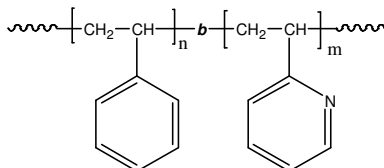


Sample Name:

Polystyrene-*block*-poly(2-vinyl pyridine)

Sample #: **P18557-S2VP**

Structure:



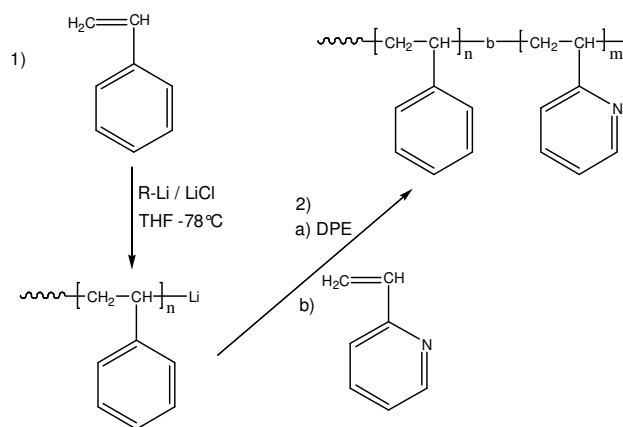
Composition of PS-*b*-P2VP diblock copolymer:

$M_n \times 10^3$ (g/mol)	PDI
45.0–49.0	1.07

Synthesis:

Polystyrene-*b*-poly(2-vinyl pyridine) was prepared by living anionic polymerization in THF at -78°C in the presence of LiCl as an additive. Before adding 2-vinylpyridine (2VP) monomer, polystyrene (PS) macroanions were end-capped with a diphenyl ethylene (DPE). For further details, please, see our published articles.^{1,2}

The scheme of the reaction is presented below:



Solubility:

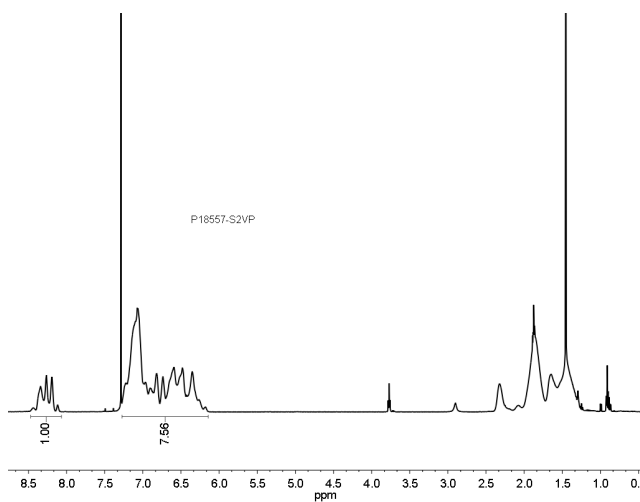
Polystyrene-*b*-poly(2-vinyl pyridine) is soluble in chloroform, THF, and toluene. The polymer is not soluble in hexanes, ether and water.

Characterization:

Before addition 2VP, an aliquot of the anionic PS block was terminated and analyzed by size exclusion chromatography (SEC) to obtain its molecular weight and polydispersity index (PDI).

The block copolymer composition was calculated from its $^1\text{H-NMR}$ spectrum by comparing the peak area of the 2VP protons (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 PS-*b*-P2VP in acetic acid/HClO₄ using crystal violet indicator. PDI of block copolymer was determined by SEC.

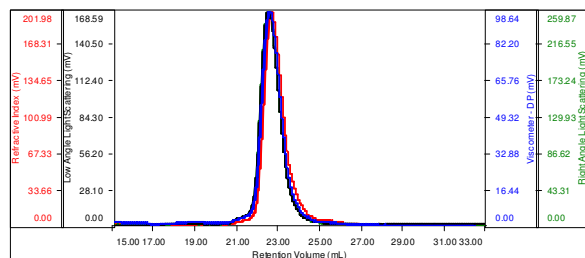
^1H NMR spectrum of PS-*b*-P2VP:



SEC of PS-*b*-P2VP:

Sample ID: P18557-S2VP

Concentration (mg/mL)	3.2395
Sample dn/dc (mL/g)	0.1700
Method File	PS80K-March13-2014-0000.vcm
Column Set	3x PL 1113-6300
System	System 1



Sample	Mn	Mw	Mp	Mw/Mn	IV
P18557-S2VP_01.vdt	90,471	97,094	98,410	1.073	0.6870

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.