Electronic Supplementary Material (ESI) for Soft Matter.

SUPPLEMENTAL

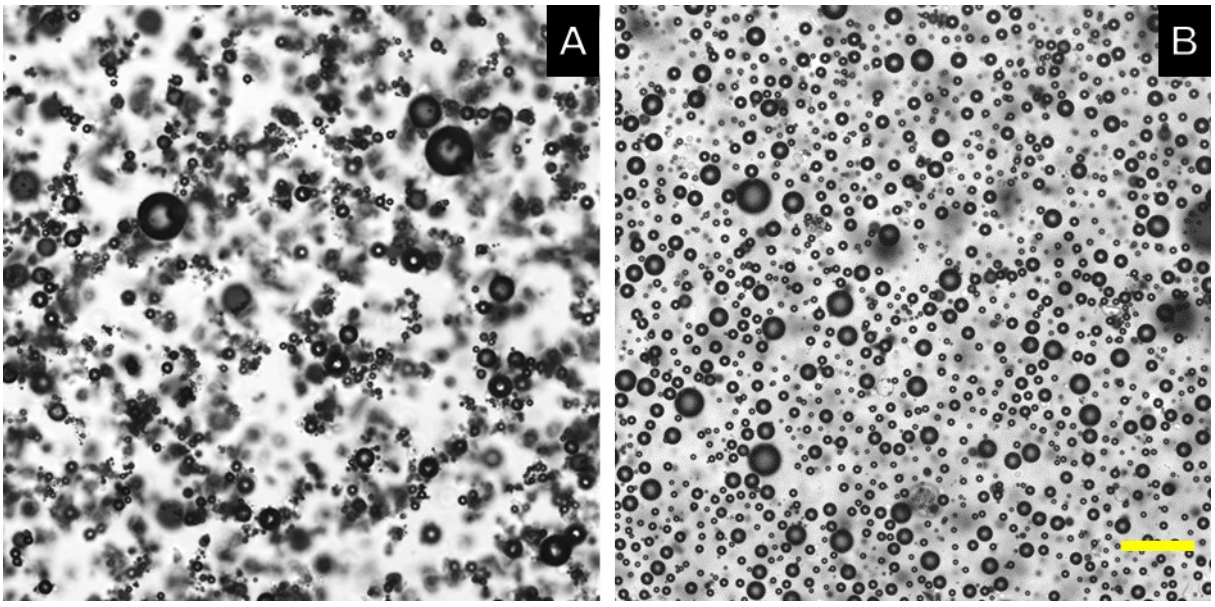

Figure S1: Effect of surface polarity on dispersibility of glass beads in canola oil. (A) polar and (B) non-polar particles. Note aggregation in (A) associated with polar particles. Size bar = 20 µm.

