Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Effects of particle softness on shear thickening of microgel suspensions HE CHENG, ZHI ZHOU, CHARLES HAN, Chinese Academy of Sci (CAS), STATE KEY LAB OF POLYMER PHYSICS AND CHEMISTRY TEAM — A series of microgel particles composed of a polystyrene (PS) core and thermo-sensitive poly (N-isopropylacrylamide) (PNIPAM) shell with different shell thicknesses were investigated to elucidate the effect of microgel softness on its shear thickening behavior. Since the softness of the microgels increases with decreasing temperature through the volume phase transition effect of PNIPAM shell, the measured softness parameter, n, which is derived from the Zwanzig-Mountain equation, was used to measure and describe the combined influences of temperature and shell thickness. According to our results, the softness parameter is able to estimate the shear thickening behavior of microgel suspensions at least semi-quantitatively.

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Date submitted: 04 Nov 2013 Electronic form version 1.4