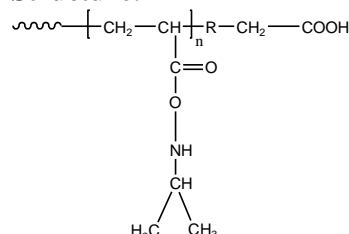


**Sample Name: Carboxy Terminated  
Poly(N-isopropyl acrylamide)**

**Sample #: P5596-NIPAMCOOH**

**Structure:**



**Composition:**

$\text{Mn} \times 10^3$	PDI
2.8	1.4

**Synthesis Procedure:**

Carboxy Terminated Poly(N-isopropyl acrylamide) was prepared by free-radical polymerization of N-isopropyl acrylamide with a carboxyl group containing chain transfer agent.

**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(0.01M LiBr) as the eluent and also in THF following the procedure as outlined in **Macromolecules, 2000,33,6738**. To avoid the effect of concentration and the amount of water present in the sample, online triple detectors were used and the  $\text{dn}/\text{dc}$  was calculated and found : 0.104mL/g in THF at 35 °C. 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  $[\eta] = 2.99 \times 10^{-2} \text{ M}^{0.64}$  (Macromolecular 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 values than determined by viscosity data. (data are reported in the following Table with respect to polystyrene as reference material).

In DMF Mn (Mw/Mn)	In THF Mn (Mw/Mn)	Molecular weight by titration	Mv by Viscosity
24000(1.5)	5000(1.4)	2800	5800

From the above results we have considered the titration and the viscosity values were found comparable.

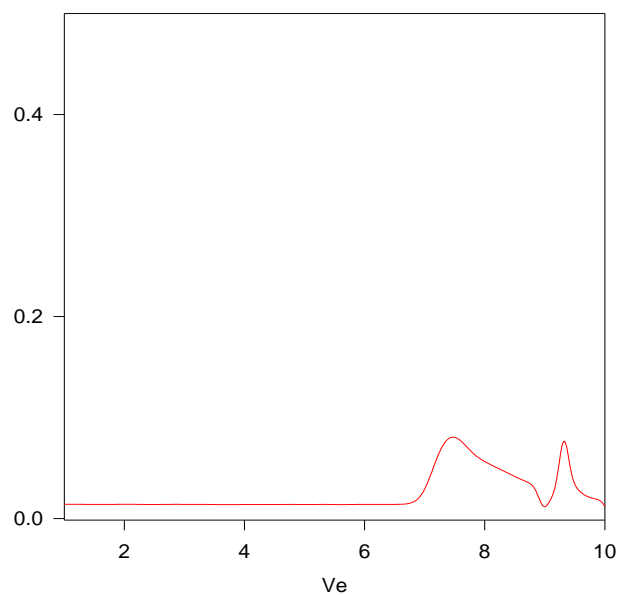
**Molecular weight of the product is reported by end group titration by acid base process.**

**Solubility:**

The polymer is soluble in methanol, cold water, THF,  $\text{CHCl}_3$ .

**SEC of Sample: Run in DMF**

**P5596-NIPAMCOOH**



Size Exclusion Chromatography profile of the product  
run in DMF (0.0.1M LiBr)  
Carboxy terminated Poly(N-isopropyl acrylamide)