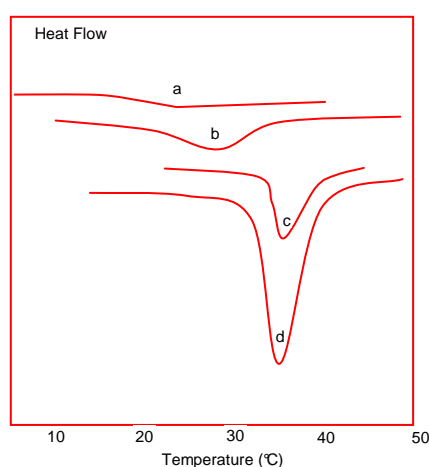


Transition behavior of hydrophobically modified N-isopropylacrylamide copolymer solution

Introduction: poly(N-isopropylacrylamide) (PNIPAAm) aqueous solutions presents a sharp transition around 32-34°C which close the body temperature. This characteristic has been exploited for the application in temperature sensitive nonviral vector for gene delivery. Temperature induces a transition from coil to globule of copolymer backbone in solution, but the hydrophobic core of micelles is not affected. The author writes "...for PNI9.68VL1 solution, common DSC cannot provide calorimetry data with acceptable signal noise ratio. Herein, we employed Micro-DSC to track the subtle transition with high sensitivity."



Experimental

The following solutions have been analyzed :

- (a) : PNI9.68VL1 (52.0 mg/ml)
- (b) : PNI9.68VL1 (231 mg/ml)
- (c) : PNIPAAm (52.0 mg/ml)
- (d) : PNIPAAm (288.3 mg/ml)

Temperature was programmed from 5°C to 50°C at 1K/min.

Results

The curves show endothermic peaks where the onset temperatures for both PNI9.68VL1 and PNIPAAm slightly decrease when the concentration is raised.

Explanation and interpretation are given in the article

Instrument
Micro DSC III Evo
-20 to 120°C



For more details, ask for publication B1777

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