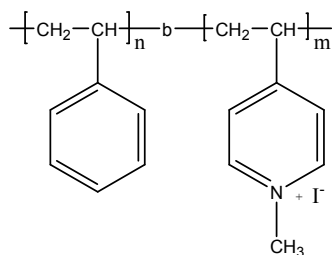


**Sample Name:** Poly(styrene-*b*- N-methyl 4-vinyl pyridine iodide)

**Sample #:** P4912-S4VPQ

**Structure:**

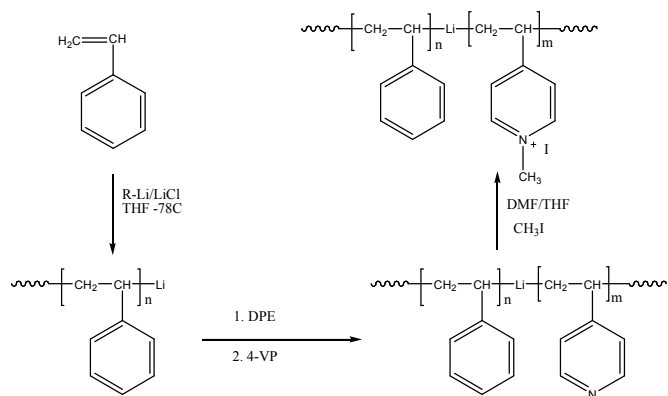


**Composition:**

Mn x 10 <sup>3</sup> PS- <i>b</i> -P4VPQ	PDI
310- <i>b</i> -23.5	1.09

**Synthesis Procedure:**

Poly(styrene-*b*-4-vinyl pyridine) is prepared by living anionic polymerization in THF or THF-DMF solvent mixtures at -78 °C. Polystyrene macroanions were end capped with a unit of diphenyl ethylene (DPE) before adding 4-vinylpyridine (4VP) monomer. For further details please see our published articles.<sup>1,2</sup> The scheme of the reaction is illustrated below:

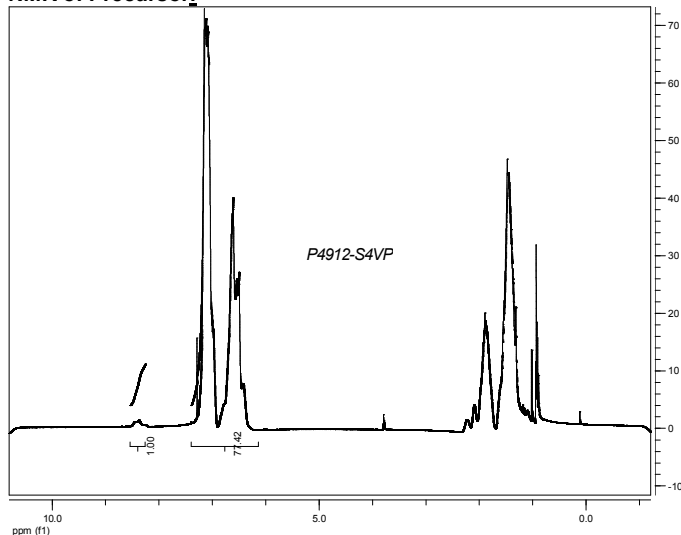


**Characterization:**

Polymer was analyzed by size exclusion chromatography (SEC) in DMF to obtain the molecular weight and polydispersity index (PDI). The composition of the block copolymer was determined by titration in acetic acid/HClO<sub>4</sub> using crystal violet indicator. Copolymer PDI is determined by SEC.

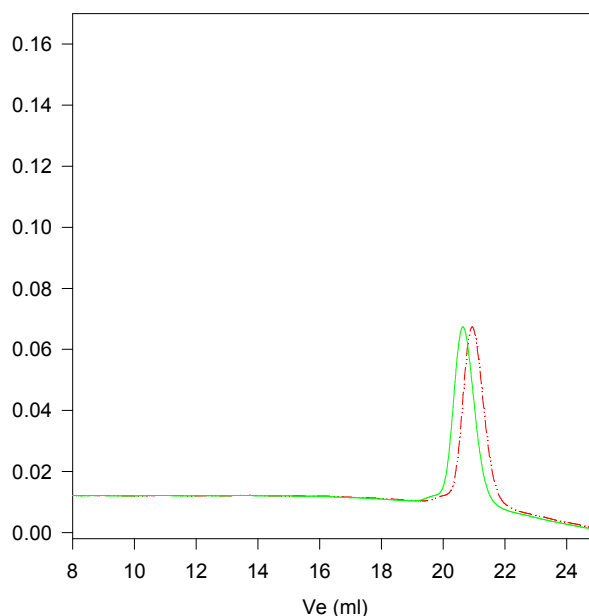
**Quaternization.** Polymer was dissolved in distilled DMF. Distilled methyl iodide was added 2 molar excess. The quaternized polymer was precipitated into hexane, filtered and washed with hexane several times. It was dried under vacuum for 8 h., the yield of the polymer indicating quantitative quaternization. Fourier transform infrared spectroscopy was performed on a Nicolet Impact 400D. The quaternization is confirmed by the disappearance of the pyridine band at 1416cm<sup>-1</sup>.

**NMR of Precursor:**



**SEC of Sample #**

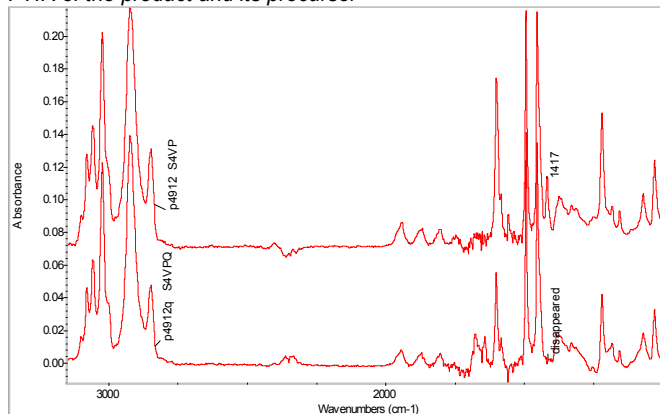
**P4912-S4VP(precursor of P4912-S4VPQ)**



Size exclusion chromatography of P(*s*-*b*-4VP) in DMF at 40 °C:

- PS block: M<sub>n</sub>=310000, M<sub>w</sub>=325000, PI=1.05
- Block Copolymer PS-4VP (310000)-*b*-4VP(10000), PI=1.01 after quaternization Mn 310000-*b*- 235000 PI 1.09

**FTIR of the product and its precursor**



**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.