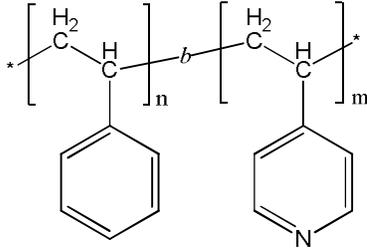


Sample Name: Poly(styrene-b-4-vinyl pyridine)

Sample #: P18707-S4VP

Structure:



Composition:

$M_n \times 10^3$ S-b-4VP 38.0–82.0	PDI 1.39
Tg for PS block:	104 °C
Tg for P4VP block:	153 °C

Synthesis Procedure:

Poly(styrene-b-4-vinyl pyridine) is prepared by living anionic polymerization in THF at $-78\text{ }^\circ\text{C}$ 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:

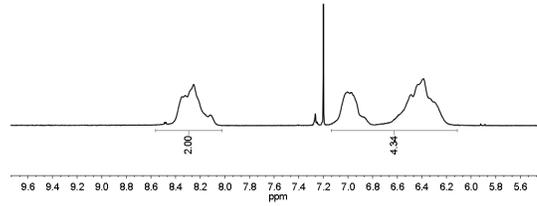
1. Dissolved the polymer in CHCl_3 and wash with de-ionized distilled water to remove any soluble organic catalyst side product.
2. Polymer was extracted from water with chloroform.
3. Polymer solution in CHCl_3 was dried over anhydrous sodium sulfate.
4. Solution was filtered and then was passed through a column packed with basic Al_2O_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°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:

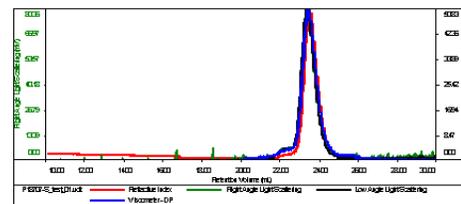
P18707-S4VP



SEC of the first block and diblock copolymer:

Sample ID: P18707-S

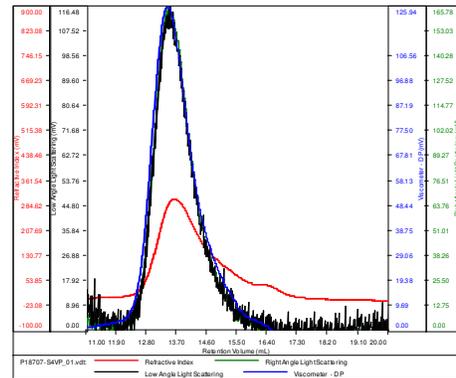
Concentration (mg/mL)	6.7672
Sample dn/dc (mL/g)	0.1660
Method File	PS60K-Apr15-2014-0000.vcm
Column Set	3x PL 11136300
Solvent	THF



Sample	Mn	Mw	Mp	Mw/Mn	IV
P18707-S_test_01.vcl	37,618	40,750	37,561	1.075	0.1198

SAMPLE ID: P18707-S4VP

Conc (mg/mL)	5.3302
dn/dc (mL/g)	0.1580
Method	ps80kMaj2014-0003.vcm
Solvent	DMF w/ 0.03MLiBr
Column	PSS



Sample	Mn	Mw	Mp	Mw/Mn	IV
P18707-S4VP_01.vcl	121,911	169,860	207,438	1.393	0.3924

DSC thermogram:

