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Rheology and Creep Dynamics of Wormlike Micellar Gels RONAK GUPTA, GWYNN ELFRING, Dept. of Mechanical Engineering, University of British Columbia, IAN FRIGAARD, Departments of Mathematics and Mechanical Engineering, University of British Columbia — Long chained surfactants in solution show behavior akin to elastic gels. We work with one such model system and elucidate its rheology and dynamics under an imposed shear. Wormlike micellar gels show a complex creep response marked by long time power law creep at low stresses and delayed flow phenomenon at higher stresses. We quantify these dynamics and show that the fluidization process is characterized by a high degree of variability indicative of heterogeneous yielding processes. These results separate wormlike micellar gels from conventional micellar solutions where such interesting phenomena aren't typically observed.

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