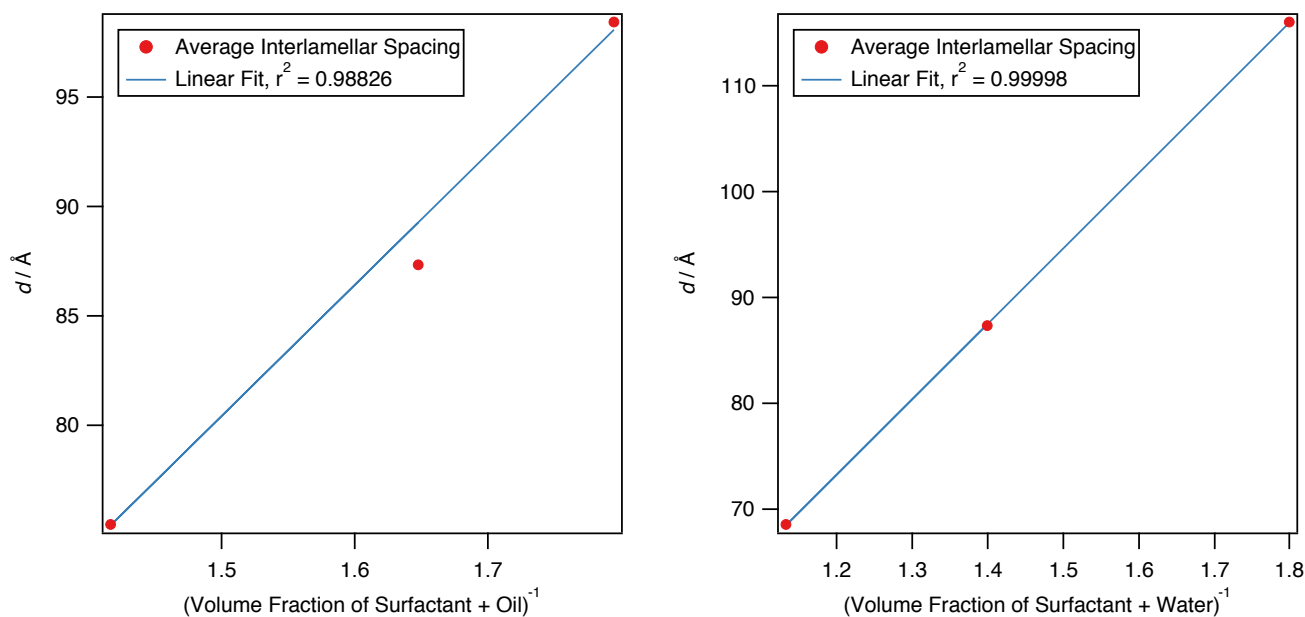


## Electronic Supplementary Information for:

### Structural and rheological changes of lamellar liquid crystals as a result of compositional changes and added silica nanoparticles

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**Figure S1** (a) The average (from samples with all varieties of silica particles) interlamellar spacing of liquid crystal samples with constant surfactant/oil ratios (A, D, and E), taken from the SANS spectra, plotted as a function of the inverse volume fraction of the oil, *p*-xylene, and surfactant, Triton X-100. The least-squares fit is shown, corresponding to a constant surfactant/oil bilayer thickness of 60  $\text{\AA}$ . (b) The average (from samples with all varieties of silica particles) interlamellar spacing of liquid crystal samples with constant surfactant/water ratios (B, D, and F), taken from the SANS spectra, plotted as a function of the inverse volume fraction of water and the surfactant, Triton X-100. The least-squares fit is shown, corresponding to a constant surfactant/water bilayer thickness of 71  $\text{\AA}$ .

**Table S1** Interlamellar spacing of lamellar systems investigated via SANS. Refer to Tables 1 and 2 for sample identity information

| Sample Identity               | Interlamellar Spacing (Å) |
|-------------------------------|---------------------------|
| A                             | 78                        |
| A + 1% HB                     | 74                        |
| A + 1% HP                     | 73                        |
| A + 1% 20 nm HP               | 78                        |
| B                             | 70                        |
| B + 1% HB                     | 67                        |
| B + 2.5% HB                   | 68                        |
| B + 1% HP                     | 69                        |
| B + 2.5% HP                   | 68                        |
| B + 1% 20 nm HP               | 71                        |
| B + 2.5% 20 nm HP             | 68                        |
| B, Mix                        | 67                        |
| B + 1% HB, Mix                | 69                        |
| B + 2.5% HB, Mix              | 67                        |
| B + 1% HP, Mix                | 65                        |
| B + 2.5% HP, Mix              | 65                        |
| B + 1% 20 nm HP, Mix          | 66                        |
| B + 2.5% 20 nm HP, Mix        | 69                        |
| B, Water                      | 67                        |
| B + 1% HB, Water              | 68                        |
| B + 2.5% HB, Water            | 69                        |
| B + 1% HP, Water              | 69                        |
| B + 2.5% HP, Water            | 67                        |
| B + 1% 20 nm HP, Water        | 68                        |
| B + 2.5% 20 nm HP, Water      | 69                        |
| B, {d}-Xylene                 | 69                        |
| B + 2.5% HB, {d}-Xylene       | 67                        |
| B + 1% 20 nm HB, {d}-Xylene   | 66                        |
| B + 2.5% 20 nm HP, {d}-Xylene | 65                        |
| B + 4% OA                     | 73                        |
| B + 4% OA + 1% HB             | 76                        |
| B + 4% OA + 1% HP             | 76                        |
| B + 4% OA + 1% 20 nm HP       | 74                        |
| B + 8% OA                     | 79                        |
| B + 8% OA + 1% HB             | 77                        |
| B + 8% OA + 1% HP             | 79                        |
| B + 8% OA + 1% 20 nm HP       | 80                        |
| C                             | 108                       |
| C + 1% HB                     | 157                       |
| C + 1% HP                     | 108                       |
| C + 1% 20 nm HP               | 105                       |
| D                             | 84                        |
| D + 1% HB                     | 87                        |
| D + 1% HP                     | 88                        |
| D + 1% 20 nm HP               | 90                        |
| E                             | 97                        |
| E + 1% HB                     | 98                        |
| E + 1% HP                     | 99                        |
| E + 1% 20 nm HP               | 100                       |
| F                             | 118                       |
| F + 1% HB                     | 118                       |
| F + 1% HB, Water              | 112                       |
| F + 1% HB, Mix                | 115                       |
| F + 1% HP                     | 119                       |
| F + 1% 20 nm HP               | 114                       |
| G                             | 76                        |
| G + 1% HB                     | 77                        |
| G + 1% HP                     | 76                        |
| G + 1% 20 nm HP               | 77                        |