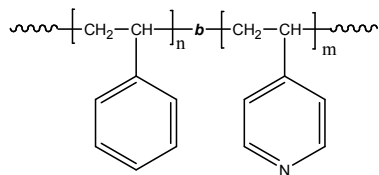


Sample Name: **Poly(styrene-b-4-vinyl pyridine)**

Sample #: **P3188-S4VP**

Structure:



Composition:

$M_n \times 10^3$ PS-b-4VP	PDI
550.0-b-8.6	1.13
T_g for PS block: 97°C	T_g for 4VP block: 97°C

Synthesis Procedure:

Poly(styrene-b-4-vinyl pyridine) is prepared by living anionic polymerization in THF or THF-DMF solvent mixtures at -78°C . Polystyrene macroanions were end capped with a unit of diphenyl ethylene (DPE) before adding 4-vinylpyridine (4VP) monomer. For further details please see our published articles.^{1,2}

Characterization:

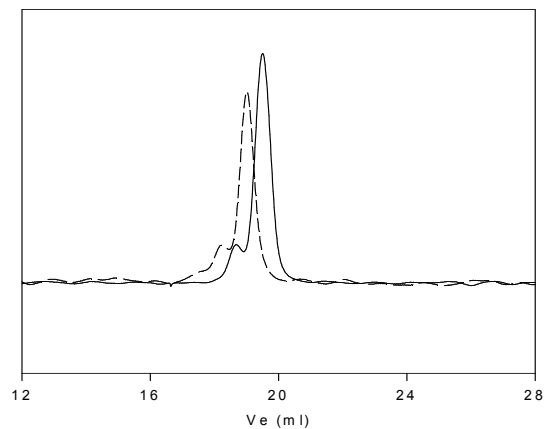
An aliquot of the anionic polystyrene block was terminated before addition of 4-vinyl pyridine and analyzed by size exclusion chromatography (SEC) in DMF to obtain the molecular weight and polydispersity index (PDI). The composition of the block copolymer was determined by titration in acetic acid/ HClO_4 using crystal violet indicator. Copolymer PDI is determined by SEC.

Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of $15^\circ\text{C}/\text{min}$. The inflection glass transition temperature (T_g) of the sample has been considered.

Solubility:

Poly(styrene-b-4-vinyl pyridine) is soluble in DMF, CHCl_3 . The polymer can also be solubilized in THF depending on its chemical composition. The polymer readily precipitates from hexanes and diethyl ether.

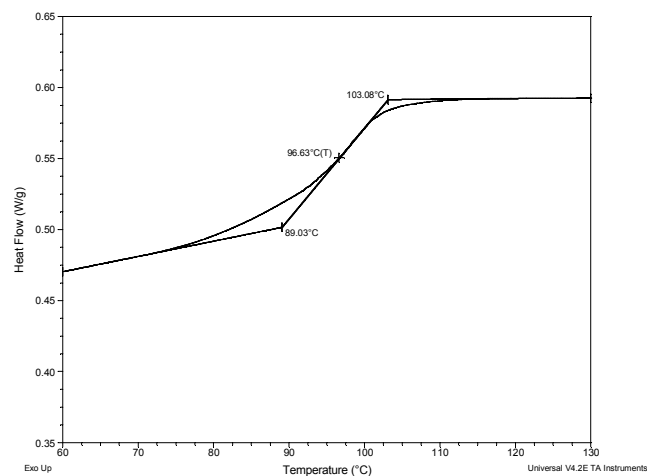
SEC of Sample # P3188-S4VP:



Size exclusion chromatography of polystyrene-b-poly(4-vinylpyridine)

— Polystyrene, $M_n = 550000$, $M_w = 627000$, $PI = 1.14$
- - - Block Copolymer PS(550000)-b-P4VP(86000), $PI = 1.13$

Thermogram of 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.