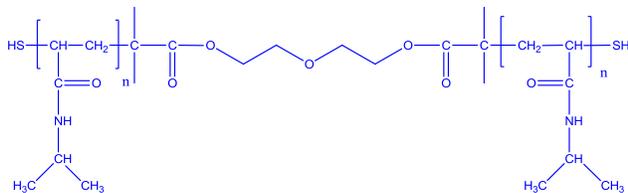


Sample Name: α,ω -Dithiol terminated Poly(N-isopropyl acrylamide)

Sample #: P6699-NIPAM2SH

Structure:

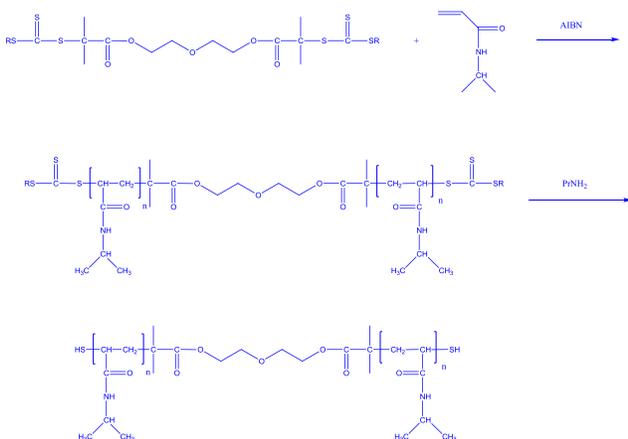


Composition:

$M_n \times 10^3$	PDI
14.0	1.3

Synthesis Procedure:

The polymer was prepared by reversible addition-fragmentation chain transfer polymerization (RAFT) of N-isopropyl acrylamide. The scheme of the reaction is illustrated below:



Purification of polymer:

Unreacted monomer was removed by dissolving the product in cold water than warming up the solution. The polymer separated out. This procedure was applied 2 times to remove the unreacted monomer. The obtained polymer was dissolved in acetone and reprecipitated in cold ether.

Hydrolysis of the Trithiocarbonate End Groups in Poly(NIPAM-SH): The TTS end groups of the obtained polymer samples were hydrolyzed to yield the corresponding thiol-terminated polymers under basic conditions. For this purpose, the polymer was dissolved in a mixture of MeOH/aq. 28% NaOH (2:1) and stirred under nitrogen overnight. The reaction mixture

was acidified with 88% formic acid, MeOH was evaporated and the residue was dissolved filter and than precipitated in cold diethyl ether.

Characterization:

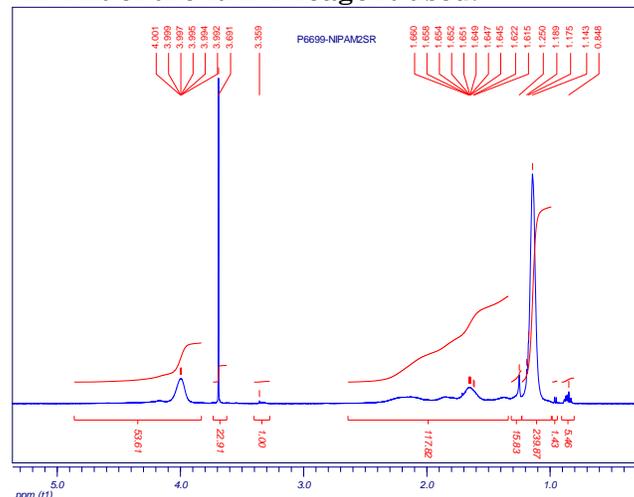
Size exclusion chromatography (SEC) was carried out on a Varian liquid chromatograph equipped with a refractive index detector. A Shodex 806L GPC columns from Supelco was used with DMF(0.05M LiBr) as the eluent and also in THF following the procedure as out lined in **Macromolecules, 2000,33,6738**. To avoid the effect of concentration and the amount of water present in the sample, on line triple detectors were used and the dn/dc was calculated and found : 0.104mL/g in THF at 35 oC The columns were calibrated with monodisperse polystyrene standards. The polydispersity index was calculated.

Viscosity measurement was carried out in a Ubbelohde viscometer at 25°C. Four solutions in methanol of different concentrations were measured. The intrinsic viscosity was obtained by extrapolation to $c=0$. From viscosity-molecular weight relationship $[\eta]=2.99 \times 10^{-2} M^{0.64}$ (Makromolekular Chem. V180, P969, 1979), the viscosity average molecular weight was calculated accordingly.

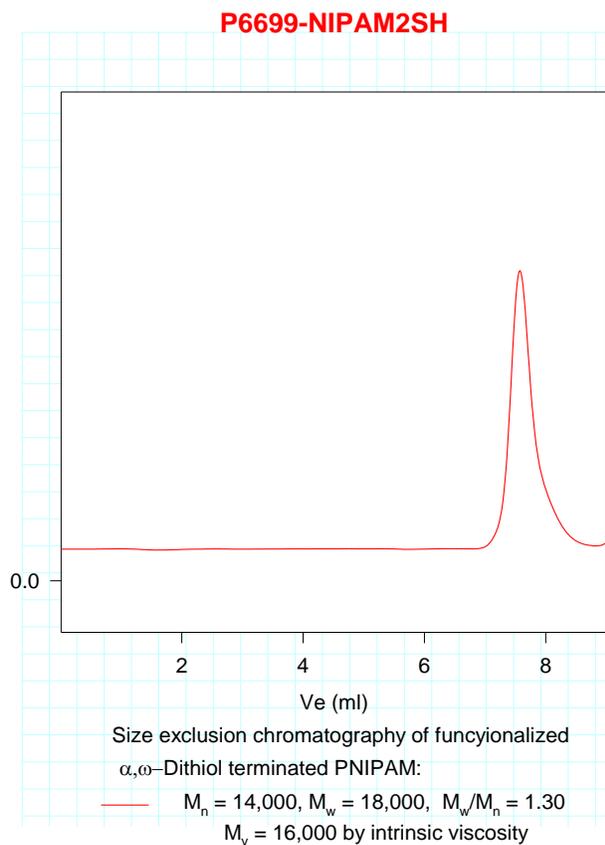
Solubility:

The polymer is soluble in water methanol, ethanol, DMF, and dioxane, not soluble in hexane.

¹H NMR of the RAFT reagent used:



SEC Profile of Polymer:



Viscosity Measurement of polymer:

