

Abstract Submitted
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Yielding in concentrated emulsions ANNIE COLIN, LOF Université Bordeaux 1, SÉBASTIEN MANNEVILLE, CRPP, LYDIANE BECU, CRPP — We studied the non linear rheological response of two kinds of soft glassy materials: direct concentrated emulsions with and without a short range interparticle attraction induced by adding surfactant. Using high frequency ultrasonic velocimetry, the velocity profiles in a Couette cell are recorded simultaneously to the global rheological data during start up experiments. Under applied shear rate in the vicinity of the yielding transition, the gel ie the adhesive emulsion separates into a liquid state sheared rapidly at a rate higher than a substantial critical shear rate and a static solid region. The static region disappears at high shear rate. On the contrary, the glass ie the non adhesive emulsions flows homogeneously. Below the yield stress the emulsions remains solid like whereas above it becomes liquid like. Under applied shear rate no coexisting states between a liquid like phase and a solid like phase are evidenced. Our data point out that “glass” and “gel” flow differently in the vicinity of the yielding transition suggesting that the involved mechanisms are not universal.

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