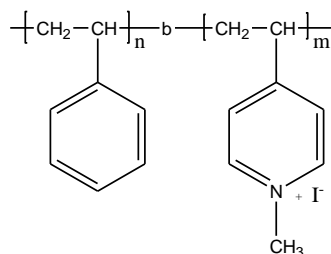


Sample Name: Poly(styrene-*b*- N-methyl 4-vinyl pyridine iodide)

Sample #: P782-S4VPQ

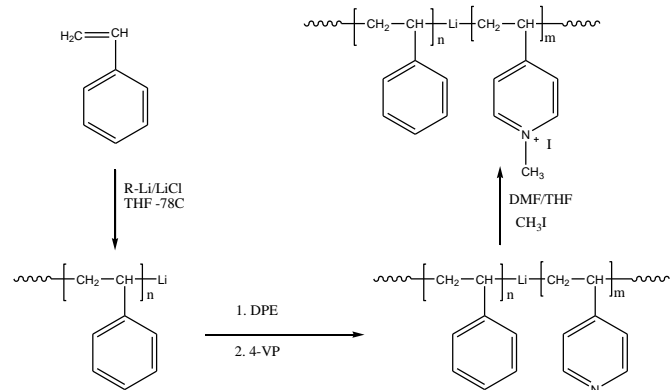


Composition:

Mn x 10 ³ PS- <i>b</i> -P4VPQ	PDI
8.7- <i>b</i> -27.5	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.^{1,2} The scheme of the reaction is illustrated below:



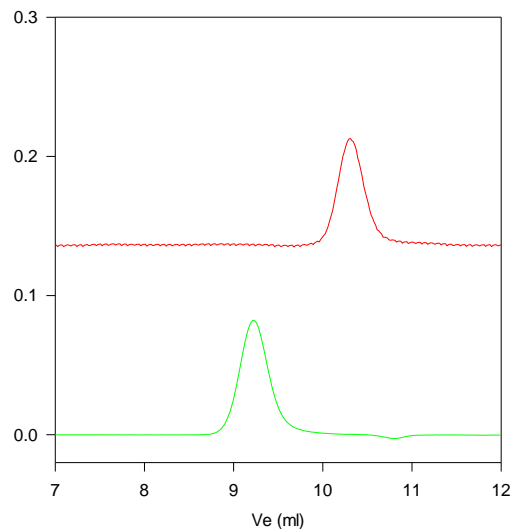
Characterization:

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. The quaternization is confirmed by the disappearance of the pyridine band at 1416cm⁻¹ as measured by FTIR.

SEC of Sample:

P782S4VPQ



Size Exclusion Chromatography of the P779-S4VP (Precursor of P782S4VPQ: Polystyrene-*b*-Poly(N-methyl 4-vinyl pyridinium iodide))

— Polystyrene, M_n=8700, PI=1.15

— Polystyrene(8700)-*b*-Poly(4-vinyl pyridine)(11700), PI=1.09
Polystyrene(8700)-*b*-Poly(N-methyl 4-vinyl pyridinium iodide)(27500)

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.