

ELECTRONIC SUPPLEMENTARY INFORMATION (ESI)

Hydrogel Formed by the Co-Assembly of Sodium Laurate and Silica Nanoparticles

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1. ζ -Potential

The ζ -potentials of surfactant and nanoparticles mixed solution were measured using a temperature-controlled ZetaSizer2000 (Malvern Instruments Ltd.) ζ -potential analyzer. Each sample was measured at least five times.

2. Figure S1

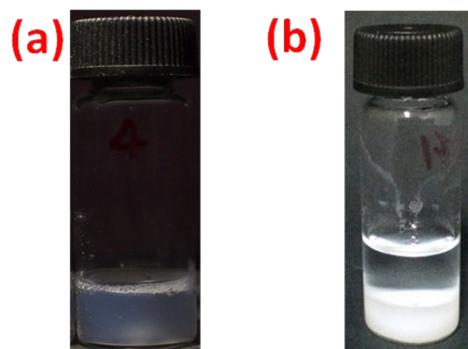


Figure S1. (a) The macroscopic appearance of 50 mM SL with 1 wt% Silica NPs; (b) the macroscopic appearance of 50 mM CTAB with 1 wt% Silica NPs.

3. Figure S2

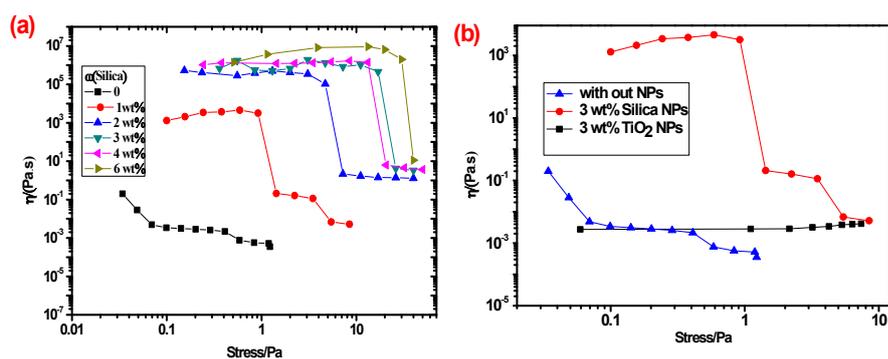


Figure S2. (a) Steady shear viscosity of SL-50 mM and KCl-400 mM with different silica nanoparticles concentration; (b) Steady shear viscosity of SL-50 mM and KCl-400 mM with 0 nanoparticles (blue line), 1 wt% Silica NPs nanoparticles (red line) and 1 wt% TiO₂ NPs nanoparticles (black line).

4. Figure S3

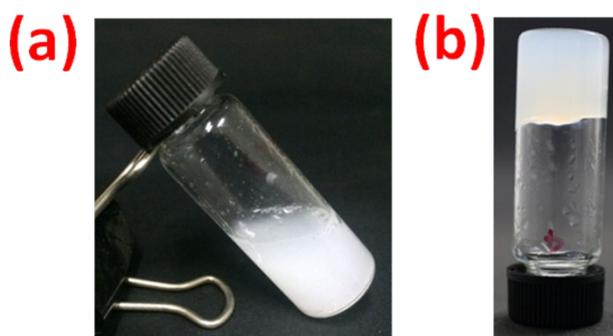


Figure S3. (a) The macroscopic appearance of 50 mM sodium dodecyl sulfate with 2 wt% Silica NPs; (b) the macroscopic appearance of 50 mM undecylenic acid with 2 wt% Silica NPs.

5. Figure S4

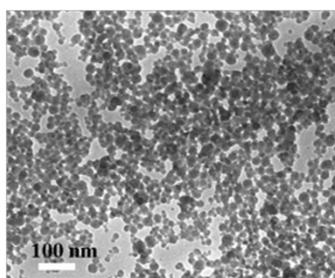


Figure S4. TEM image of Dispersed Silica NPs.

6. Table S1

Table S1. The ζ -Potential of Silica NPs in different concentration of KCl solution.

Dispersion liquid	ζ -Potential/mV
Silica nanoparticles	-20(\pm 2)
100-800mM KCl+NPs	-20 \sim +20

7. Figure S5

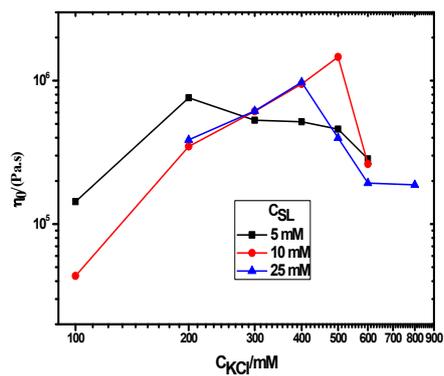


Figure S5. The zero-shear viscosity as a function of concentration of KCl for the SL-Silica NPs systems, 5 mM, 10 mM and 25 mM SL respectively.