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Magnetorheology of hybrid colloids measured by spin coating and classical rheometry.[1] RAHEEMA MUHAMMAD ASLAM, University of Navarra, Spain, KESHWAD SHAHRIVAR, JUAN DE VICENTE LVAREZ-MANZANEDA, University of Granada, Spain, WENCESLAO GONZLEZ-VIAS, University of Navarra, Spain — Hybrid colloids composed of micron-sized ferromagnetic and diamagnetic particles constitute a promising category of magnetorheological fluids with enhanced field-induced apparent yield stress. However, the physical mechanism explaining this stress enhancement is currently lacking. For the first time, we measure and compare the magnetic field-dependent viscosity of hybrid diluted colloids using spin-coating [] and magnetorheometry []. In the former technique, a magnetic field is applied during the spin coating of the colloidal suspension involving evaporation of the solvent. The viscosity of the colloidal suspension at applied field can be derived from the surface coverage of the dry spin-coated deposits and from the viscosity of the colloid at zero field. In the latter, its viscosity is measured with a torsional parallel plate magnetorheometer under uniaxial magnetic fields aligned in the gradient direction of a steady shearing flow. The experimental results under different conditions and the effect of each component on the magnetorheological properties of the resulting colloid will be discussed. [] M. Pichumani et al., Soft Matter, 2013, 9, 3220-3229 [] Juan de Vicente *et al.*, Soft Matter, 2011, 7, 3701-3710

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