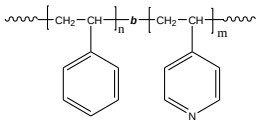
Sample Name: **Poly(styrene-b-4-vinyl pyridine)**

Sample #: **P43558-S4VP**

Structure:



Composition:

$Mn \times 10^3$ S-b-4VP	PDI
104-b-198	1.12

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 °C in the presence of LiCl as an additive.

Characterization:

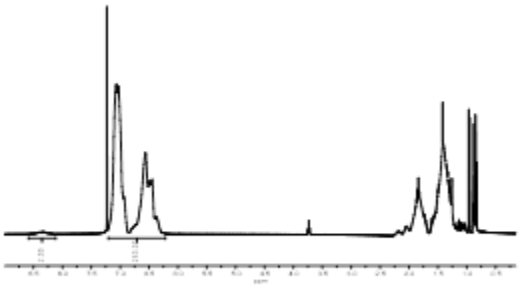
The product was characterized by size exclusion chromatography (SEC) and ^{1}H NMR data analysis.

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 $CHCl_3$ 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 $CHCl_3$ was dried over anhydrous sodium sulfate.
4. Solution filtered and than passed through a column packed with basic Al_2O_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°C.

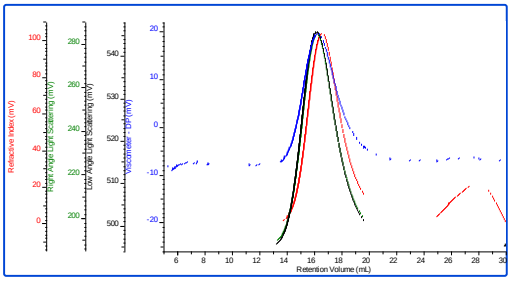
^{1}H NMR Spectrum of the Polymer



SEC elugram of the Polymer:

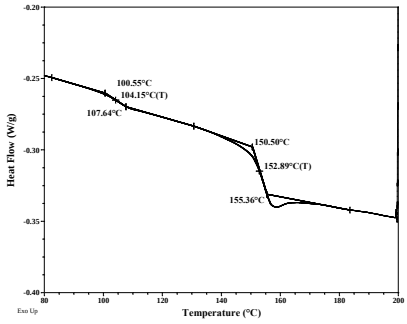
P43558

dn/dc	0.1590
Flow Rate	0.7000
Solvent	DMF with LiBr
Method	Calibration_2020-11-25_PMMA-85K-0003.vcm



Sample	Mn	Mw	Mp	Mw/Mn
P43558_1_2021-11-26	297,395	334,063	300,543	1.123

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.