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Rheo-VSANS: application to polydisperse micron-sized colloidal particles

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This paper reports the series of developments and investigations on in situ coupling of rheology with very small-angle neutron scattering (rheo-VSANS) measurements of polydisperse colloidal particle suspensions. This coupling allows us to directly correlate microscopic particle-particle interaction with macroscopic suspension behavior under different physical and chemical environments. In this paper, aqueous suspensions composed of colloidal particles, including metal oxide particles, are introduced as examples. The research gaps are identified and specific future perspectives are discussed to further enhance the use of this useful coupling, and its application toward the transition from the evaluation of simple particle suspension systems to more complex particle suspension systems that fit more with the interest and needs of particle processing industries.

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