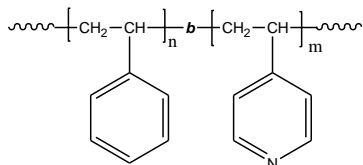


**Sample Name:** Poly(styrene-b-4-vinyl pyridine)

**Sample #:** P43213-S4VP

**Structure:**



**Composition:**

$M_n \times 10^3$ S-b-4VP	PDI
200.0-b-21.0	1.05

Tg for PS block: 104 °C
Tg for 4VP block: 153 °C

**Synthesis Procedure:**

Poly(styrene-b-4-vinyl pyridine) is prepared by living anionic polymerization in THF at  $-78^\circ\text{C}$  in the presence of LiCl as an additive.

**Characterization:**

The product was characterized by size exclusion chromatography (SEC) and  $^1\text{H}$  NMR data analysis.

**Solubility:**

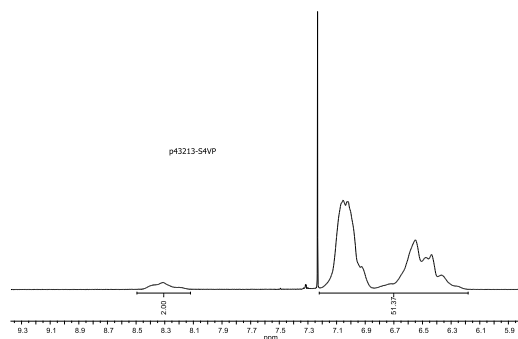
Poly(styrene-b-4 vinylpyridine) is soluble in THF, toluene, and  $\text{CHCl}_3$ . The diblock copolymer can also be solubilized in methanol, ethanol depending on its composition. The polymer readily precipitates from hexanes, ether, and water.

**Purification:**

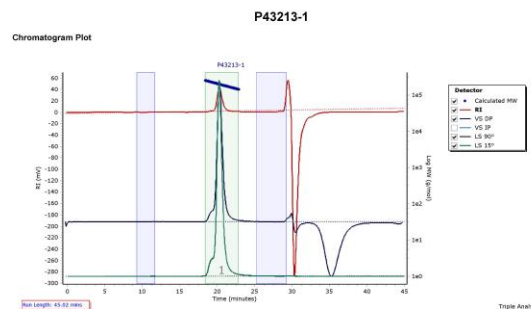
Purification of the obtained polymer was carried out rigorously as follows to ensure the removal of the catalyst side product:

1. Dissolved the polymer in  $\text{CHCl}_3$  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  $\text{CHCl}_3$  was dried over anhydrous sodium sulfate.
4. Solution filtered and than passed through a column packed with basic  $\text{Al}_2\text{O}_3$ .
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  $50^\circ\text{C}$ .

**$^1\text{H}$  NMR Spectrum of the Polymer**

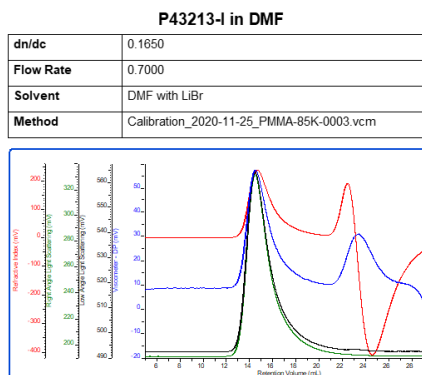


**SEC elugram of the PS Block:**

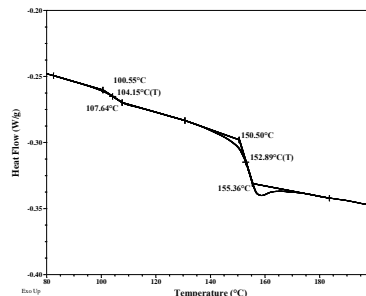


Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mx+1 (g/mol)	Mx (g/mol)	PDI
1	202537	201392	201843	202290	202756	202085	1.002

**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.