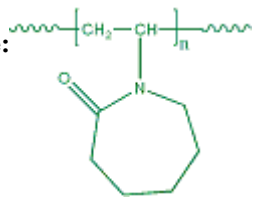
Sample Name:
Poly(N-vinyl caprolactam)

Sample #P8984A-NVCL

Structure:



Composition:

Mv x 10^3 Viscosity Average Molecular weight	PDI
286.0 [η]= in water at 25 ^{0}C 0. 61dl/g	4.6 (from SEC in DMF)
T_g (^{o}C)	198

Synthesis Procedure:
Polymer is obtained by free radical polymerization using AIBN as free radical initiator.

Characterization:
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in DMF. 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.

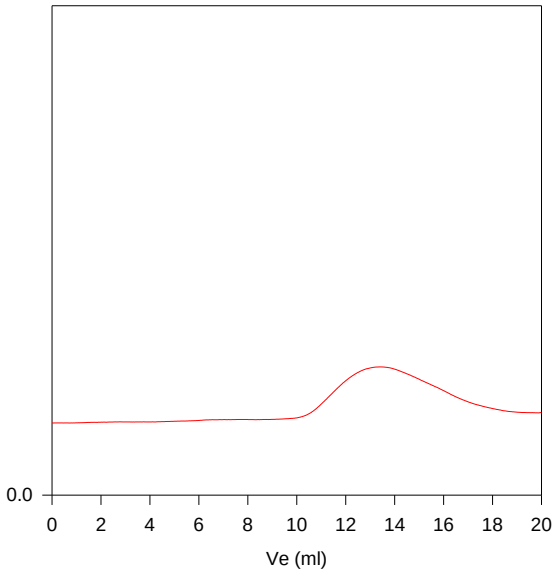
Solution Viscosity:
The viscosity average molar masses (Mv), is determined from the intrinsic viscosity employing the Mark-Houwink relation $[\eta]=KM^{\alpha}$ with K= 0.0105ml/g and α=0.69 Ref: Krish, Yu E. Yanul N A, Kalninish K.K. Eur. Polym,. J. 1999, 35, 305.

Purification of the Polymer:
Polymer was purified after dissolving in water (distilled) and adding acetone (acetone to water 3:7). At room temperature a clear solution was formed. The solution was warmed up to 80 ^{o}C and the product separated out. This was repeated at least three times to ensure the removal of unreacted vinyl caprolactam monomer from the polymer. The obtained polymer was dried and than re-dissolved in de-ionized water and freeze-dried.

Thermal Analysis:
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10^{o}C/min.The inflection glass transition temperature (T_g) has been considered.

SEC of Homopolymer:

P8984A-NVCL



Size exclusion chromatography of poly(N-Vinyl caprolactam):
MV by viscosity in water: 286,000 M_w/M_n=4.6 in DMF
With refrence to Polystyrene Mn 78,000

DSC thermogram for the polymer: