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Synthesis of Polymeric Microgels and their Characterization with Light Scattering. CHRISTIAN GUNDER, KIRIL A. STRELETZKY, KRISTA FREEMAN, JANNA MINO, Cleveland State University — Polymeric microgels were synthesized in by chemically crosslinking hydroxypropylcellulose (HPC) chains in aqueous solutions of sodium hydroxide at temperatures above the low critical solution temperature (LCST) of HPC. In order to create a narrower size distribution of HPC microgels, surfactant was added. It was found that the LCST of the solution moved from 40C up to 80C with an increase in surfactant concentration from 0 to 12 g/l. Formed microgels were characterized by dynamic light scattering (DLS). Microgel solutions synthesized resulted in reasonably monodispersed nanoparticles with Rh of 90-150 nm below the transition, and Rh of 50-90 nm above the transition. The effect of synthesis temperature and crosslinker concentration on microgel size, polydispersity, and swelling ratio were also studied.

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