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Photomodulation of the cloud point of thermoresponsive polymers

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Thermoresponsive copolymers are nowadays useful materials for drug delivery [1]. Incorporating a light sensitive functionality as a second non-invasive stimulus, their lower critical transition temperature (LCST) can be modulated at will, achieving a switching of the conformation and the water solubility by a change of temperature or by irradiation with light. Here, we investigate the effect of content and isomerism of incorporated azobenzene moiety on the cloud point of poly(methoxy diethylene glycol acrylate) and poly(N-ethylene acrylamide). We show a drastic decrease in cloud point for both systems after introduction of azobenzene, and for the first system, the *cis*-form gave an unexpectedly lower cloud point than the *trans*-form, which could be probably explained by the aggregation and loop effect. Further work will be focused on the second system, exploring the phase transition behavior upon the irradiation.

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