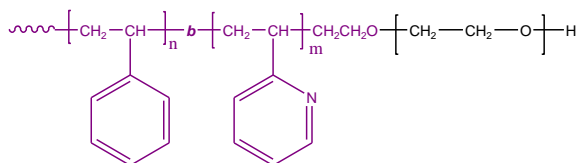


Sample Name:Poly(styrene-*b*-2-vinyl pyridine-ethylene oxide)**Sample #:** P11376-S2VPEO**Structure:****Composition:**

Mn x 10 ³ S- <i>b</i> -2VP- <i>b</i> -EO	PDI
77.0- <i>b</i> -53.0- <i>b</i> -49.0 Calculated from ¹ H-NMR	1.20

Synthesis Procedure:

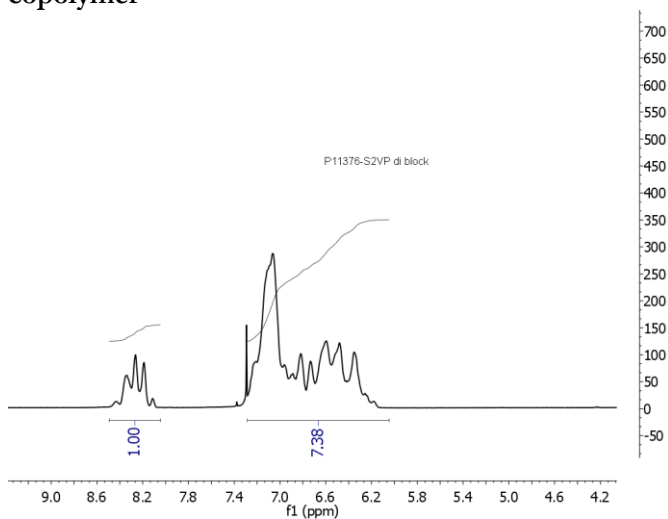
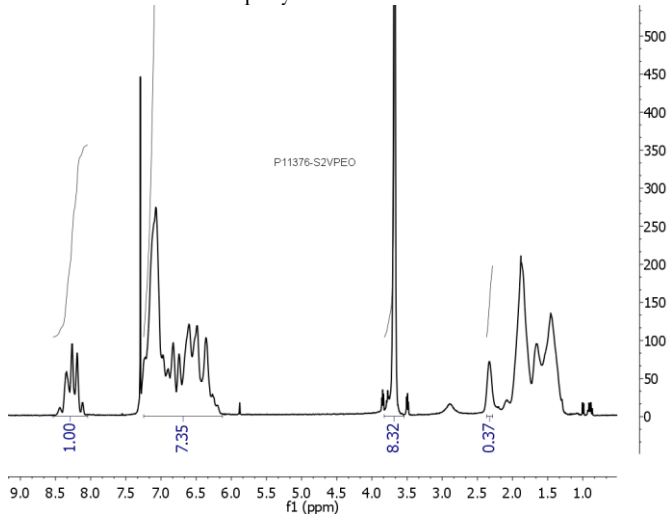
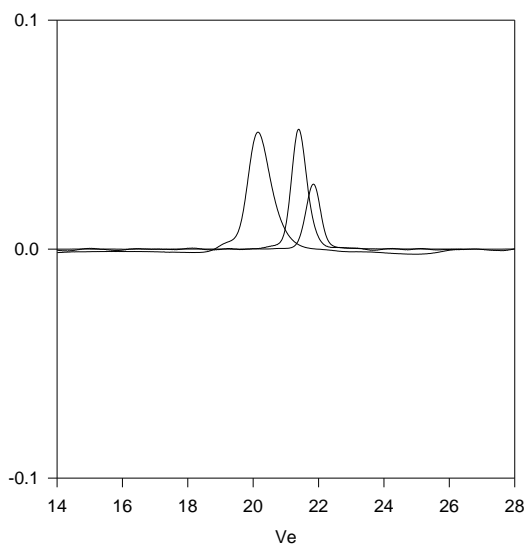
Poly(styrene-*b*-2-vinyl pyridine-ethylene oxide) triblock copolymer is prepared by living anionic polymerization by successive addition of monomer using cumyl potassium as initiator.

Characterization:

Polymer at different stages of polymerization was analyzed by size exclusion chromatography (SEC). The Block copolymer composition was then calculated from ¹H-NMR spectroscopy.

Solubility:

Poly(styrene-*b*-2-vinylpyridine-*b*-ethylene oxide) is soluble in THF, toluene, and CHCl₃.

¹H-NMR Spectrum of the polymer S2 VP diblock copolymer**S2VPEO triblock copolymer****SEC for the triblock polymer:****P11376-S2VPEO**

Size Exclusion Chromatography :

— First PS block, M_n=77,000, M_w/M_n=1.05— PS2Vp, the diblock PS(77,000)-*b*-P2Vp(53,000), M_w/M_n=1.06

— PS2VpEO, the triblock PS(77,000)-*b*-P2Vp(53,000)-*b*-PEO(49000) M_w/M_n=1.2 (composition from ¹H-NMR)

References:

1. S. K. Varshney, X. F. Zhong and A. Eisenberg *Macromolecules* **1993**, 26, 701-706.
2. Gohy J.-F., Willet N., , Zhang J.-X., Varshney S., Jerome, ., *pH dependence of the morphology of aqueous micelles formed by poly(styrene)-block-poly(2-vinylpyridine)-block-poly(ethylene oxide) copolymers*, *e-polymers* 2002, 35.
3. Gohy, J.-F., Lohmeijer, B. Varshney S,K, Decamps B., Leroy E., Boileau S., Schubert U. S., *Stimuli-responsive aqueous micelles from an ABC metallo-supramolecular triblock copolymer*, *Macromolecules* 2002, 35, 9748-9755.
4. Gohy, J.-F., Mores S., Varshney S. K., Jerome, R., *Self-organization of water-soluble complexes of a poly(2-vinylpyridinium)-block-poly(ethylene oxide) diblock and a fluorinated anionic surfactant*, *Macromolecules* 2003, 36, 2579-2581.
5. Leil L., Gohy J.-F., Willet N., , Zhang J.-X., Varshney S., Jerome R., *Tuning of the morphology of core-shell-corona aqueous micelles: I. sphere-to-cylinder transition*, *Macromolecules* 2004, 37, 1089-1094.

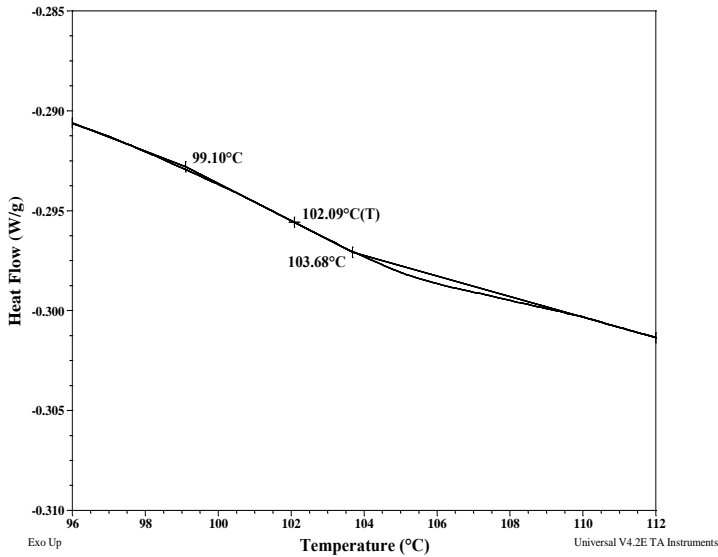
Thermal Analysis of the sample S2VPEO

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

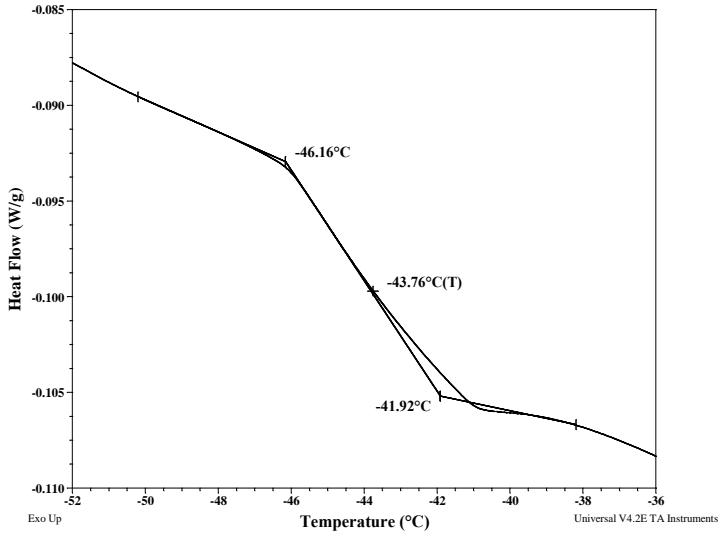
Thermal analysis results at a glance

For PS block: T_g : 102°C		For 2VP block: T_g : Not distinct
For PEO block		
T_g : -44°C	T_m : 61°C	T_c : 34°C

Thermogram for PS block:



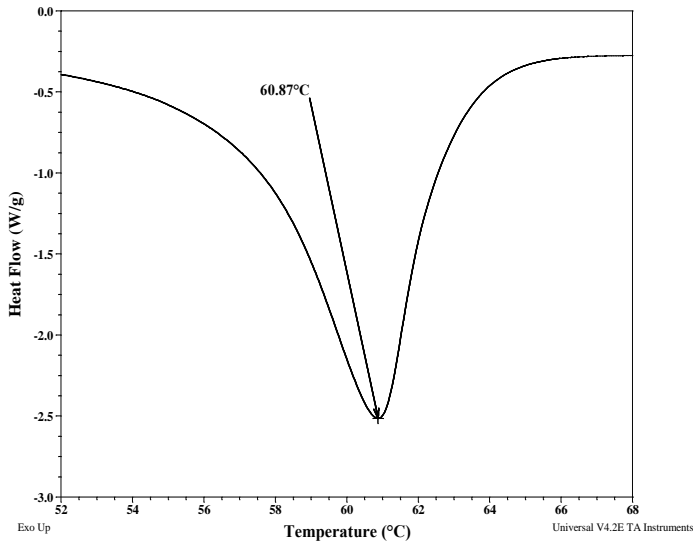
Thermogram for PEO block:



Melting and crystallization curve for the sample

The melting temperature (T_m) was taken as the maximum of the endothermic peak where as the crystallization temperature (T_c) was considered as the minimum of the exothermic peak.

Melting curve for PEO block



Crystallization curve For PEO block

