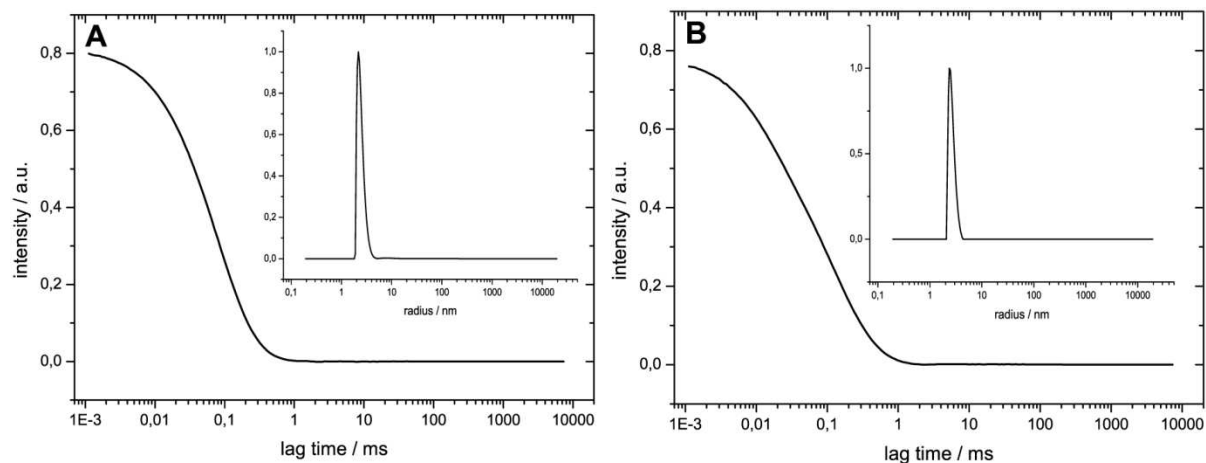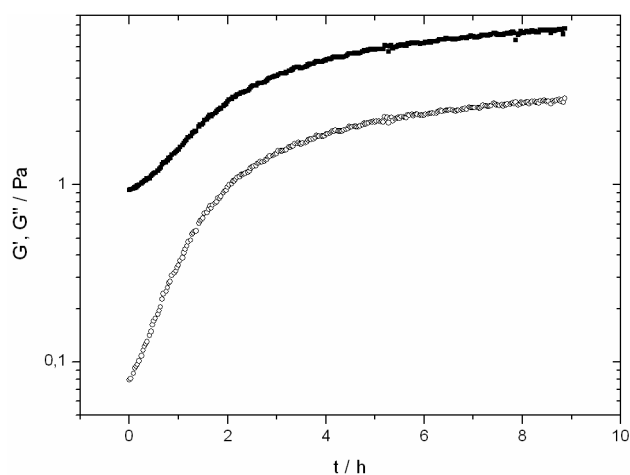SUPPORTING INFORMATION PARAGRAPH

**DLS and rheological measurements of Me$_2$PE-C32-Me$_2$PE at pH 5**

Figure S1: Autocorrelation function and fit for aqueous suspensions (c = 1 mg ml^{-1}) of Me$_2$PE-C32-Me$_2$PE at **A** pH 11 and **B** pH 12 at 30 °C. The inset shows the number weighted size distribution.
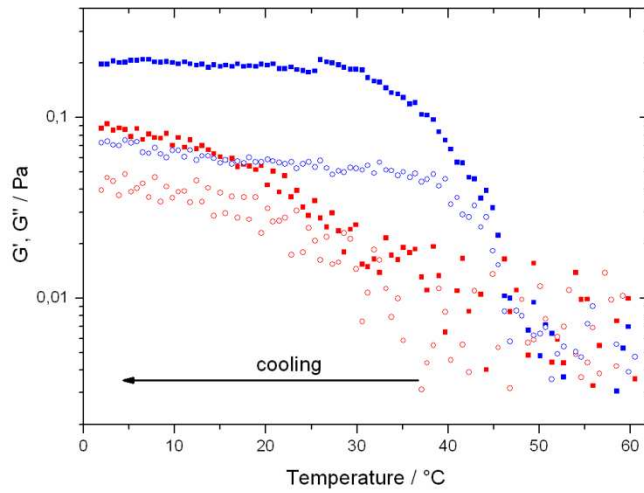

Figure S2: Time dependent rheological data of an aqueous suspension of Me$_2$PE-C32-Me$_2$PE (c = 1 mg ml^{-1}) in buffer at pH 5 at 2 °C after heating to 80 °C and subsequent cooling to 2 °C. The heating and cooling rate was 20 K h^{-1}, ω = 1 rad s^{-1} and γ = 1 %. G': solid squares, G'': open circles.

**Rheological data of Me$_2$PE-C32-Me$_2$PE at pH 11 with MgCl$_2$ and KCl**
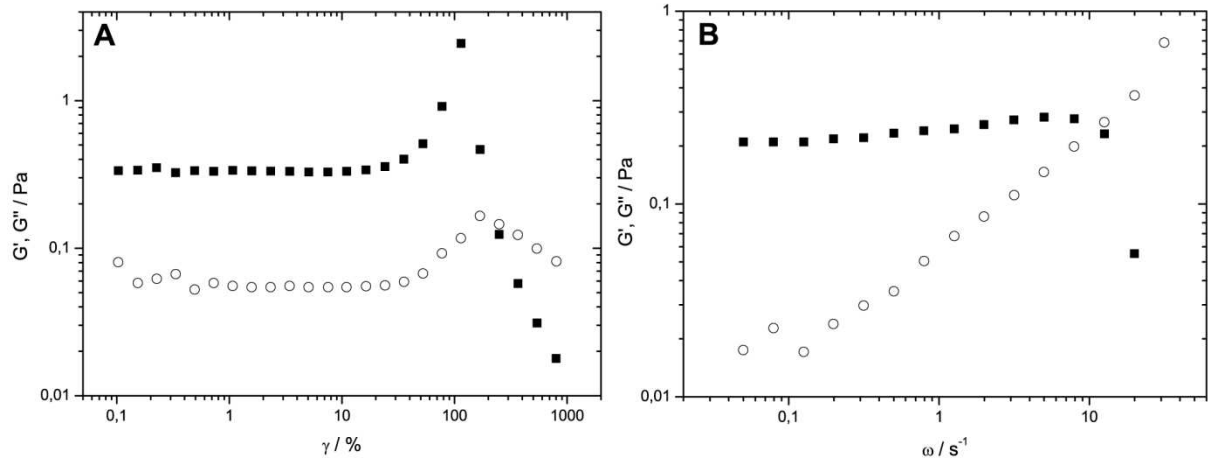
Figure S3: A amplitude sweep (ω = 1 rad s^{-1}) and **B** frequency sweep (γ = 1 %) of a suspension of Me$_2$PE-C32-Me$_2$PE (c = 1 mg ml^{-1}) at pH 11 with 100 mM MgCl$_2$ at 2 °C. G': filled squares, G'': open circles.

Figure S4: Temperature dependent rheological data of the Me$_2$PE-C32-Me$_2$PE suspensions (c = 1 mg ml^{-1}) at pH 11 with 250 mM (red) and 1 M (blue) KCl (G': filled squares, G'': open circles) during the cooling process. The cooling rate was 20 °C h^{-1}. Deformation (γ = 1 %) and angular frequency (ω = 1 rad s^{-1}) were chosen inside the linear viscoelastic region.
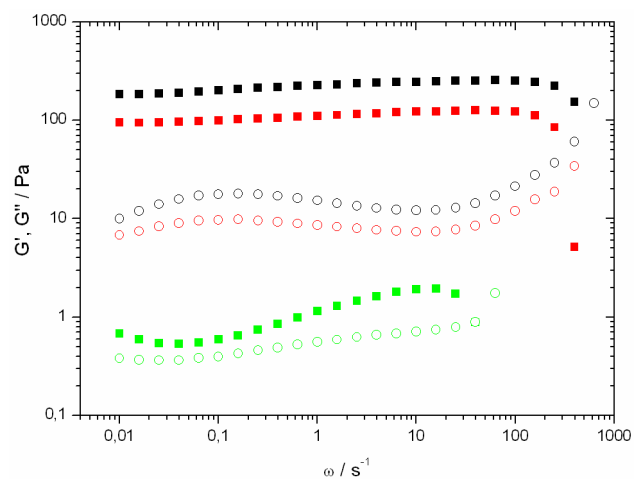
Figure S5: Frequency sweeps (with $\gamma = 1\ \%$) of a suspension of $Me_2PE-C32-Me_2PE$ (c = 8 mg ml^{-1}) in buffer at pH 5 at 2 °C (black), 20 °C (red), and 55 °C (green). G': filled squares, G'': open circles.