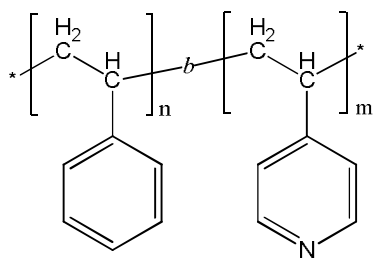


**Sample Name:** Poly(styrene-b-4-vinyl pyridine)

**Sample #:** P19215-S4VP

**Structure:**



**Composition:**

|                              |        |
|------------------------------|--------|
| $M_n \times 10^3$<br>S-b-4VP | PDI    |
| 115.0–b–39.0                 | 1.08   |
| T <sub>g</sub> for PS block: | 104 °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 an additive.

**Characterization:** by SEC and by  $^1\text{H-NMR}$ .

**Purification of the obtained polymer:**

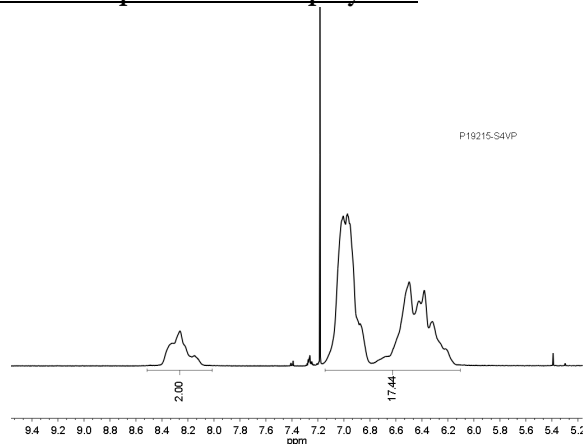
Purification of the obtained polymer was carried out rigorously as follows to ensure the removal of the catalyst side product:

1. Dissolved the polymer in  $\text{CHCl}_3$  and wash with de-ionized distilled water to remove any soluble organic catalyst side product.
2. Polymer was extracted from water with chloroform.
3. Polymer solution in  $\text{CHCl}_3$  was dried over anhydrous sodium sulfate.
4. Solution was filtered and then was passed through a column packed with basic  $\text{Al}_2\text{O}_3$ .
5. Solution was concentrated on rota-evaporator
6. Solution was precipitated in cold hexane and redissolved in benzene and freeze dried.
7. Dried under vacuum for 48h at  $50^\circ\text{C}$ .

**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.

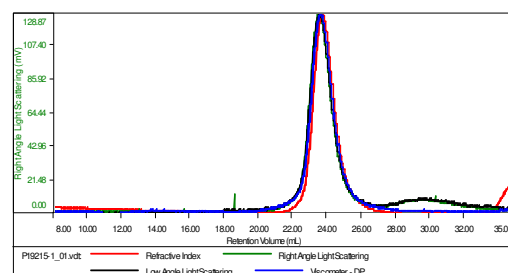
**$^1\text{H NMR}$  spectrum of the polymer:**



**SEC of the first block and diblock copolymer:**

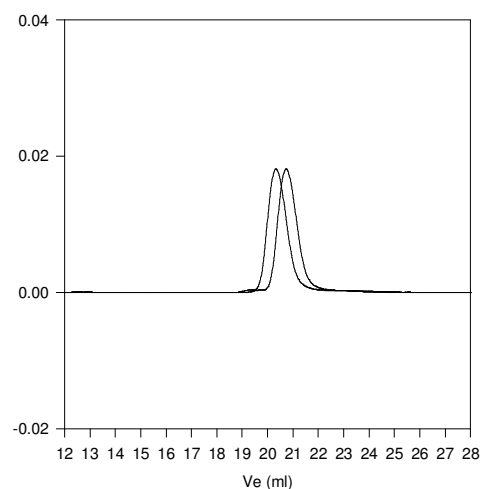
**Sample ID: P19215-S**

|                       |                            |
|-----------------------|----------------------------|
| Concentration (mg/mL) | 3.8144                     |
| Sample chdc (mL/g)    | 0.1850                     |
| Method File           | PS80K-March6-2015-0000.vcm |
| Column Set            | 3x PL 1113-6300            |
| Solvent               | THF                        |



| Sample          | MW Number Average (Da) | MW Weight Average (Da) | MW at Peak (Da) | Polydispersity | Intrinsic Viscosity (dL/g) |
|-----------------|------------------------|------------------------|-----------------|----------------|----------------------------|
| P19215-1_01.vdt | 115,222                | 123,187                | 113,697         | 1.069          | 0.4018                     |

**P19215-S4VP**



— Polystyrene,  $M_n=115,000$ ,  $M_w=123,000$ ,  $PI=1.06$   
Block Copolymer PS(115,000)-b-P4VP(39,000),  $PI=1.08$