

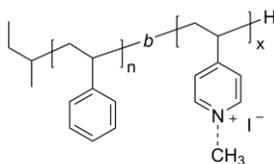
Sample Name: Poly(styrene)-b-oligo(4-vinyl pyridine, quaternized with methyl iodide)

Bearing different degree of 4VP units

Synonym: Polystyrene-b-oligo(N-methyl 4-vinyl pyridinium iodide)

Sample #: P43808A-S4VPQ

Structure:



Composition:

Mn × 10 ³	PDI
S-b-4VP	
28.0-b-0.25	1.01

Dp of each unit
270-b-1
Tg for PS block: 104 °C

Synthesis Procedure:

Polymers were 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 and FTIR data analysis.

Purification:

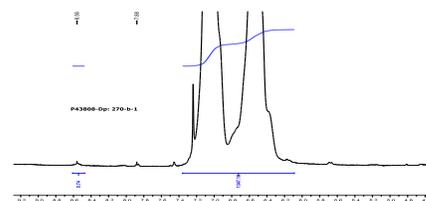
Purification of the obtained polymer was carried out rigorously as follows to ensure the removal of the catalyst side product:

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.

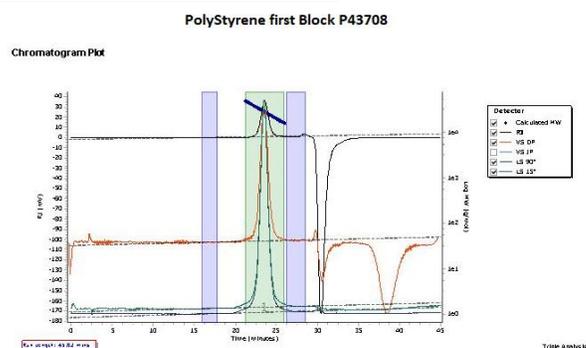
6. Solution precipitated in cold hexane and redissolved in benzene and freeze dried.

7. Final dried under vacuum for 48h at 50°C.

¹H NMR Spectrum of the Polymer



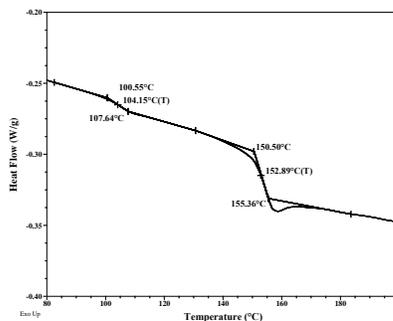
SEC elugram of the Polymer:



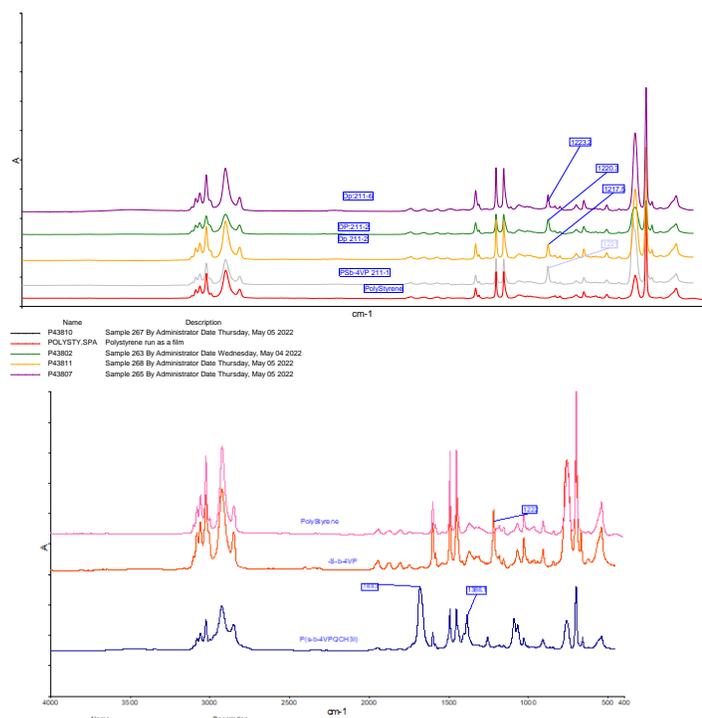
Molecular Weight Averages

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz-1 (g/mol)	Mv (g/mol)	PDI
Peak 1	26581	26220	26590	26936	29324	26919	1.013

DSC thermogram for the PS block:



FTIR spectrum of the Sample:



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.