Electronic Supplementary Material (ESI) for Soft Matter.

Bilayer Aggregate Microstructure Determines Viscoelasticity of Lung Surfactant Suspensions

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Supplemental Information

Figure S1. Strain amplitude sweep for linear oscillatory shear experiments. The critical strain is determined as being the strain amplitude that causes the maximum G' to decrease 10%.

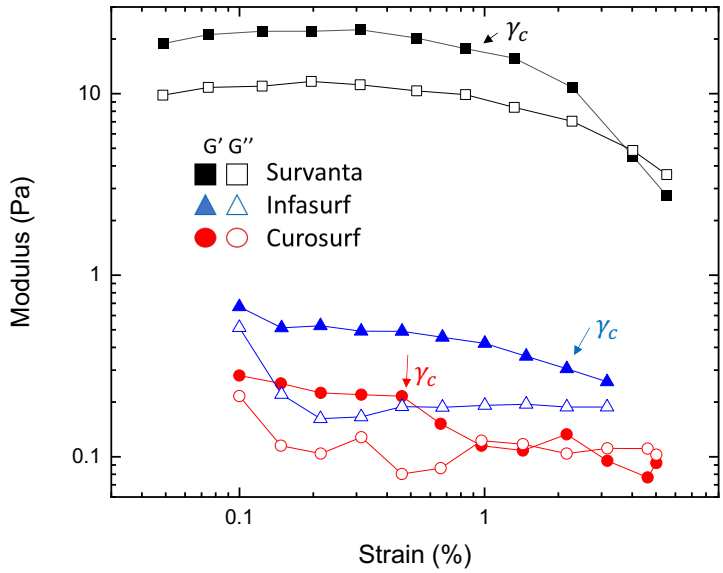

Figure S2. Centrifuged suspensions of Survanta, Infasurf, and Curosurf, with and without polyethylene glycol (PEG). Before PEG, all three suspensions had similar volume fractions of 40 – 50% of the yellow lipid aggregates. Following PEG additions, the volume fraction decreased significantly due to the combination of dehydration of the lipid bilayers and the depletion attraction induced flocculation.

Figure S3. Measured viscosity of saline and saline with 5% PEG.

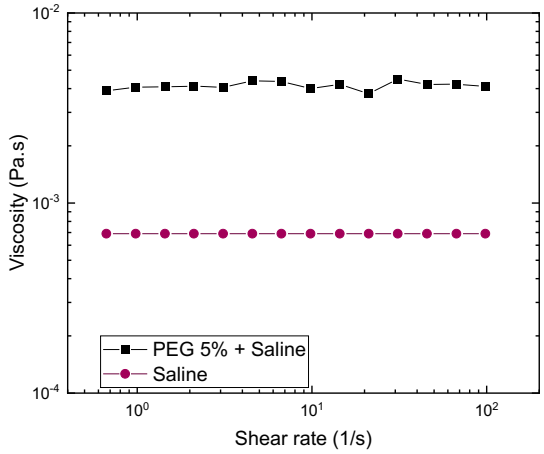

Figure S4. Differential Scanning Calorimetry of (i) Survanta, (ii) Infasurf, (iii) Curosurf. Survanta shows a broad endothermic peak from 50 – 55 C due to the stabilizing effect of palmitic acid on the dipalmitoyl-phosphatidylcholine gel phase. Infasurf has a very broad, small endotherm from about 28 – 40 C. Curosurf has a broad peak similar to Survanta but from 25-30 C.