

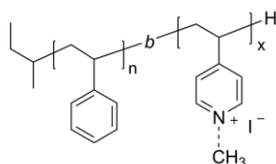
**Sample Name:** Poly(styrene)-b-oligo(4-vinyl pyridine, quaternized with methyl iodide)

*Bearing different degree of 4VP units*

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

**Sample #:** P43807A-S4VPQ

**Structure:**



**Composition:**

Mn × 10 <sup>3</sup> S-b-4VP	PDI
22-b-1.2	1.01

Dp of each unit 211-b-5
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 <sup>1</sup>H NMR and FTIR data analysis.

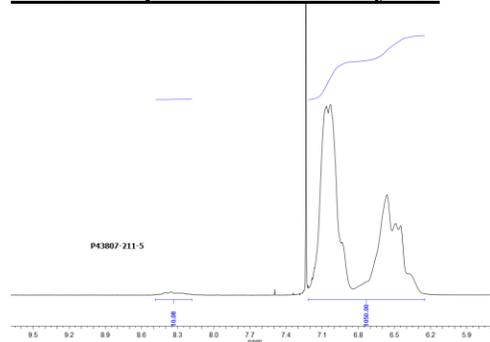
**Purification:**

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

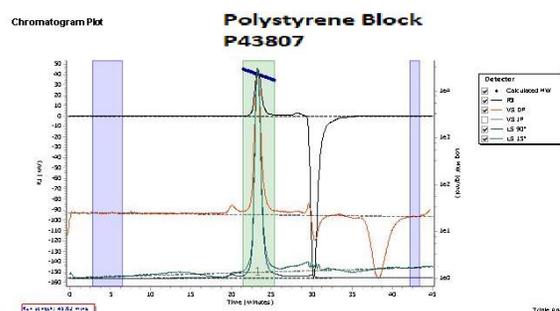
1. Dissolved the polymer in CHCl<sub>3</sub> and wash with de-ionized distilled water to remove the any soluble organic catalyst side product.
2. Polymer extracted from water with chloroform.
3. Polymer solution in CHCl<sub>3</sub> was dried over anhydrous sodium sulfate.
4. Solution filtered and than passed through a column packed with basic Al<sub>2</sub>O<sub>3</sub>.

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.

**<sup>1</sup>H NMR Spectrum of the Polymer**

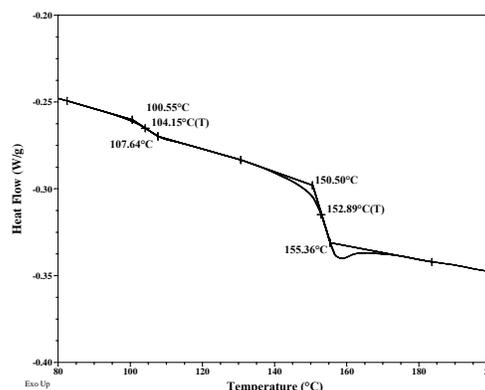


**SEC elugram of the Polymer:**

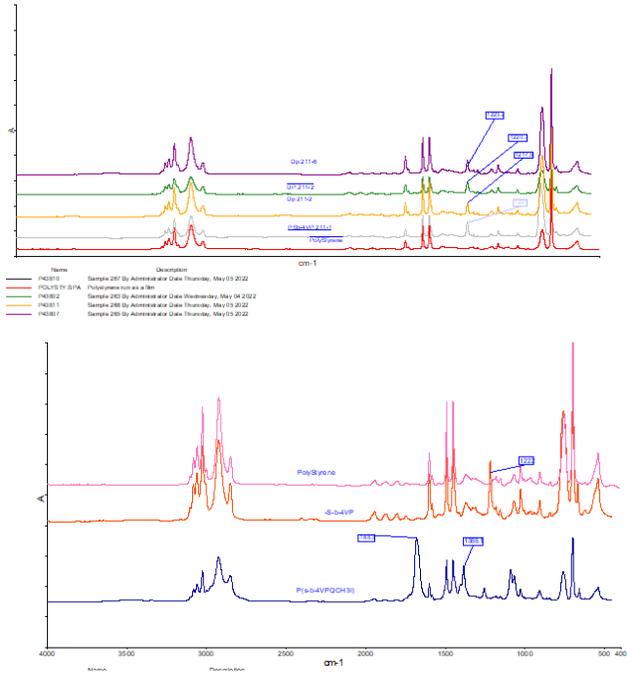


Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mz (g/mol)	PDI
Peak 1	22489	22113	22218	22319	22416	22335	1.005

**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.