Supporting information for: Controlling the Rheology of Montmorillonite Stabilised Oil-in-Water Emulsions Supplementary Information

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Emulsion Photographs

Figures S1 and S2 show photographs of montmorillonite stabilised hexadecane emulsions suspensions at a range of NaCl and $Na_4P_2O_7$ concentrations after storing for 30 days. Initial concentrations were 40% wt. hexadecane and 3% wt. montmorillonite in the continuous phase. Volumes were then increased by 5% to result in the desired NaCl or $Na_4P_2O_7$ concentrations.

Figure S1: Photographs of montmorillonite stabilised hexadecane emulsions suspensions at 0.01 M NaCl (left), 0.1 M NaCl (middle) and 40 μmol g^{-1} (right) after 30 days.

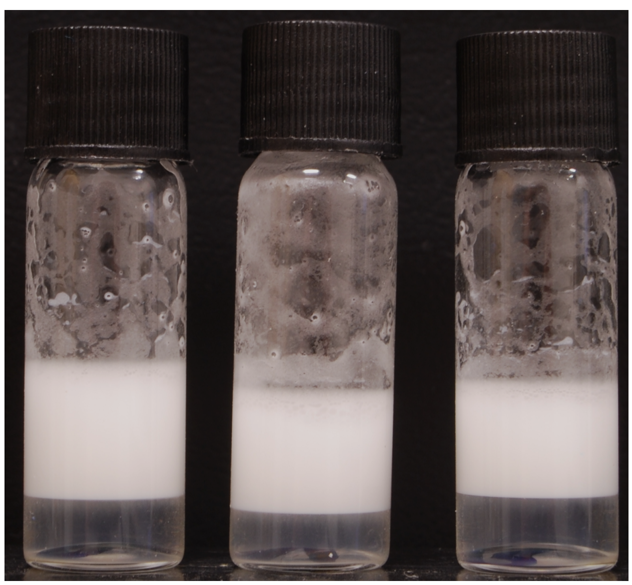

Figure S2: Photographs of montmorillonite stabilised hexadecane emulsions suspensions at 0.01 M NaCl (left), 0.1 M NaCl (middle) and 40 μmol g^{-1} (right) with excess particles removed from the aqueous phase after 30 days.

Oscillatory Rheology

Figures S3, S4 and S5 show oscillatory amplitude sweeps of montmorillonite stabilised hexadecane emulsions and montmorillionite suspensions prepared as noted above and in the main report. These were used to calculate G'_0 and σ_y in the main report.

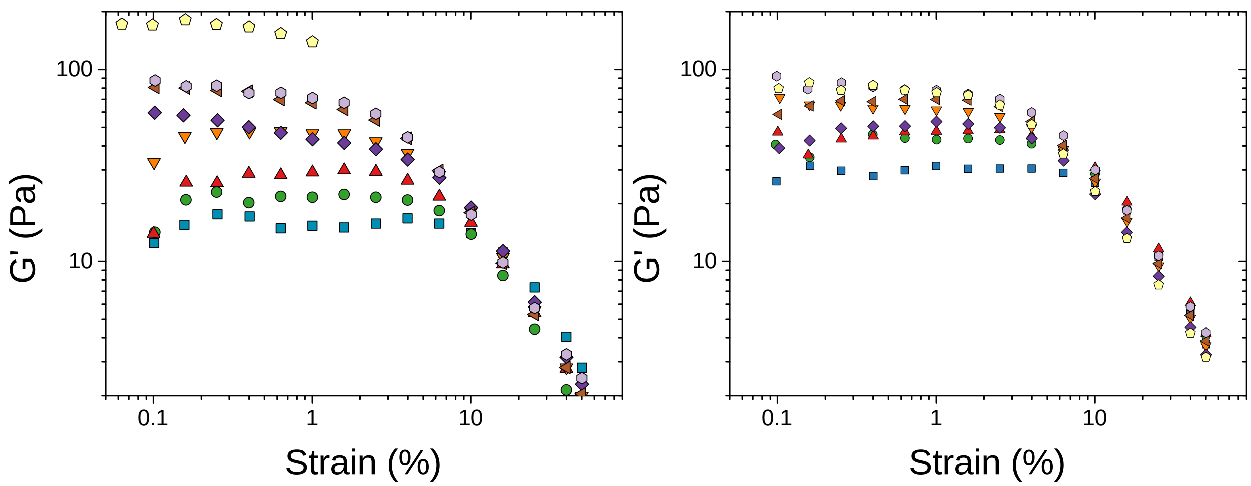

Figure S3: Rheological amplitude sweeps for montmorillonite stabilised emulsions with a continuous phase montmorillonite concentration of 2.5% wt. (left) and 3% wt. (right) at a variety of hexadecane weight fractions: 0% wt. (squares), 15% wt. (circles), 20% wt. (up triangles), 25% wt. (down triangles), 30% wt. (diamonds), 35% wt. (left triangles) and 40% wt. (pentagons).

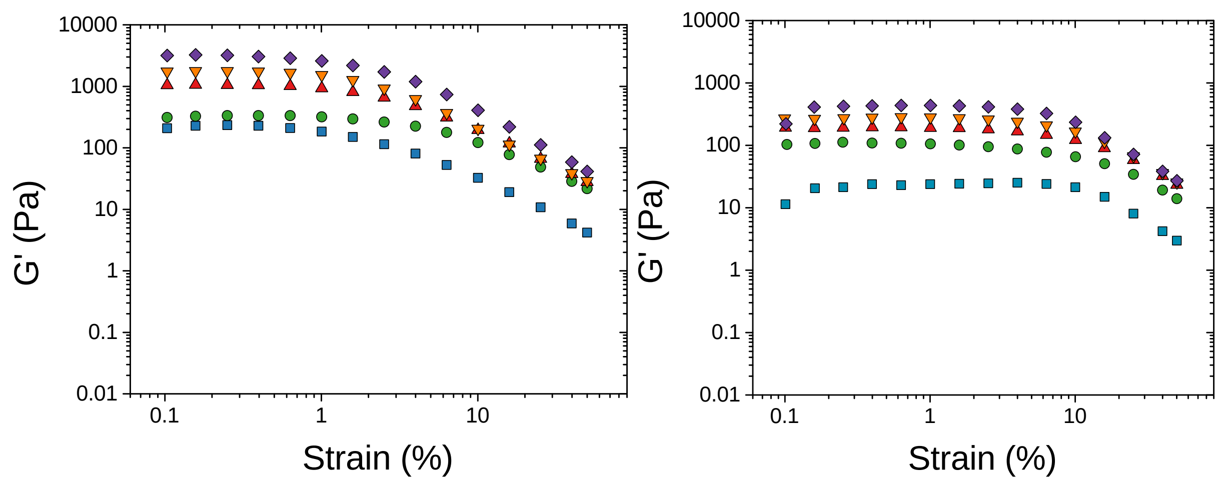

Figure S4: Rheological amplitude sweeps for montmorillonite stabilised emulsions (left) and corresponding montmorillonite suspensions (right) at a variety of NaCl concentrations: 0.01 M (squares), 0.025 M (circles), 0.05 M (up triangles), 0.075 M (down triangles) and 0.1 M (diamonds).

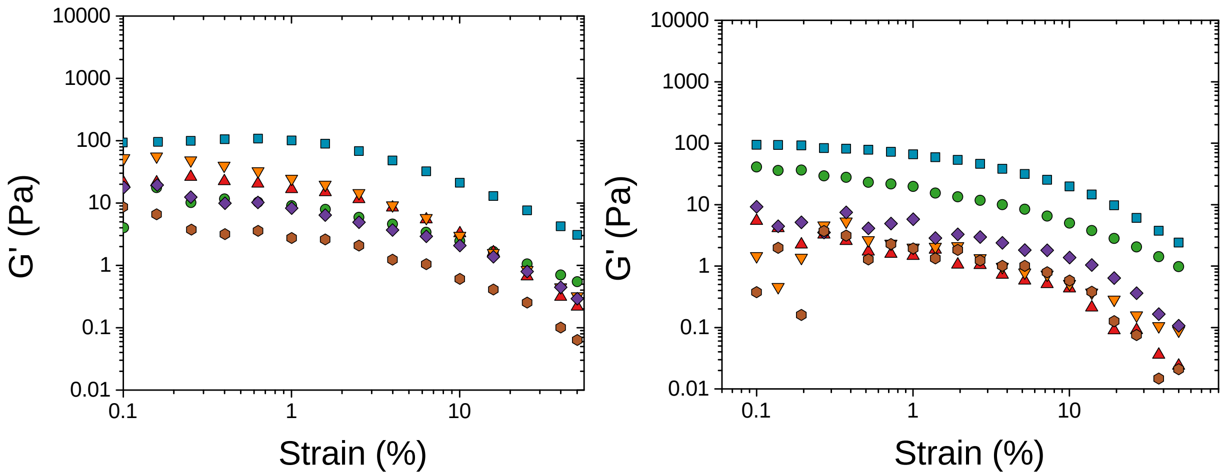

Figure S5: Rheological amplitude sweeps for montmorillonite stabilised emulsions (left) and corresponding montmorillonite suspensions (right) at a variety of $Na_4P_2O_7$ concentrations: 0 μmol g^{-1} (squares), 1 μmol g^{-1} (circles), 5 μmol g^{-1} (up triangles), 10 μmol g^{-1} (down triangles), 20 μmol g^{-1} (diamonds) and 40 μmol g^{-1} (hexagons).

Montmorillonite Suspensions without Berol R648

Figure S6 shows oscillatory amplitude sweeps of montmorillionite suspensions prepared as noted in the main report but without Berol R648.

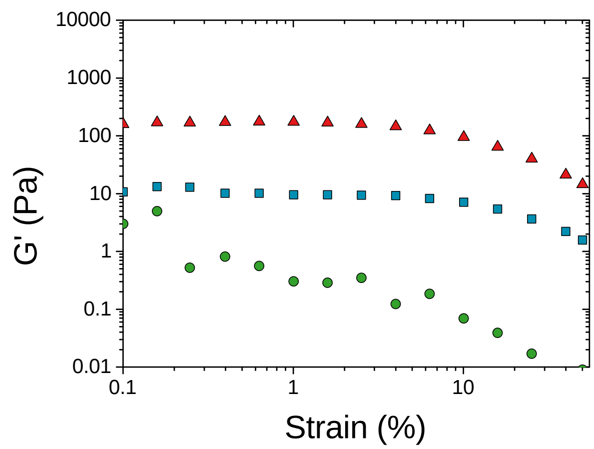

Figure S6: Rheological amplitude sweeps for montmorillonite suspensions at 0.01 M NaCl (squares), 0.1 M NaCl (triangles) and 40 μmol g^{-1} (circles).

Comparing figure S6 to figures S4 and S5 shows that the addition of Berol R648 to aqueous suspensions of montmorillonite at 3% wt. slightly increases G_0' at 0.1 M NaCl and has little effect at 0.01 M NaCl and 40 μmol g^{-1}.