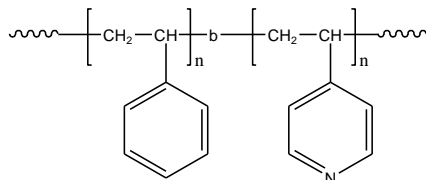


Sample Name: Poly(styrene-b-4-vinyl pyridine)

Sample #: P18248-S4VP

Structure:



Composition:

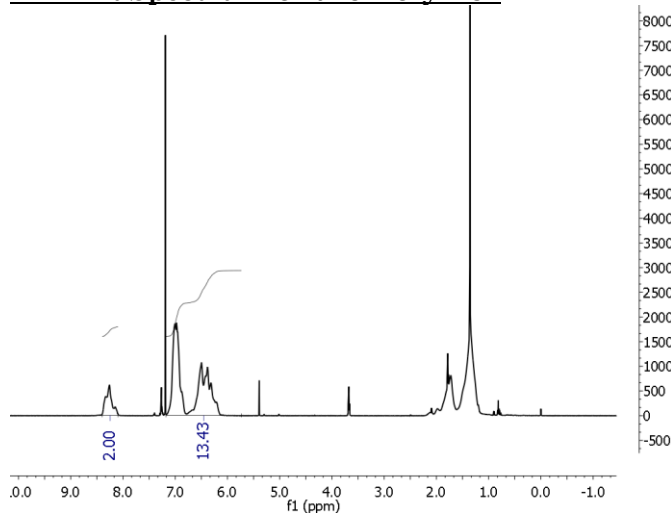
$M_n \times 10^3$ S-b-4VP	PDI
48.4-b-21.3	1.09

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 $^1\text{H-NMR}$ 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/ HClO_4 using crystal violet indicator. Copolymer PDI is determined by SEC.

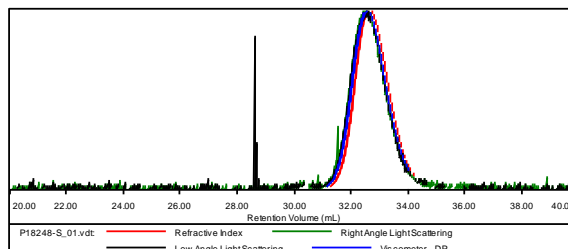
$^1\text{H-NMR}$ Spectrum of the Polymer



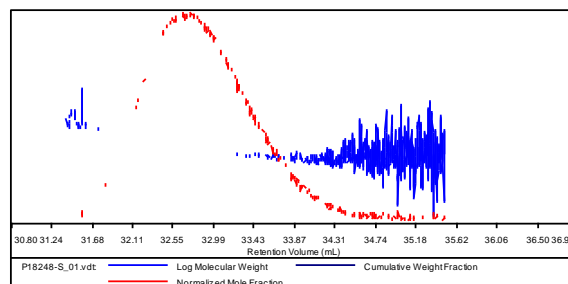
SEC of the polymer:

Sample ID: P18248-s

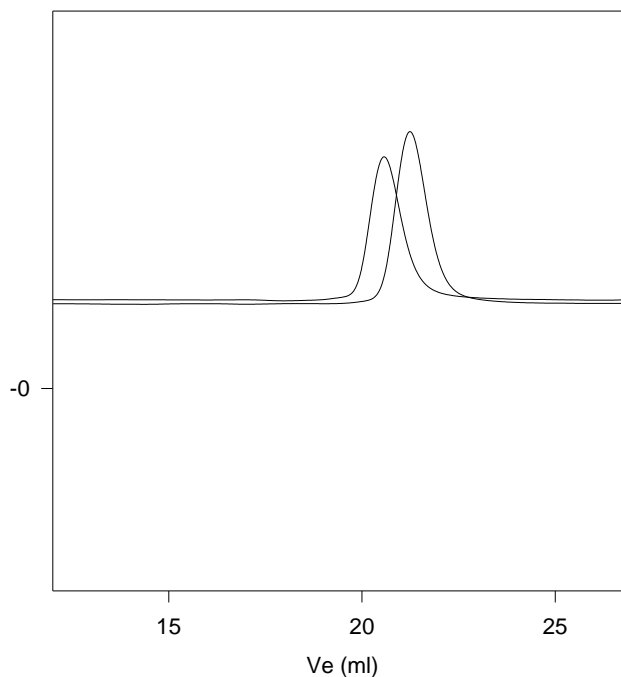
Concentration (mg/mL)	12.6805
Sample dn/dc (mL/g)	0.1850
Method File	PS80K-OCT-2013-0003.vcm
Column Set	3x PL 1113-6300
System	System 1



Sample	M_n	M_w	M_p	M_w/M_n	IV
P18248-S_01.vdt	48,440	49,790	48,728	1.028	0.3868



P18248-S4VP



— Polystyrene, $M_n=48,400$, $M_w=49,800$, $PI=1.04$
— Block Copolymer PS(48,400)-b-P4VP(21,300), $PI=1.09$
Composition from 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.