Electronic Supplementary Material (ESI) for Polymer Chemistry.

Electronic Supplementary Information

Effect of the addition of salt to Pickering emulsion polymerizations using polymeric nanogels as stabilizer

Andrea Lotierzo,[a] Shane P. Meaney,[b] and Stefan A. F. Bon*[a]

[a] Department of Chemistry, University of Warwick, Coventry, CV4 7AL, U.K.

[b] School of Chemistry, Monash university, Clayton 3800, Australia. Current address: Division of Enterprise, The University of New South Wales, Kensington 2052, Australia

* To whom all correspondence should be addressed: s.bon@warwick.ac.uk

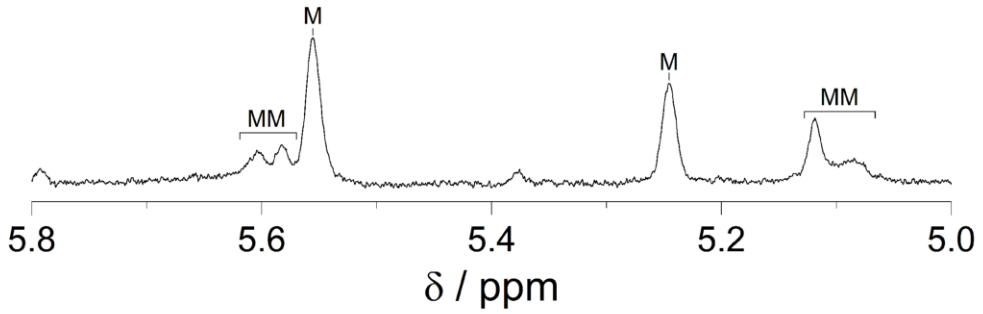

Figure S1. Vinyl protons region of the ^{1}H-NMR spectrum of a 1.0 wt% dispersion of nanogels in D_2O showing residual macromonomer (MM) and crosslinker (M), *i.e.* trimethylolpropane methacrylate, vinyl groups.

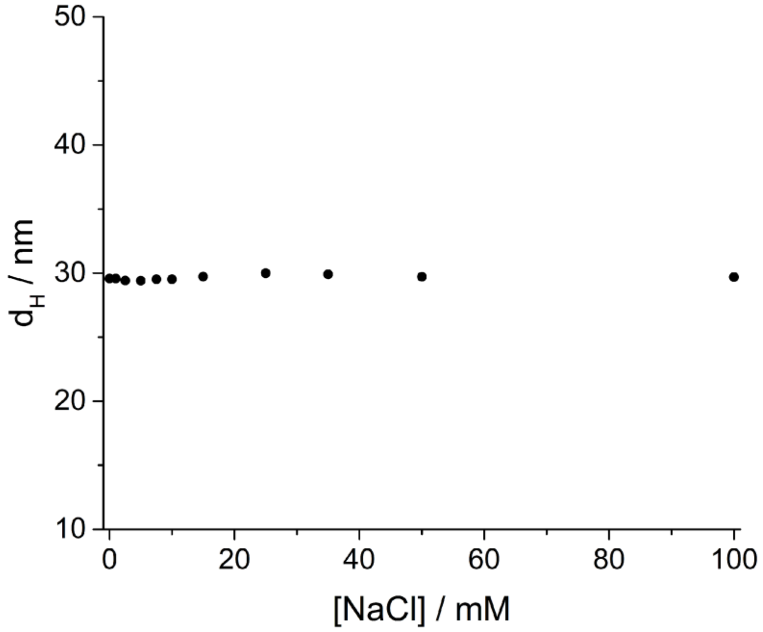

Figure S2. Hydrodynamic diameter (d_H) of 1.0 wt% of N1 nanogels in water at pH 8.8 and in presence of varying [NaCl].