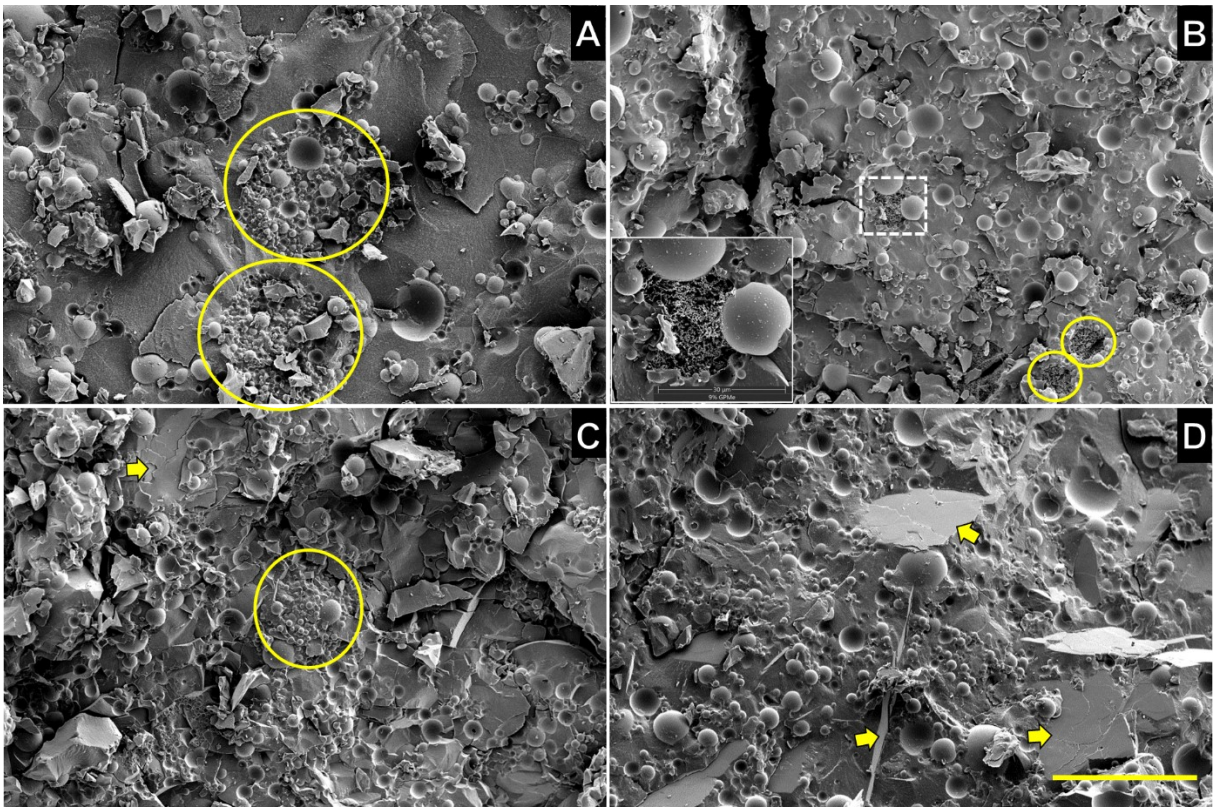

Figure S2: SEM images showing the effect of wax and particle surface polarity on the microstructure of capillary suspensions containing 30 vol% particles and 3 vol% water. (A) Polar particle capillary suspension; (B) Non-polar particle capillary suspension; (C) Polar particle hybrid gel; (D) Non-polar particle hybrid gel. Insets in (A) and (B) show effect of added water on particle capillarity. Arrows in (C) and (D) point to wax crystals. Size bar = 100 µm.

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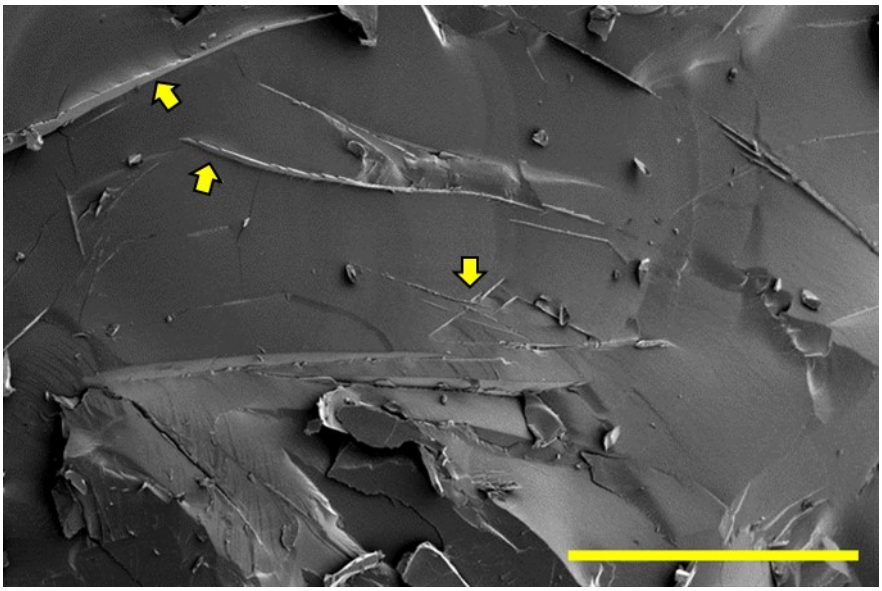

Figure S3: Freeze-fracture SEM image of hexatriacontane wax crystals in oil. Arrows point to wax crystals. Size bar = 100 µm.

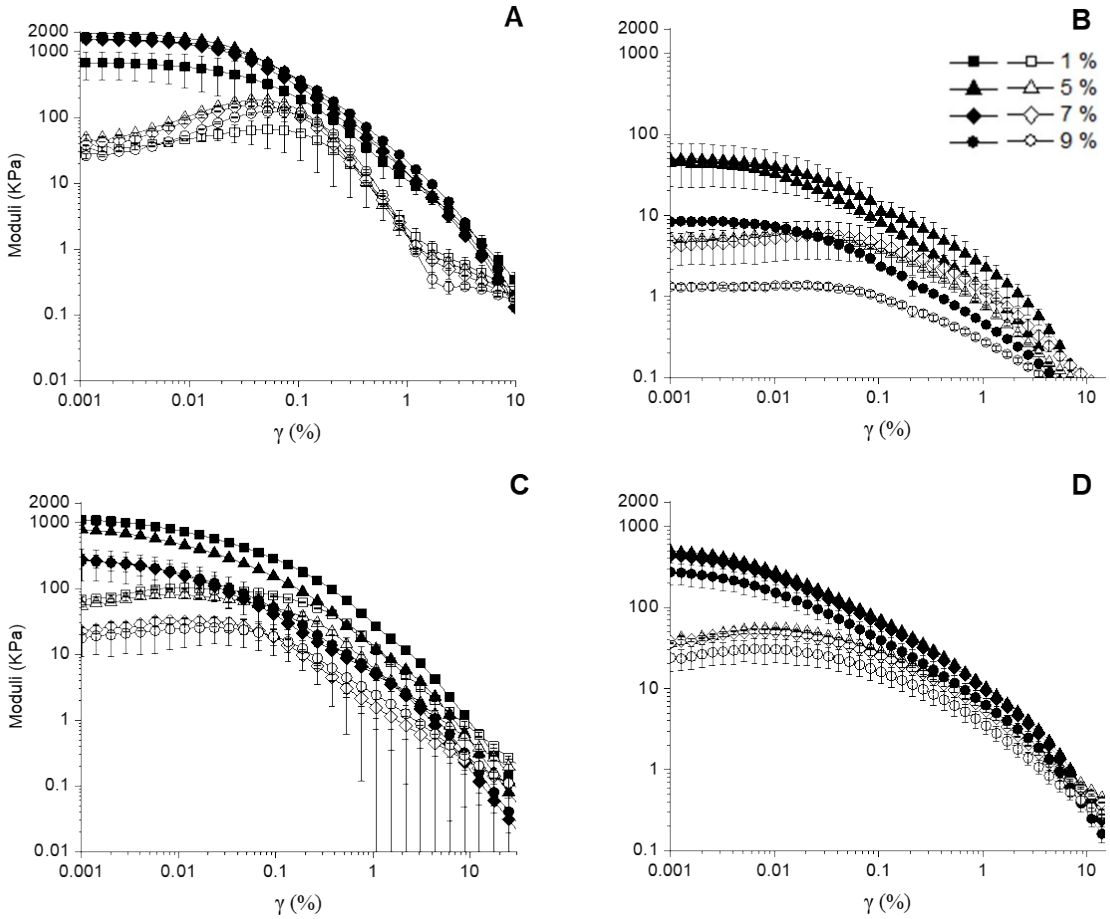

Figure S4: Strain sweeps showing the effect of wax, particle surface polarity and water content on the viscoelastic moduli of capillary suspensions consisting of polar or non-polar particles. (A) Polar particle capillary suspension; (B) Non-polar particle capillary suspension; (C) Polar particle hybrid gel; (D) Non-polar particle hybrid gel. Strain sweeps at 1, 5, 7 and 9 vol% water are shown. The 1 vol% water non-polar capillary suspension and associated hybrid did not gel. Filled symbols - G' and open symbols - G''.

