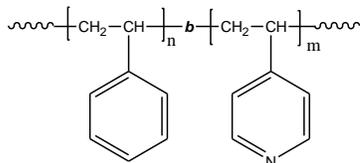


Sample Name: Poly(styrene-b-4-vinyl pyridine)

Sample #: P43211-S4VP

Structure:



Composition:

$M_n \times 10^3$ S-b-4VP	PDI
185.0-b-32.0	1.05

T_g for PS block: 104 °C

T_g for 4VP block: 153 °C

Synthesis Procedure:

Poly(styrene-b-4-vinyl pyridine) is prepared by living anionic polymerization in THF at -78 °C in the presence of LiCl as an additive.

Characterization:

The product was characterized by size exclusion chromatography (SEC) and ¹H NMR data analysis.

Solubility:

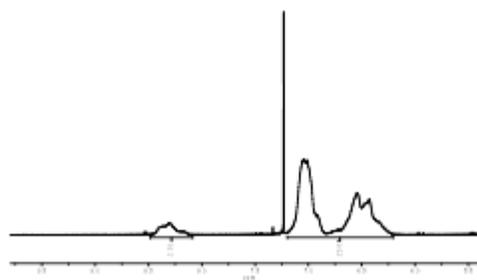
Poly(styrene-b-4 vinylpyridine) is soluble in THF, toluene, and CHCl₃. The diblock copolymer can also be solubilized in methanol, ethanol depending on its composition. The polymer readily precipitates from hexanes, ether, and water.

Purification:

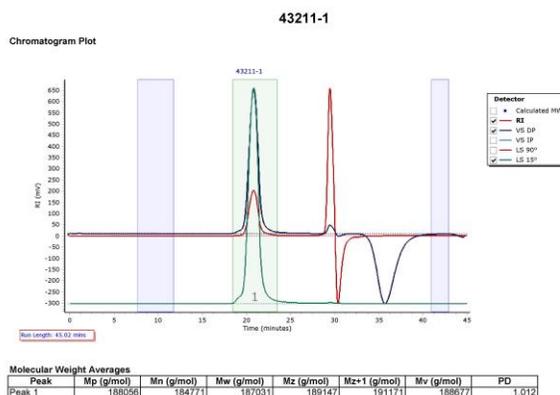
Purification of the obtained polymer was carried out rigorously as follows to ensure the removal of the catalyst side product:

1. Dissolved the polymer in CHCl₃ and wash with de-ionized distilled water to remove the any soluble organic catalyst side product.
2. Polymer extracted from water with chloroform.
3. Polymer solution in CHCl₃ was dried over anhydrous sodium sulfate.
4. Solution filtered and than passed through a column packed with basic Al₂O₃.
5. Solution concentrated on rota-evaporator.
6. Solution precipitated in cold hexane and redissolved in benzene and freeze dried.
7. Final dried under vacuum for 48h at 50°C.

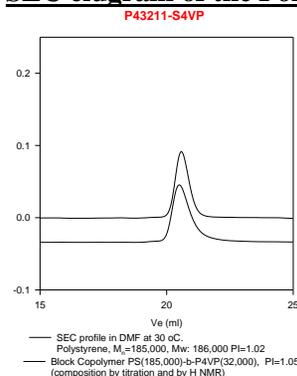
¹H NMR Spectrum of the Polymer



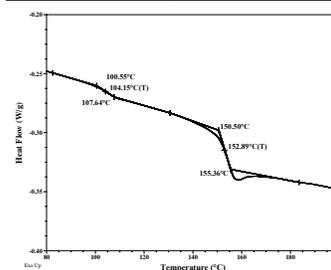
SEC elugram of the PS Block:



SEC elugram of the Polymer:



DSC thermogram for the PS block:



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.