Yield stress behavior of ternary colloidal suspensions with secondary phases containing water-soluble polymers

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Capillary suspensions are ternary solid-liquid-liquid systems produced via the addition of a small amount of secondary fluid to the bulk fluid that contained the dispersed solid particles. The secondary fluid could exert strong capillary forces between the particles and dramatically change the rheological properties of the suspension. So far, research has focused on capillary suspensions that consist of additive-free fluids, whereas capillary suspensions with additives, particularly those of large molecular weight that are highly relevant for industrial purposes, have been relatively less studied. Here, we present our systematic study on the properties of capillary suspensions with secondary phases containing a variety of water-soluble polymers.