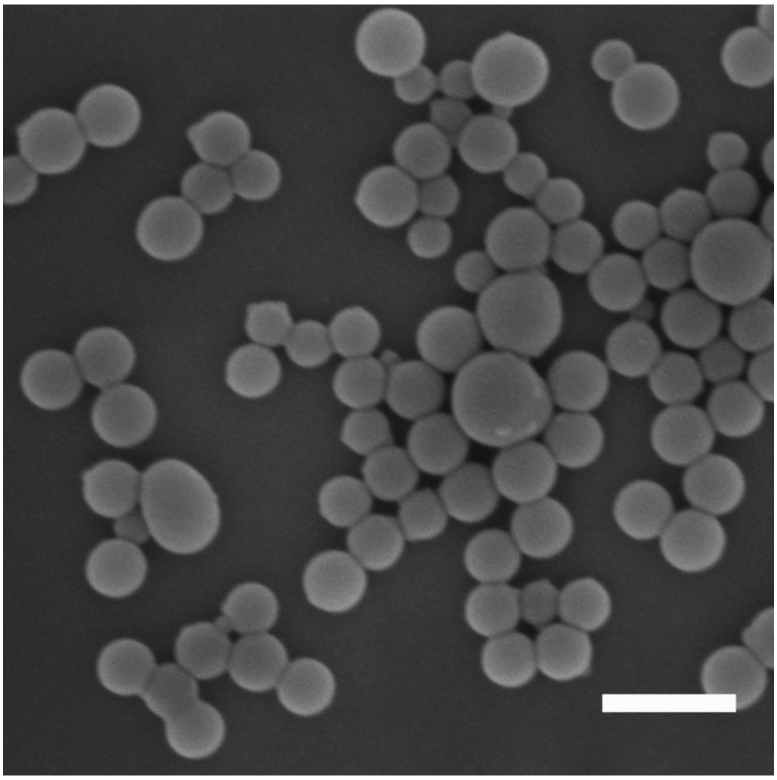

Figure S3. Emulsion polymerizations of styrene performed in the presence of nanogels as stabilizers at [NaCl] = 2.5 mM. Scale bar: 300 nm.

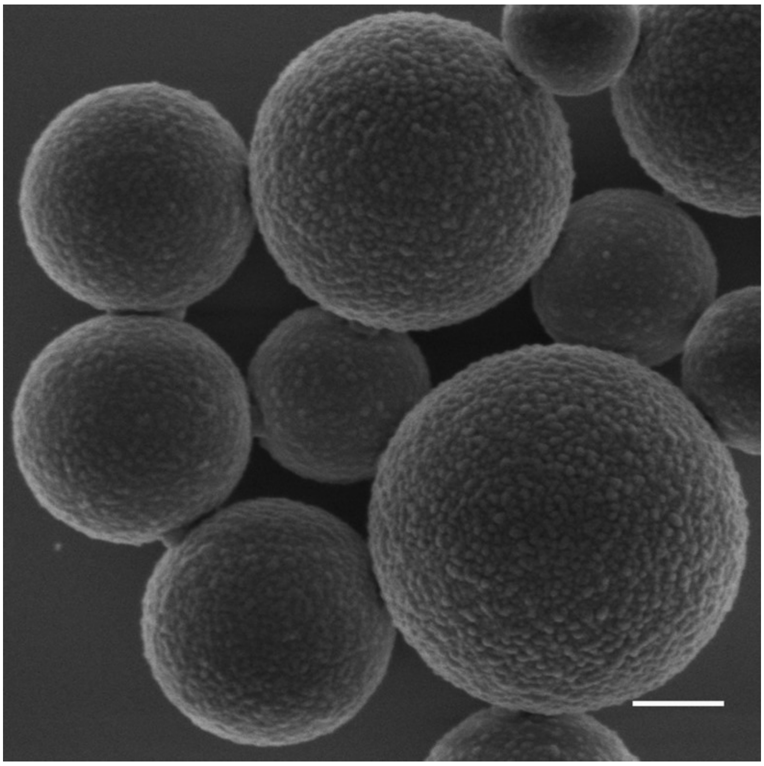

Figure S4. Emulsion polymerizations of styrene performed in the presence of nanogels as stabilizers at [NaCl] = 25.0 mM and [KPS] = 0.25 mM. Scale bar: 300 nm.

