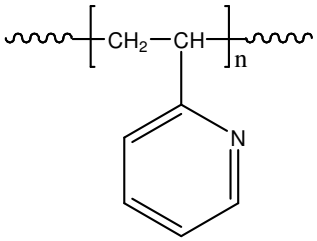
Sample Name: **Poly(2-vinyl pyridine)**

Sample #: **P3679-2VP**

Structure:

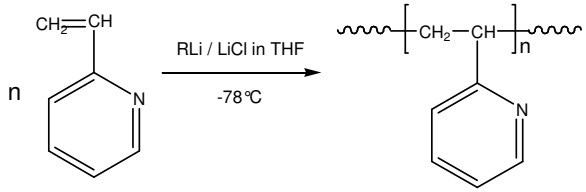


Composition:

Mn x 10^3	PDI
439.0	1.15

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 oC. Polymerization reaction is terminated using degassed methanol. The reaction scheme is illustrated as follows:



Characterization:

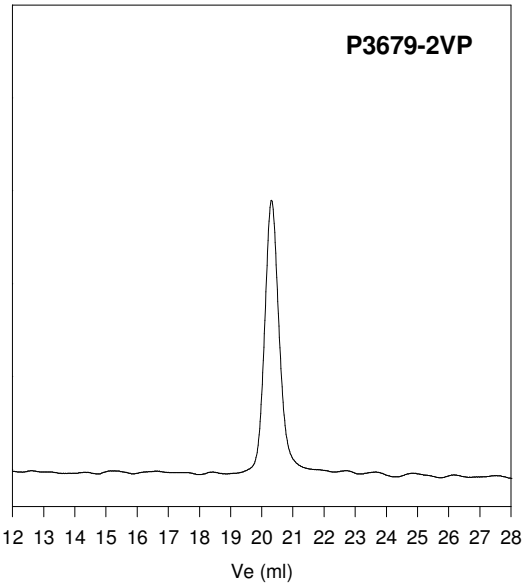
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple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

Thermal analysis was performed on TA Instruments Q100 differential scanning calorimeter (DSC) under a nitrogen atmosphere. The glass transition temperature (Tg) of the polymer was measured at a scan rate of 10°C/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):

M_n=439000, M_w=504000, PI=1.15

Radius of Gyration: 23.10nm Solution viscosity: 0.83 dl/g in THF at 30 oC

Relationship between Tg and Mn of P2VP: