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The Structural and Thermal Behavior of The Thermoresponsive Polymer Poly(N-isopropylmethacrylamide) in Aqueous Solution

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Compared to poly(N-isopropylacrylamide) PNIPAM, poly(N-isopropylmethacrylamide) PNIPMAM shows different behavior, though it has a similar chemical structure, only with additional methyl groups on the backbone, e.g. a higher transition temperature (43 ℃ instead of 32 ℃). We studied the temperature-dependent phase behavior of PNIPMAM in D2O using small-angle neutron scattering. Different from PNIPAM, inhomogeneities and physical crosslinks appear in the one-phase state due to the methyl groups.

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