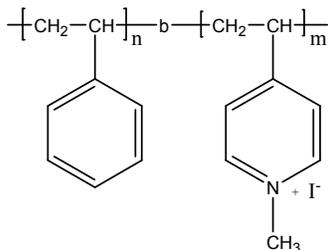


Sample Name: Poly(styrene-b- N-methyl 4-vinyl pyridine iodide)

Sample #: P3190-S4VPQ

Structure:

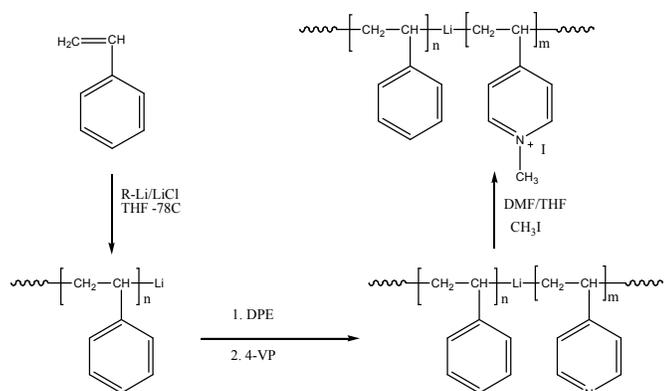


Composition:

Mn x 10 ³ PS-b-P4VPQ	PDI
240-b-4.5	1.07

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.^{1,2} The scheme of the reaction is illustrated below:



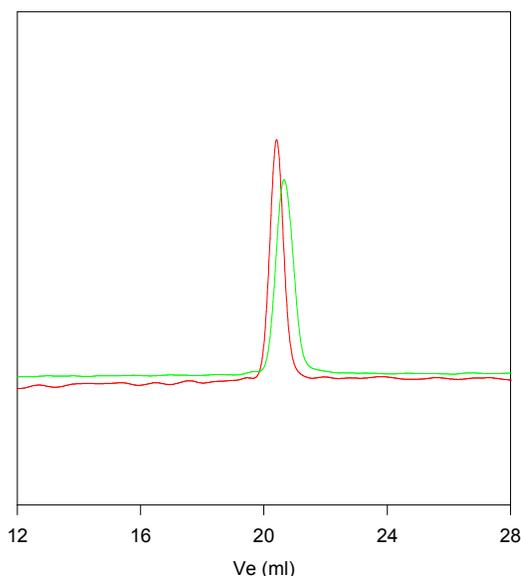
Characterization:

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/HClO₄ 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⁻¹.

SEC of Sample the precursor # P3190-S4VP:

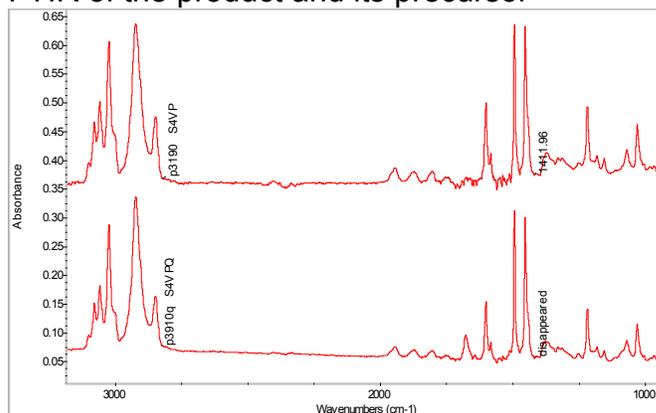
P3190-S4VP(precursor of P3190-S4VPQ)



Size exclusion chromatography of polystyrene-b-poly(4-vinylpyridine)

- Polystyrene Mn=550000 Mw=627000 PI=1.05
- block copolymer PS(240000)-b-P4VP(2000) PI 1.07
after quaternization 240000-b-4500 PI 1.07

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.