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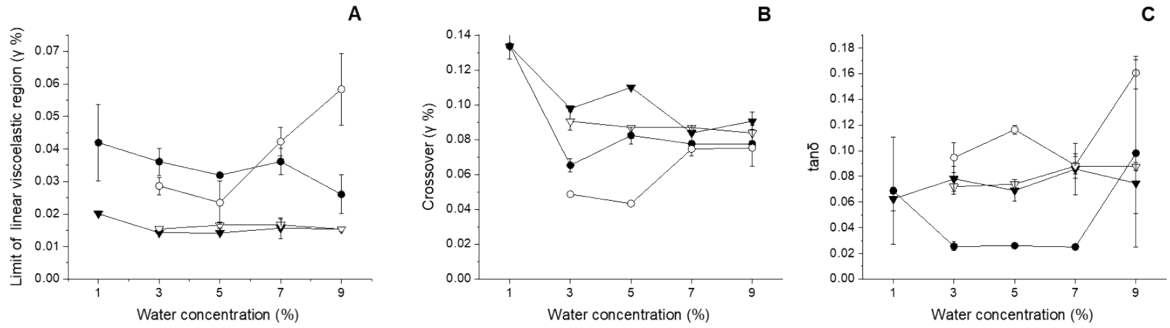

Figure S5: Role of water content on rheological parameters. (A) Strain at limit of the LVR; (B) Cross-over strain; (C) tan δ. (●) Polar particle capillary suspension; (○) Non-polar particle capillary suspension; (▼) Polar particle hybrid gels; (▽) Non-polar particle hybrid gels. The 1 vol% water non-polar capillary suspension and associated hybrid did not gel.

