer nanoparticles (where $n = 0.00, 0.05, 0.10, 0.15$ or 0.20).

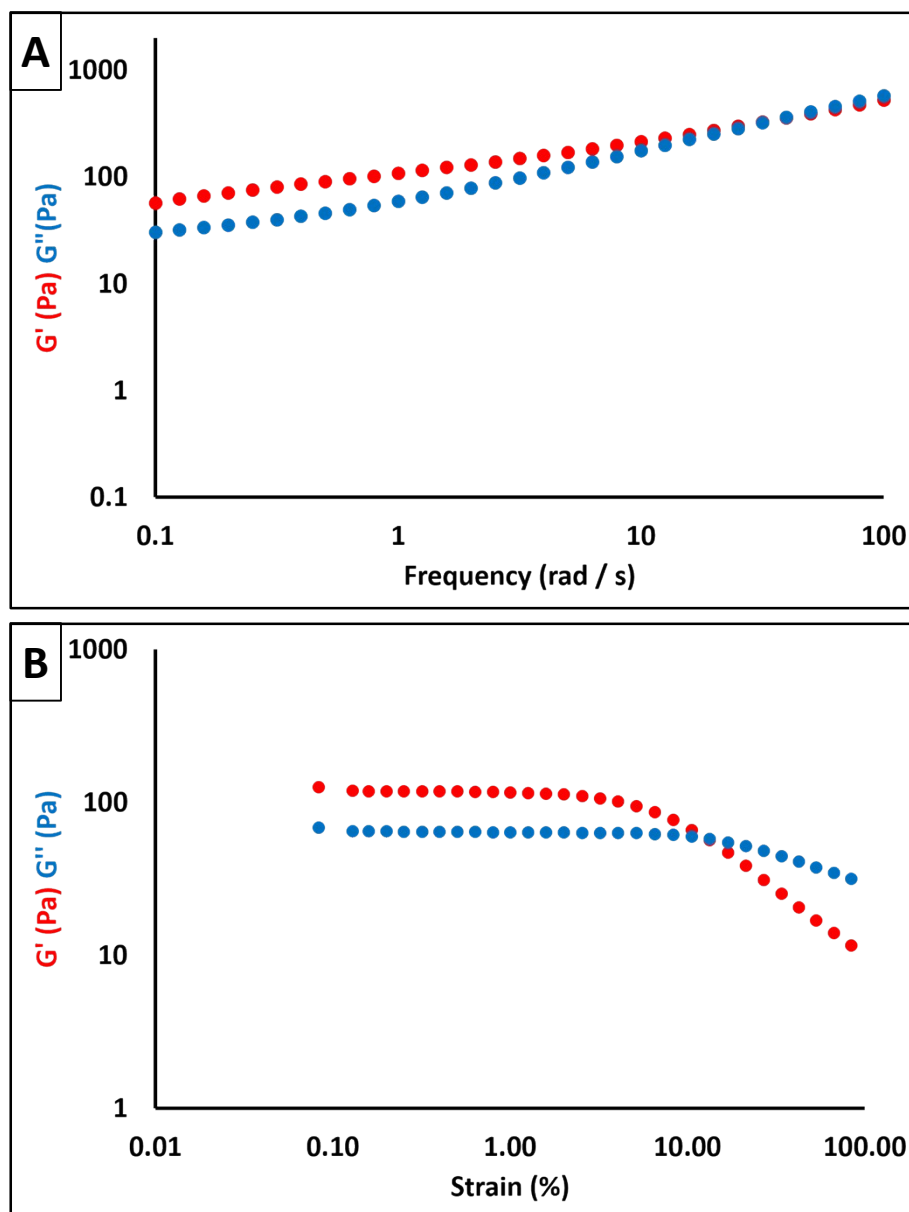


Figure S5. (A) Variation in gel strength (G' , G'') with applied frequency (rad s^{-1}) and (B) variation in gel strength (G' , G'') with applied strain (%) for a 12.5 % aqueous dispersion of a (0.95 PGMA₆₂ + 0.05 PQDMA₉₅) – PHPMA₂₀₀ diblock copolymer worm gel at 25 °C.

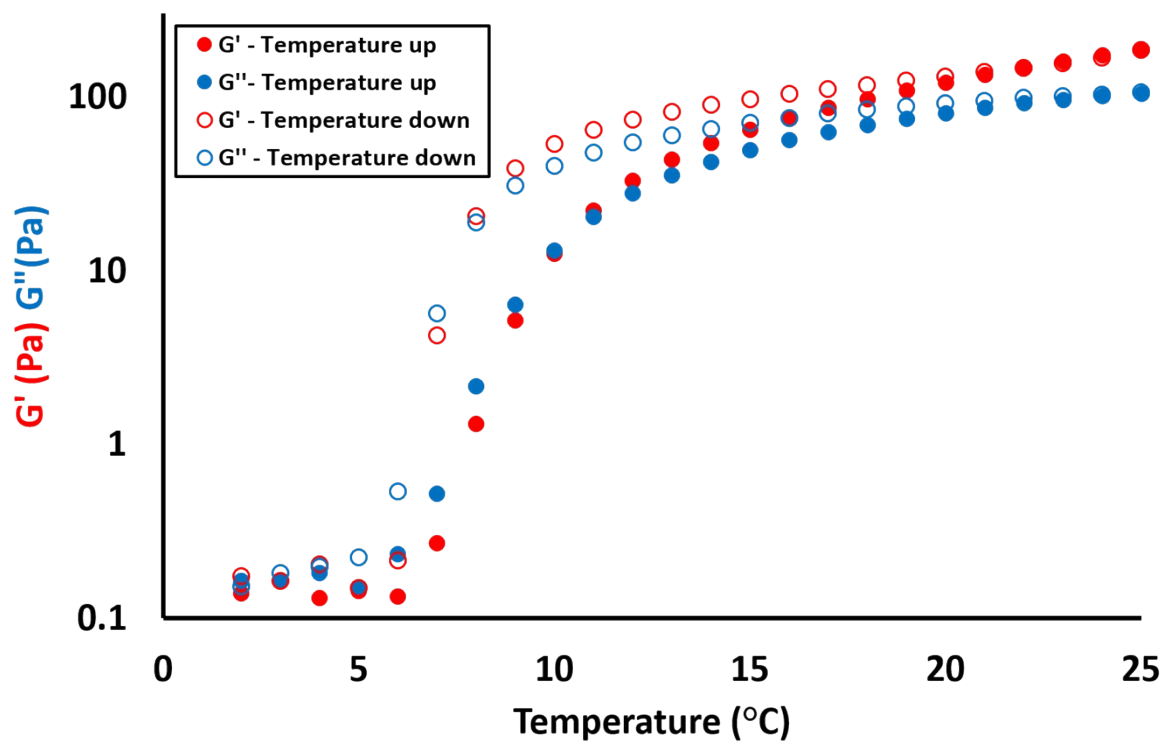


Figure S6. Variable temperature rheology studies obtained for a 12.5 % w/w aqueous dispersion of non-ionic PGMA₆₂-PHPMA₂₀₀ diblock copolymer worms. Conditions: angular frequency = 1.0 rad s⁻¹ at an applied strain of 1.0%.