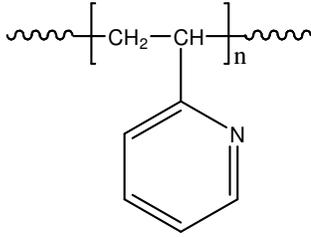


Sample Name: Poly(2-vinyl pyridine)

Sample #: P8100-2VP

Structure:



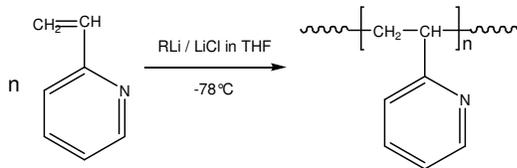
Composition:

$M_n \times 10^3$	PDI
5.5	1.10

4.5 by $^1\text{H NMR}$	
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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-LiCl. Polymerization is carried out in THF at -78°C . Polymerization reaction is terminated using degassed methanol. The reaction scheme is illustrated as follows:



Characterization:

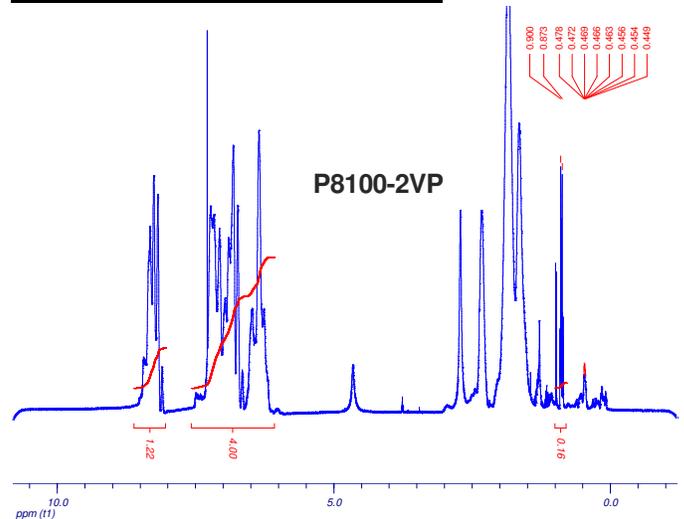
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple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

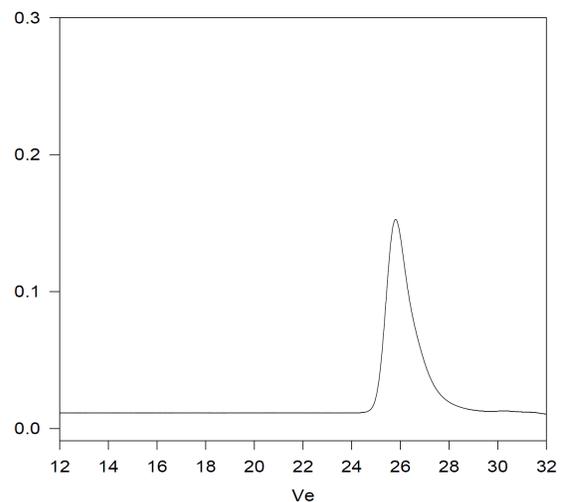
Poly 2 vinylpyridine is soluble in DMF, THF, toluene, methanol, ethanol and CHCl_3 . It precipitates from water and hexanes, ether.

$^1\text{H NMR}$ spectrum of the Polymer:



SEC elugram of the polymer:

P8100-2VP



Size exclusion chromatography of poly(2-vinylpyridine) in THF

$M_n=5500$, $M_w=6000$, $PI=1.10$
Solution Viscosity in THF at 35°C : 0.0754dl/g
Radius of Gyration: 2.53nm
 dn/dc in THF at 35°C : 0.167ml/g

Relationship between T_g and M_n of P2VP:

