Sample Name:
Poly(N-N-diethylacrylamide)

Sample #: P9639A-DEAMD

Synthesis by GTP polymerization

Structure:

$$\left[CH_2{-}\underset{\underset{C=O}{|}}{\overset{\overset{H}{|}}{C}} \right]_n H$$

with side group:

$$C=O$$
$$N$$
$$H_2C \qquad CH_2$$
$$CH_3 \qquad CH_3$$
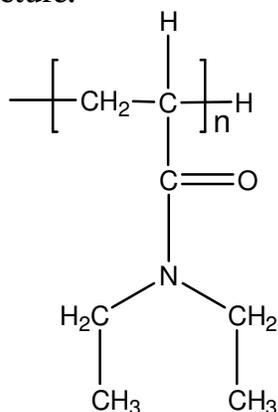
Composition:

Mn x 10³ _{w.r.t Polystyrene}	PDI
182.0	1.3
Mw x 10³ 236.0	1.3
T_g (°C)	85
Viscosity in Methanol at 25 °C: $[\eta]= 80ml/g$	Mv:242000

Synthesis Procedure:
The polymer is synthesized by GTP polymerization.

Characterization:
The molecular weight and polydispersity index (PDI) of the polymer are obtained by size exclusion chromatography

Thermal analysis:
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min.The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solution viscosity :
Intrinsic viscosity was determined in methanol at 25 °C using ubbelhode viscometer. The molecular weight is calculated based on the following equation in Methanol at 25 °C:

$$[\eta] = 0.0175 \times M_v^{0.68}$$

Solubility:
Polymer is soluble in methanol, ethanol and water, precipitated in hexane.

SEC of Homopolymer:
P9639A-DEAMD
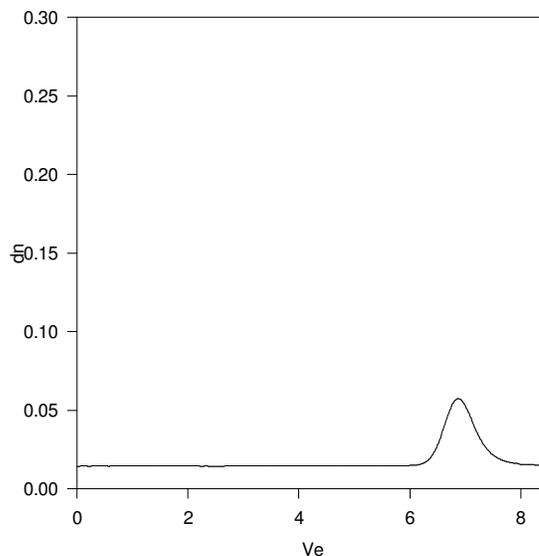
Size Exclusion Chromatography of Poly(N,N-diethyl acrylamide)

M_n=182,000, M_w=236,000, PI=1.3

DSC thermogram for the polymer: