Microemulsion nanocomposites: phase diagram, rheology and structure using a combined small angle neutron scattering and reverse Monte Carlo approach

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SUPPLEMENTARY INFORMATION

In this supplementary information section, the following additional experimental results are presented:

- The linear rheology of the system B evidencing the deviation from purely Maxwellian behaviour.
- The contrast variation plot of the silica proving that the nanoparticles are well matched.

1.) The linear rheology of system B:

Below, G' and G" are plotted as a function of ω for a sample of system B ($\Phi_m = 20\%$, $\Phi_{si} = 6.54\%$ silica, r=20). The deviation from purely Maxwellian behaviour is clearly visible. The fit parameters are given in the plot. In the inset, the evolution of the second modulus (normalized by the principal one) is shown as a function of silica volume fraction. The Maxwell parameters are (G₁ = 1600 Pa, $\tau_1 = 0.015$ s, G₂ = 100 Pa, $\tau_2 = 0.2$ s).



Figure S1: Linear rheology of system B (($\Phi_m = 20\%, \Phi_{si} = 6.54\%$ silica, r=20)

2. Contrast variation of silica nanoparticles

Silica nanoparticles in different H_2O/D_2O solvent mixtures but identical volume fraction have been measured by SANS. The contrast variation plot is shown below. For points at different q-vectors, the extinction is clearly located at 3.5 10^{10} cm⁻².



Figure S2: Contrast variation plot of scattering vs solvent scattering length density.