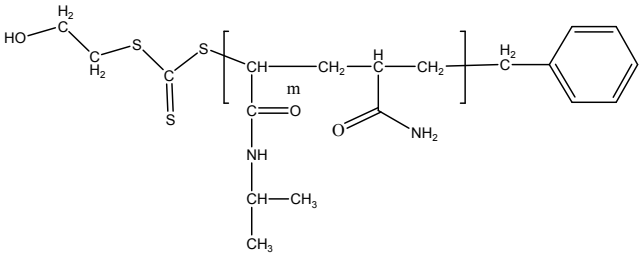
Sample Name: **α–hydroxy ω-Benzyl terminated random copolymer of Poly(N-isopropyl acrylamide and acrylamide)**

Sample #: **P14338D-NIPAMAMDranOHT**

Structure:



Composition:

Mn x 10^3	PDI
9.0	1.08
AMD 10 wt%	

Synthesis Procedure:
Random copolymer was prepared by reversible addition-fragmentation chain transfer polymerization (RAFT) of N-isopropyl acrylamide.

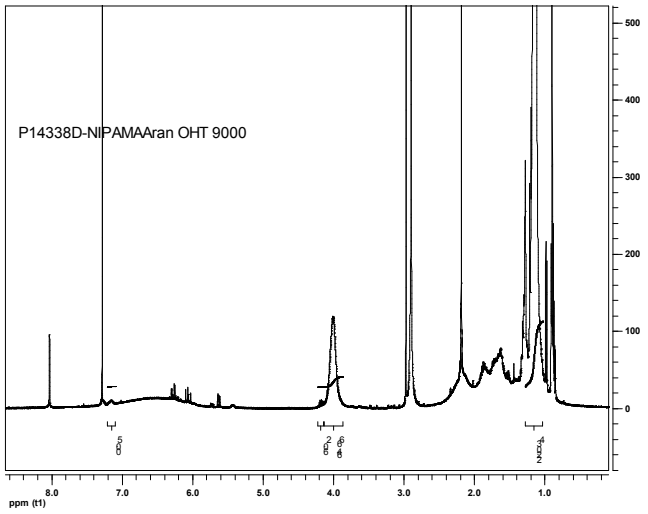
Purification of polymer:
Unreacted monomer was removed by dissolving the product in cold water than warming up the solution. The polymer separated out. This procedure was applied 2 times to remove the unreacted monomer. The obtained polymer was dissolved in acetone and reprecipitated in cold ether.

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 at 65 oC and also in THF following the procedure as out lined in **Macromolecules, 2000,33,6738.** 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 $[\eta]= 2.99\times10^{-2}\ M^{0.64}$ (Makromolecular Chem. V180, P969, 1979), the viscosity average molecular weight was calculated accordingly.
It is important that the values of molecular weights determined in DMF and in THF were found quite different. It might be possible that end functionalized polymer might be present in the form of aggregates and gives much higher or lower values than determined by viscosity data. (data are reported in the following Table with respect to polystyrene as reference material).

In DMF at 60 oC Mn w.r.t PS (Mw/Mn)	**HNMR**	[η] in CH3OH at 25 oC
44,000(1.07)	9,000	

From the above results we have consider the viscosity values were found comparable.

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



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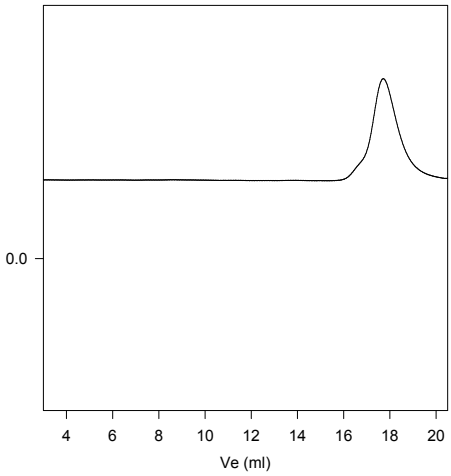

Size exclusion chromatography of the polymer in DMF at 65 °C: Eluent containing 0.05 M LiBr

—— Random copolymer of N-isopropylacrylamide and acrylamide M_n=9,000, PI=1.08 (values determined by HNMR)