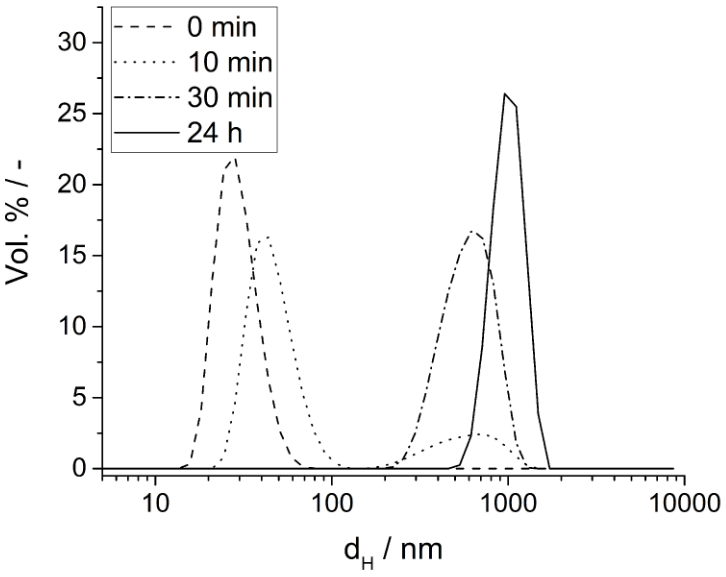

Figure S5. Particle size distribution at different stages of the emulsion polymerization of styrene carried out in presence of 25.0 mM [NaCl] and [KPS] = 0.25 mM. The time 0 sample was recorded before initiator injection.

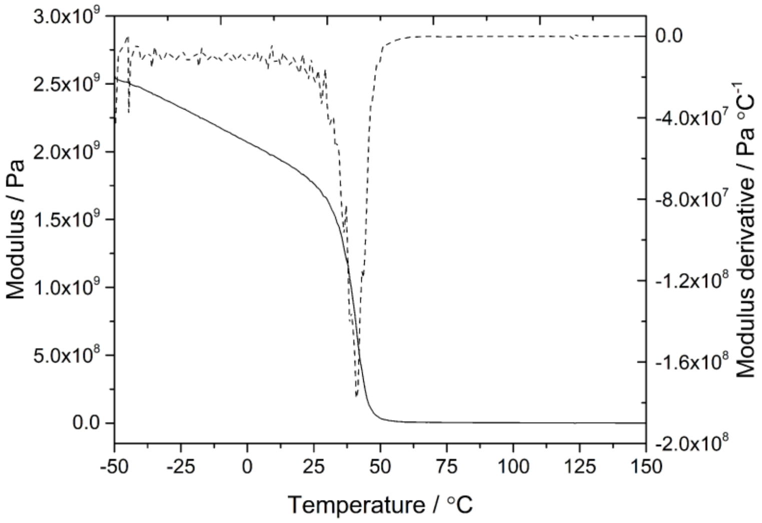

Figure S6. Dynamic mechanical analysis carried out on a film (thickness 1.1 mm) of the styrene:*n*-butyl acrylate latex particles made in presence of [NaCl] = 25.0 mM. The solid line represents the storage modulus, whereas the dotted line shows its first derivative with respect to temperature. The T_g measured as the minimum of the derivative = 40.9°C.

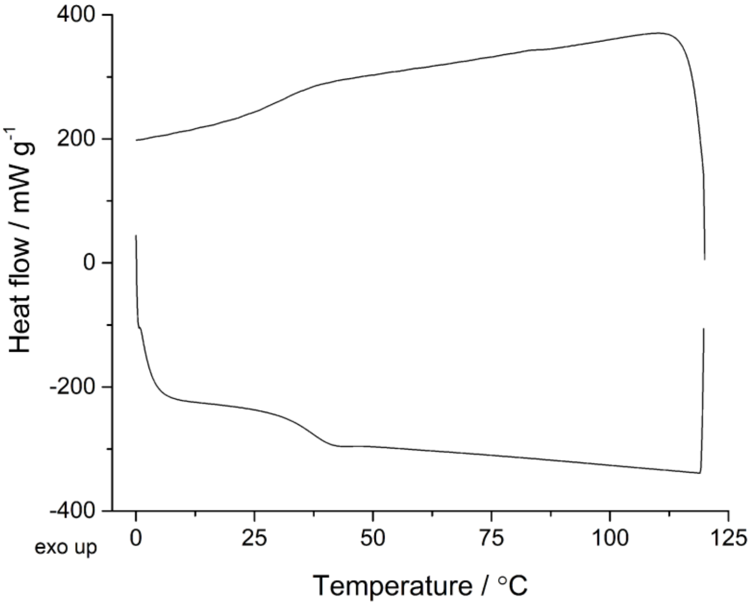

Figure S7. Differential scanning calorimetry (DSC) analysis carried out on a film (thickness 1.1 mm) of the styrene:*n*-butyl acrylate latex particles made in presence of [NaCl] = 25.0 mM. The T_g measured as the midpoint of the flex was 36.2°C and 30.7°C respectively for the heating (bottom) and cooling (top) cycle.

Figure S8. Film formation of the Sty/BA = 1.45:1 w:w latex made in presence of [NaCl] = 25.0 mM and dried at 40°C.