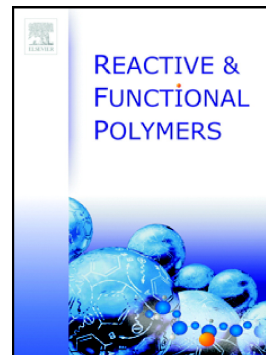


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## Microgels from microfluidic templating and photoinduced crosslinking of cinnamylidene acetic acid modified precursors

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### Abstract

So far, a number of approaches to synthesize microgel networks have been followed, while only in few cases a detailed control of the network architecture has been possible. Here, the photoinduced [2+2] cycloaddition reaction of cinnamylidene acetic acid (CAA) moieties coupled to four-arm star shaped oligo(ethylene glycol) (OEG) precursors was explored for the creation of microgels with defined polymer network structures. Based on a rational solvent selection and precursor dispersion in glass-capillary microfluidics, microgels could be successfully prepared by the proposed synthesis approach. Model reactions confirmed a quantitative network formation. Therefore, compared to common radical polymerisation for microgel crosslinking, CAA-dimerization may be an alternative approach particularly when well defined network structures are desired.

### Keywords

Microgel, cinnamylidene acetic acid, photocrosslinking, microfluidic

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