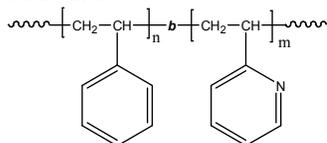


Sample Name: Poly(styrene-b-2-vinyl pyridine)

Sample #: P3021-S2VP

Structure:

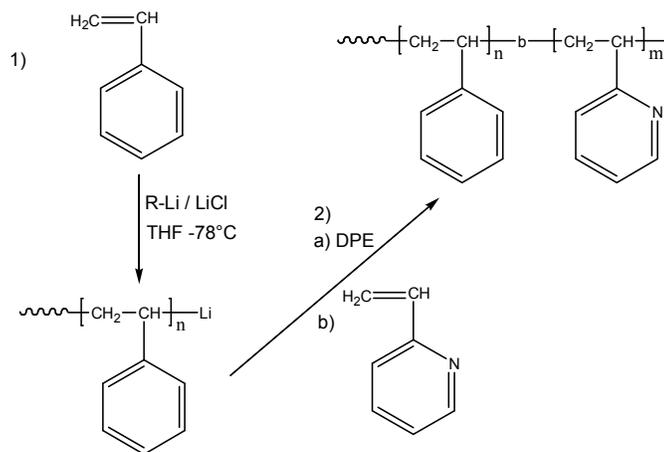


Composition:

$M_n \times 10^3$ S-b-2VP	PDI
148.5-b-19.0	1.05

Synthesis Procedure:

Poly(styrene-b-2-vinyl pyridine) is prepared by living anionic polymerization in THF at -78°C in the presence of LiCl as an additive. Polystyrene macroanions were end capped with a unit of diphenyl ethylene (DPE) before adding 2-vinylpyridine (2VP) monomer. For further details please see our published articles^{1,2}. The scheme of the reaction is illustrated below:



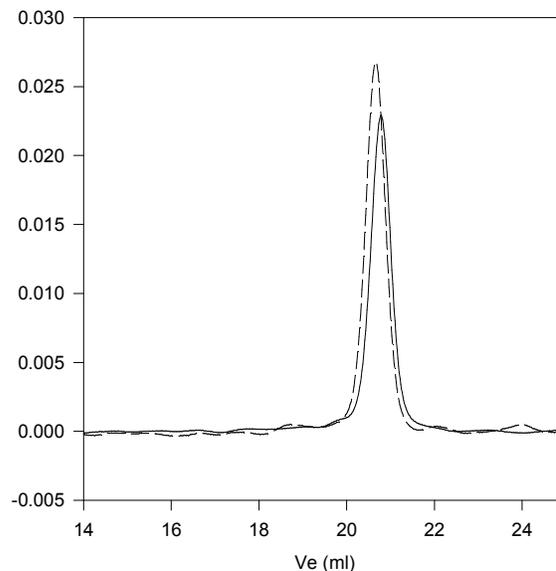
Characterization:

An aliquot of the anionic polystyrene block was terminated before addition of 2VP and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The composition of the block copolymer can also be determined by titration in acetic acid/HClO₄ using crystal violet indicator. Copolymer PDI is determined by SEC.

Solubility:

Poly(styrene-b-2-vinylpyridine) is soluble in THF, toluene, and CHCl₃. The diblock copolymer can also be solubilized in methanol, ethanol depending on its composition. The polymer readily precipitates from hexanes, ether and water.

SEC of Sample P3021-S2VP:



Size exclusion chromatography of poly(styrene-b-2-vinyl pyridine)

— Polystyrene, $M_n=148500$ Mw: 164500 PI=1.11

- - Polystyrene(148500)-b-Poly(2-vinyl pyridine)(19000),PI=1.05

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.