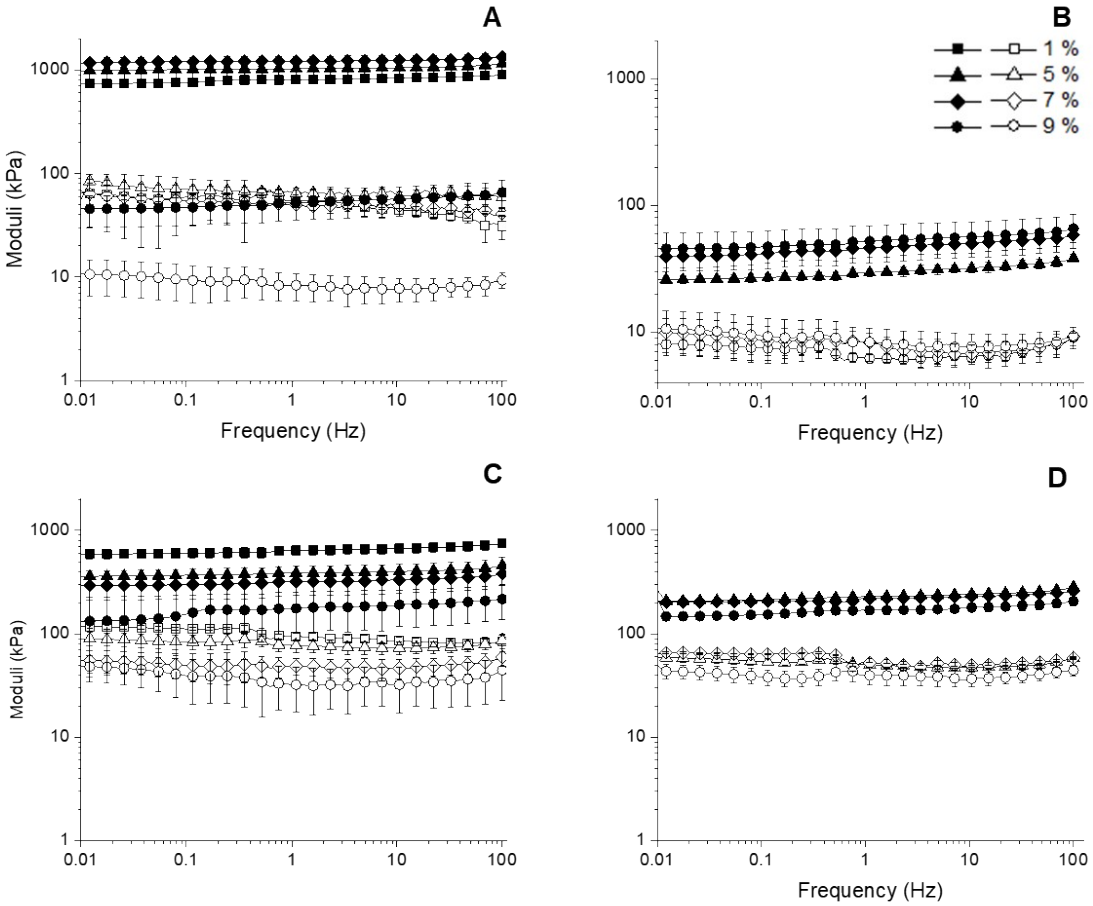

Figure S6: Frequency sweeps showing the effect of wax, particle surface polarity and water content on the viscoelastic moduli of capillary suspensions consisting of polar or non-polar particles. (A) Polar particle capillary suspension; (B) Non-polar particle capillary suspension; (C) Polar particle hybrid gel; (D) Non-polar particle hybrid gel. Frequency sweeps at 1, 5, 7 and 9 vol% water are shown. The 1 vol% water non-polar capillary suspension and associated hybrid did not gel. Filled symbols - G' and open symbols - G''.

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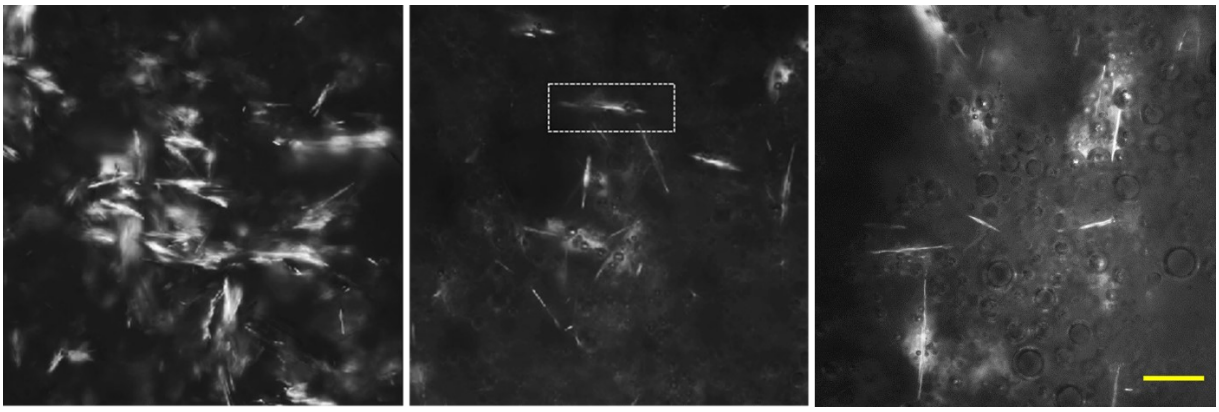

Figure S7: Hexatriacontane wax crystals in bulk oil (left), and in the presence of 30 vol% polar (middle) and non-polar (right) particles. Dotted rectangles appear to show wax crystal growth from surface of dispersed particles. Size bar = 20 µm.

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