

Sample Name:

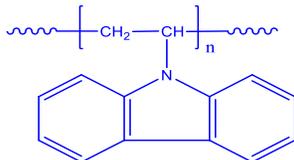
Poly(N-vinyl carbazole)

or

Poly(9-vinyl carbazole)

Sample #: **P45195B-VK**

Structure:



Composition:

$M_n \times 10^3$	PDI
48.0	2.3
T_g (°C): 162	

Synthesis Procedure:

Poly(N-vinyl carbazole) is obtained by free radical polymerization of N-vinyl carbazole and the reaction scheme is shown below.

Characterization:

The molecular weight and polydispersity index (PDI) are 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.

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).

Solubility:

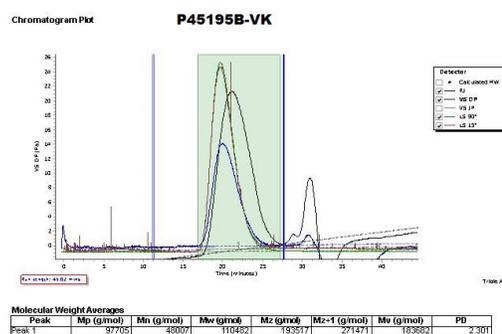
Poly(N-vinyl carbazole) is soluble in DMF, THF, toluene and $CHCl_3$. It precipitates from methanol, ethanol, water, and hexanes.

Purification of the Polymer:

Polymer is purified to remove the traces amount of unreacted monomer. Purification carried out as follows:

1. First precipitation in Hexane.
2. Re dissolved in $CHCl_3$ and precipitated in Hot methanol.
3. In hot methanol vinyl carbazole monomer is soluble and the absence of monomer in the polymer can be checked by GPC. The absence of Vinyl carbazole elution at 29.8 elution count.

SEC profile of Homopolymer:



DSC thermogram for the polymer:

