

Supporting Information to

“pH responsive MWCNT/star terpolymer nanohybrids”

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Dynamic Light Scattering (DLS)

Autocorrelation functions $g(q,t)$ were measured with a Brookhaven BI-9000AT/Turbocorr digital correlator from a light source of He-Ne laser (632.8 nm). CONTIN analysis was performed through BI-DLSW software. The apparent hydrodynamic radius was determined via the Stokes-Einstein equation:

$$R_H = k_B T / 6\pi\eta D_{app}$$

where D_{app} is the diffusion coefficient, k_B is the Boltzmann constant and η is the viscosity of the solvent at absolute temperature T .

DLS experiments were employed to explore the self-organization of the star terpolymer in the low and high pH regimes. Samples of 0.02 wt% (PS₃₄)₂₂(P2VP₁₃₆-*b*-PAA₁₁₉)₂₂ aqueous solutions at pH 2 and 8.5 were prepared through dialysis. In Figures 2 and 3, the autocorrelation functions, along with the distribution of relaxation times and the apparent particle size distributions are presented. At pH 2, a relatively broad size distribution was mainly observed with hydrodynamic radii, R_H , of relatively high values of 100-200 nm which is higher than the contour length of the arms (c.a.70 nm) implying

the formation of aggregates (Fig. 2 inset). The peak observed at lower relaxation times is attributed to unimers.

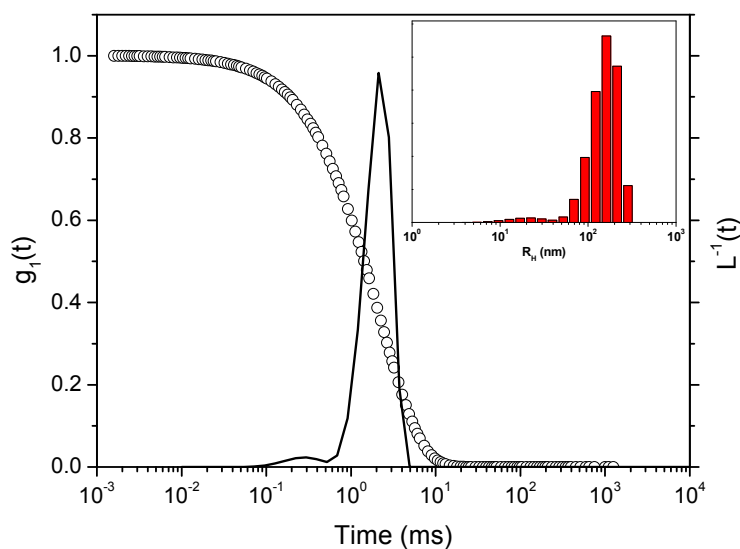


Fig. S1. Autocorrelation function along with the distribution of relaxation times of 0.02 wt% $(PS_{34})_{22}(P2VP_{136}-b-PAA_{119})_{22}$ aqueous solution at pH 2. Inset: distribution of the hydrodynamic radius, R_H .

At pH 8.5, a broader and bimodal distribution of relaxation times was observed, suggesting thus the formation of two populations of aggregates. The second peak of very large particle size indicated the tendency of the star terpolymer micelles to form a network-like structure.

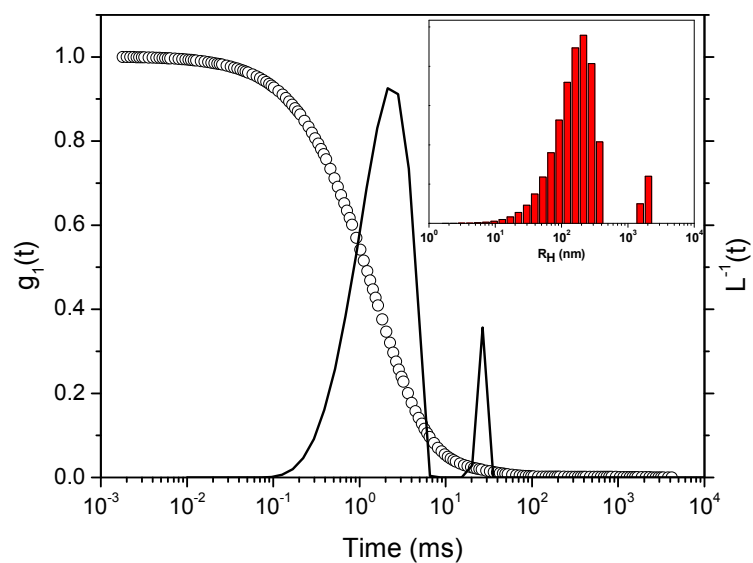


Fig. S2. Autocorrelation function along with the distribution of relaxation times of 0.02 wt% (PS₃₄)₂₂(P2VP₁₃₆-*b*-PAA₁₁₉)₂₂ aqueous solution at pH 8.5. Inset: distribution of the hydrodynamic radius, R_H .