Sample Name: **Poly(styrene-b-4-vinyl pyridine)**

Sample #: **P18250-S4VP**

Structure:
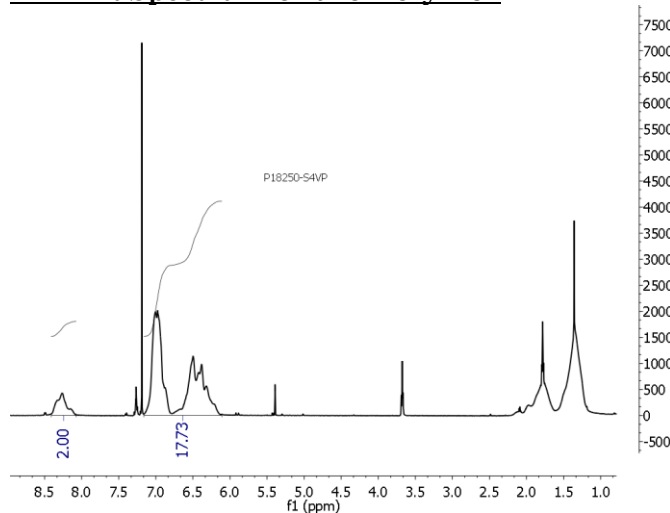

Composition:

Mn × 10³ S-b-4VP	PDI
61.7-b-20.0	1.10

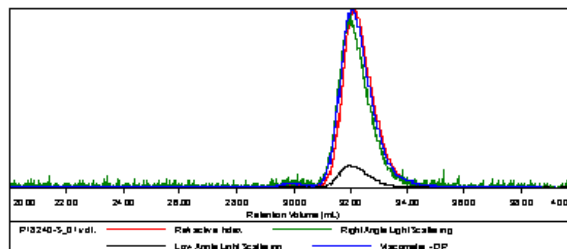**By anionic polymerization process.**

Characterization:

An aliquot of the anionic polystyrene block was terminated before addition of 4VP and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The Block copolymer composition was then calculated from ¹H-NMR spectroscopy by comparing the peak area of the 4VP proton at 8.2 ppm with the peak area of the aromatic protons of polystyrene at 6.3-7.2 ppm. The composition of the block copolymer can also be determined by titration in acetic acid/HClO4 using crystal violet indicator.Copolymer PDI is determined by SEC.
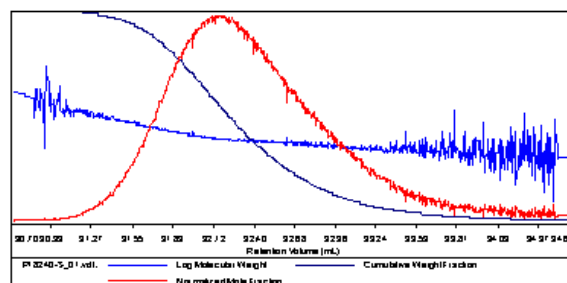
¹H-NMR Spectrum of the Polymer

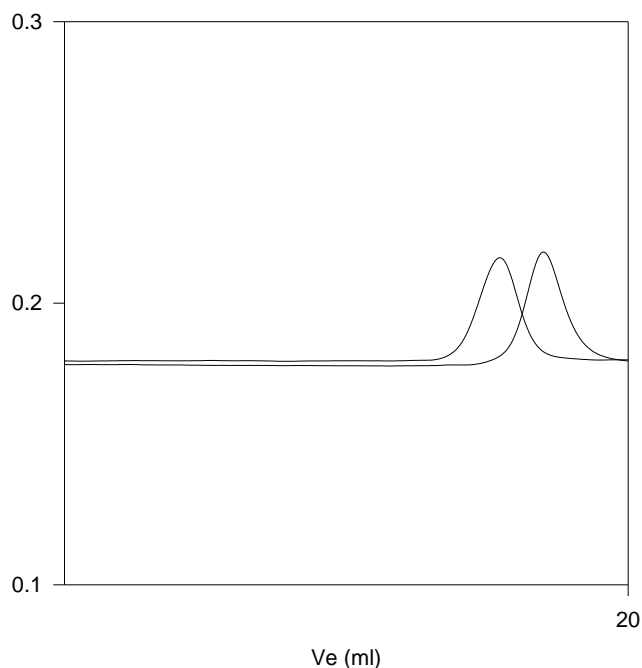## SEC of the polymer:

Sample ID: P18250-S

Concentration (mg/mL)	6.4305
Sample dn/dc (mL/g)	0.1850
Method File	PS80K-OCT-2013-0003.ucm
Column Set	3x PL 1113-6300
System	System 1

Sample	Mn	Mw	Mp	Mw/Mn	IV
P18240-S_01.udt	61,777	64,146	64,826	1.038	0.4613

P18250-S4VP run in DMF at 60 oC

Ve (ml)

— SEC profile in DMF at 30 oC. (2 columns)
Polystyrene, Mn=61,700, Mw:64,300 PI=1.04

— Block Copolymer PS(61,700)-b-P4VP(20,000), PI=1.10
(composition by titration and by H NMR)

References:
(1). S. K. Varshney, X. F. Zhong and A. Eisenberg *Macromolecules,* **1993**, 26, 701-706.
(2). Z.Gao, S. K. Varshney, S. Wong, A. Eisenberg *Macromolecules,* **1994**, 27, 7923-7927.