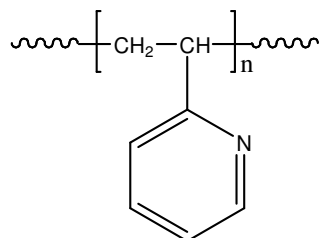


**Sample Name:** Poly(2-vinyl pyridine)

**Sample #:** P3675-2VP

**Structure:**

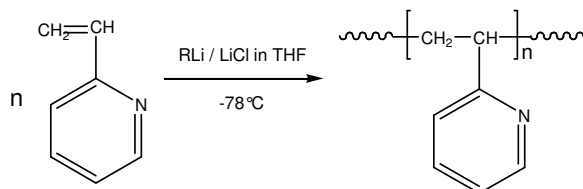


**Composition:**

$M_n \times 10^3$	PDI
277.0	1.09

**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  $-78^\circ\text{C}$ . Polymerization reaction is terminated using degassed methanol. The reaction scheme is illustrated as follows:



**Characterization:**

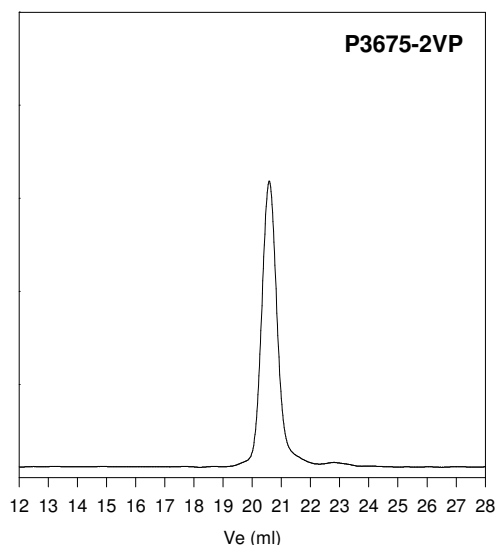
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple 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  $\text{CHCl}_3$ . It precipitates from water and hexanes, ether.

**SEC elugram of the polymer :**



Size Exclusion Chromatography of Poly(2-vinylpyridine):

$M_n=277000$ ,  $M_w=302000$ ,  $PI=1.09$

Radius of Gyration: 19.60 nm Solution viscosity: 0.703 dl/g in THF at  $30^\circ\text{C}$

**Relationship between  $T_g$  and  $M_n$  of P2VP:**

