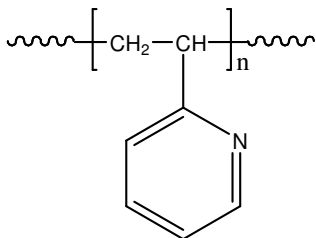


Sample Name: Poly(2-vinyl pyridine)

Sample #: P50-2VP

Structure:

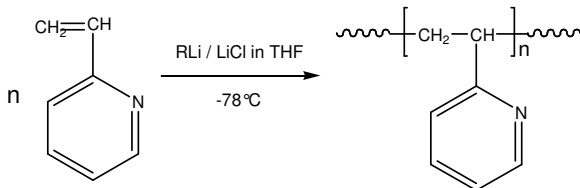


Composition:

$M_n \times 10^3$	PDI
77.0	1.19

Synthesis Procedure:

Poly(2-vinyl pyridine) is obtained by living anionic polymerization of 2-vinyl pyridine using an adduct of Sec. butyllithium and diphenyl ethylene. Polymerization is carried out in THF at -78°C . Polymerization reaction is terminated using degassed methanol. The reaction scheme is illustrated as follows:



Characterization:

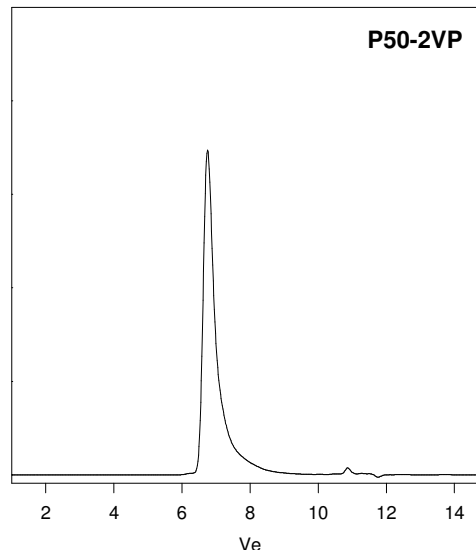
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple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

Thermal analysis was performed on TA Instruments Q100 differential scanning calorimeter (DSC) under a nitrogen atmosphere. The glass transition temperature (T_g) of the polymer was measured at a scan rate of $10^\circ\text{C}/\text{min}$ shortly after creating thermal history of the sample.

Solubility:

Poly 2 vinylpyridine is soluble in DMF, THF, toluene, methanol, ethanol and CHCl_3 . It precipitates from water and hexanes, ether.

SEC elugram of the polymer:



Size exclusion chromatography of poly(2-vinylpyridine) in THF
 $M_n=77000$, $M_w=92000$, $M_z=103000$, $PI=1.19$

Relationship between T_g and M_n of P2VP:

