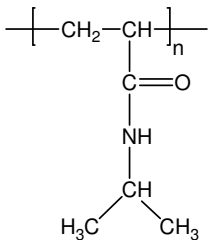
Sample Name: **Poly(N-isopropyl acrylamide)**

Sample #: **P5540-NIPAM**

**Structure:**




**Composition:**

| Mn x $10^3$ | Mw **x $10^3$** | PDI |
|---|---|---|
| 900.00 | 2400.0 | 2.65 |

**Synthesis Procedure:**
Poly(N-isopropyl acrylamide) is obtained by free radical process

**Characterization:**

The molecular weight and polydispersity index (PDI) were obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple detectors from Viscotek Co.

Sample Preparation: Polymer sample for the GPC were prepared as reported in the literature (**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 : 0.034mL/g in THF at 35 oC.

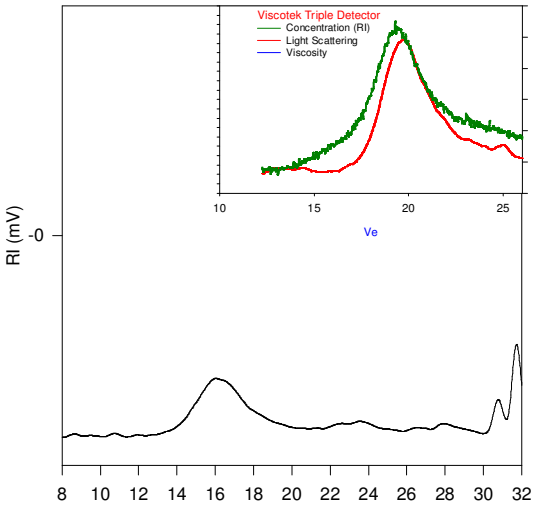
## Purification of polymer:

Unreacted monomer was removed by dissolving the product in cold water than warming 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.

**Solubility:**
Poly(N-isopropyl acrylamide) is soluble in water, DMF, THF, acetone, insoluble in hexane and ether.

**SEC of Homopolymer:**

**P5540-NIPAM**




Size Exclusion Chromatography of Poly N-isopropylacrylamide(NIPAM)

—— $M_n$ = 900,000, $M_w$ = 2400,000, $M_w/M_n$ = 2.65

Solution Viscosity in THF at 35 oC: 0.639dl/g

dn/dc in THF at 35 oC: 0.034 ml/g

Rgw: 37.46nm