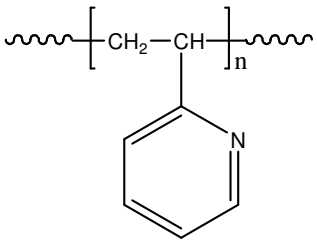
Sample Name: **Poly(2-vinyl pyridine)**

Sample #: **P7538-2VP**

Structure:



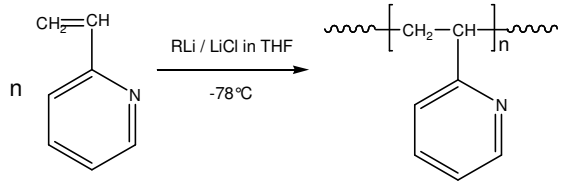
Composition:

$Mn \times 10^3$	PDI
246.0	1.14

T_g (^oC)	93

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:

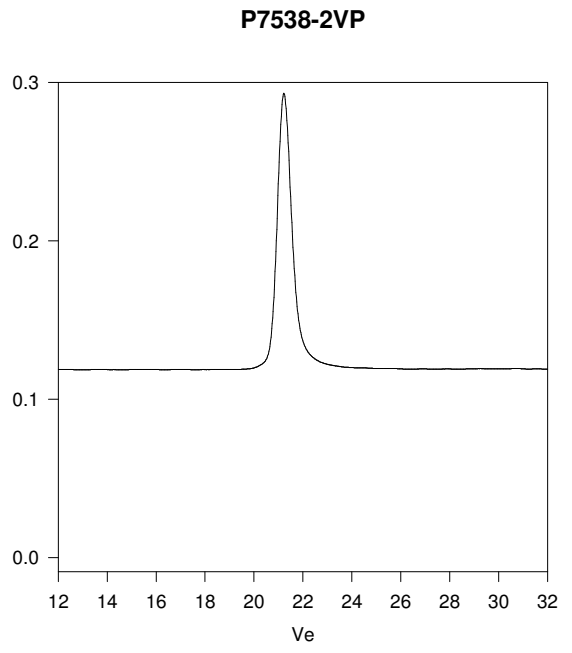
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple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

Thermal analysis 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 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=246000, M_w=281000, PI=1.14
dn/dc in THF at 35 °C: 0.167ml/g
Solution Viscosity in THF at 35 °C: 0.658 dl/g
Radius of Gyration in THF at 35 °C:18.69 nm

DSC thermogram for the polymer: