

Abstract Submitted  
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**Rheology of Dilute Aqueous Dispersions of Monodisperse Phytoglycogen Nanoparticles** HURMIZ SHAMANA, JOHN DUTCHER, University of Guelph — The viscosity of dilute colloidal dispersions is well described by the Einstein relation, which is linear in the volume fraction of the particles. For hard spheres, this allows the calculation of the specific volume of the spheres [1]. For soft colloidal particles, the analysis of the data can be complicated by the uptake of the solvent by the particles. We have measured the concentration dependence of the zero shear viscosity of dilute aqueous dispersions of monodisperse phytoglycogen nanoparticles, which absorb a large amount of water (each nanoparticle contains about 250% of its mass in water). By using values of the particle size and the hydrated and dehydrated molecular weights determined using neutron scattering, we can interpret the measured viscosity-concentration data in terms of the Einstein relation to obtain the particle density and corresponding volume fraction of the dispersions. [1] J.C. van der Werff et al., Phys. Rev. A **39**, 795 (1989).

John Dutcher  
University of Guelph

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