

Abstract Submitted  
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**Studying Microgel Volume Phase Transition** KIRIL STRELETZKY, JANNA MINO, CHRISTIAN GUNDER, KRISTA FREEMAN, Cleveland State University — Polysaccharide microgels were synthesized with varying amount of surfactant at LCST and at varying temperatures above it. The amount of crosslinker used was also varied. Formed microgels were characterized by coupled static light scattering and polarized/depolarized dynamic light scattering techniques, spectrophotometry, and wet-cell electronic imaging, yielding microgel size distribution, apparent molecular weight, structure, and water content. Synthesized microgels were reasonably monodisperse below the transition with Rh of 90-600 nm, depending on synthesis conditions. Microgels underwent reversible volume phase transition with volume deswelling ratio of 3 to 30, depending on synthesis conditions. The effects of surfactant and crosslinker concentrations, synthesis temperature, and heating rate on volume phase transition were studied experimentally and analyzed with entropy-based thermodynamic model.

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