Faculty of Science and Technology
Tokushima University

Stereoregular thermoresponsible polymers

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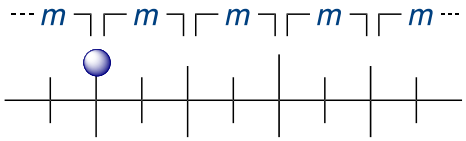
Representative stereoregular polymers

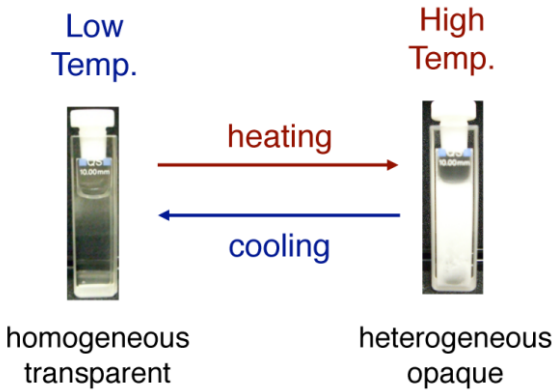


Isotactic

Syndiotactic

Heterotactic

Phase transition behavior of aqueous polymers.



Content:

Our main research interest is “synthesis of stereoregular polymers, which exhibit thermoresponsibility in aqueous solutions”. The stereospecificity of the radical polymerizations of amide-containing monomers, such as *N*-isopropylacrylamide (NIPAAm) and *N*-*n*-propylacrylamide (NNPAAm), has been successfully controlled by utilizing complex formation of monomers through hydrogen bondings.

In addition, the effect of stereoregularity (isotactic, syndiotactic and heterotactic) on the LCST (lower critical solution temperature)–type phase transition has been investigated. It has been revealed that diad tacticity plays an important role to determine the phase transition temperature in the heating process, whereas configurational sequences longer than triad do in the cooling process.

A final goal of our research is development of novel functional polymeric material by controlling the primary structures of synthetic polymers.

Keywords : radical polymerization, stereoregularity, LCST

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