

# Aggregation behavior of doubly thermo-responsive poly(sulfobetaine-*b*-(*N*-isopropylmethacrylamide) diblock copolymers

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Diblock copolymers consisting of a thermo-responsive poly(*N*-isopropylmethacrylamide) (PNIPMAM block) and a zwitterionic poly(sulfobetaine) (PSB block) feature both a lower and an upper critical solution temperature (LCST and UCST) in aqueous solution. P(SB-*b*-NIPMAM) expected to form in water the following phases: (i) micelles with PNIPMAM shell and PSB core or vice versa at low and high temperatures and unimers and (ii) large aggregates in the intermediate temperature range, depending on the chemical structure and the molecular mass of the PSB block as well as on the presence of electrolyte.

The aggregation behavior in D2O with dual stimuli (temperature and electrolyte concentration) is studied by temperature-resolved small-angle X-ray and neutron scattering (SAXS, SANS). We have found that the aggregation of P(SB-*b*-NIPMAM) in D2O occurs above LCST and below UCST and that the structure depends on the blocks lengths, whereas the salt-induced structural changes were only minor.

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