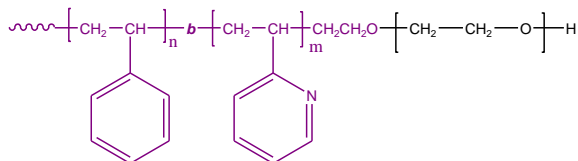


Sample Name:

Poly(styrene-b-2-vinyl pyridine-ethylene oxide)

Sample #: P18227-S2VPEO**Structure:****Composition:**

Mn x 10 ³ S-b-2VP-b-EO	PDI
11.5-b-11.0-b-7.5 Calculated from ¹ H-NMR	1.10

Synthesis Procedure:

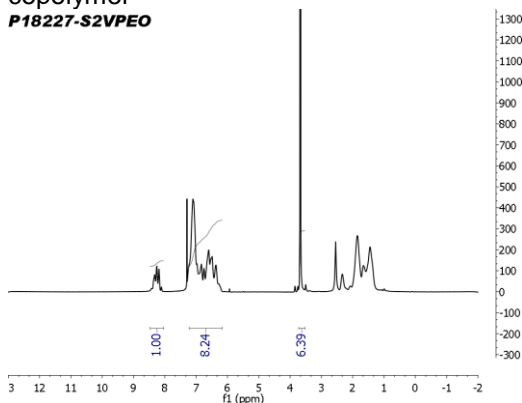
Poly(styrene-b-2-vinyl pyridine-ethylene oxide) triblock copolymer is prepared by living anionic polymerization by successive addition of monomer using cumyl potassium as initiator.

Characterization:

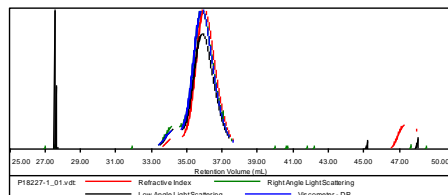
Polymer at different stages of polymerization was analyzed by size exclusion chromatography (SEC). The Block copolymer composition was then calculated from ¹H-NMR spectroscopy.

Solubility:

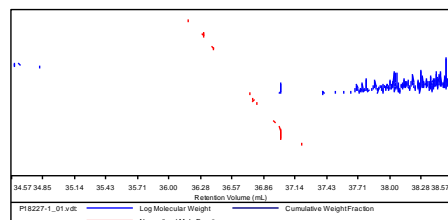
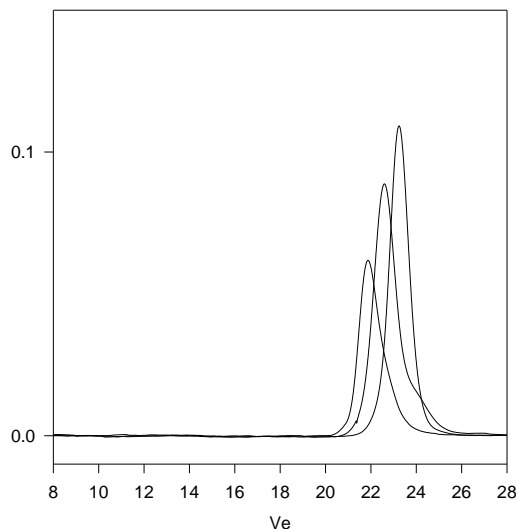
Poly(styrene-b-2-vinylpyridine-b-ethylene oxide) is soluble in THF, toluene, and CHCl₃.

¹H-NMR Spectrum of the polymer S2 VPEO triblock copolymer**P18227-S2VPEO****SEC for the triblock polymer:****Sample ID: P18227-s**

Concentration (mg/mL)	32.8290
Sample ch/dc (mL/g)	0.1850
Method File	PS80K-Sep26-2013-0000.vcm
Column Set	3x PL 1113-6300
System	System 1



Sample	Mn	Mw	Mp	Mw/Mn	IV
P18227-1_01.vdt	11,622	12,044	11,493	1.036	0.1358

**P18227-S2VPEO**

Size Exclusion Chromatography :

— First PS block, M_n≈11,500, M_w/M_n=1.04— PS2Vp, the diblock PS(11,500)-b-P2Vp(11,000), M_w/M_n=1.09— PS2VpEO, the triblock PS(11,500)-b-P2Vp(11,000)-b-PEO(7,500) M_w/M_n=1.10 (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, J., *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.

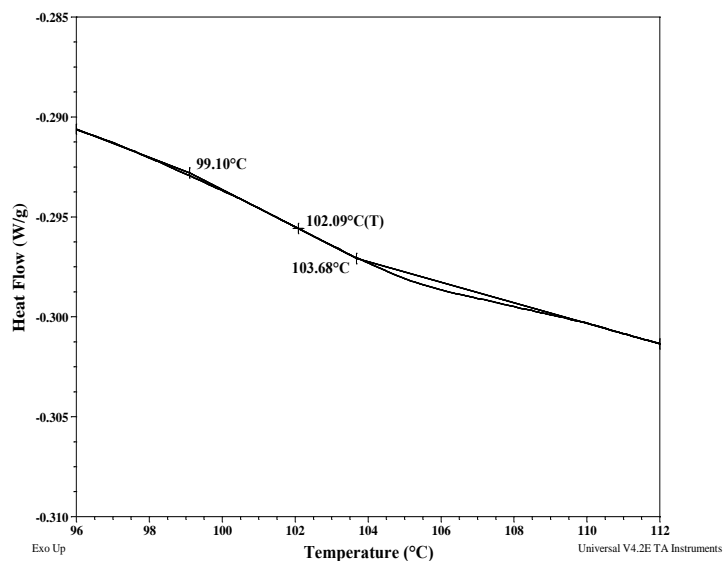
Thermal Analysis of the sample S2VPEO

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).

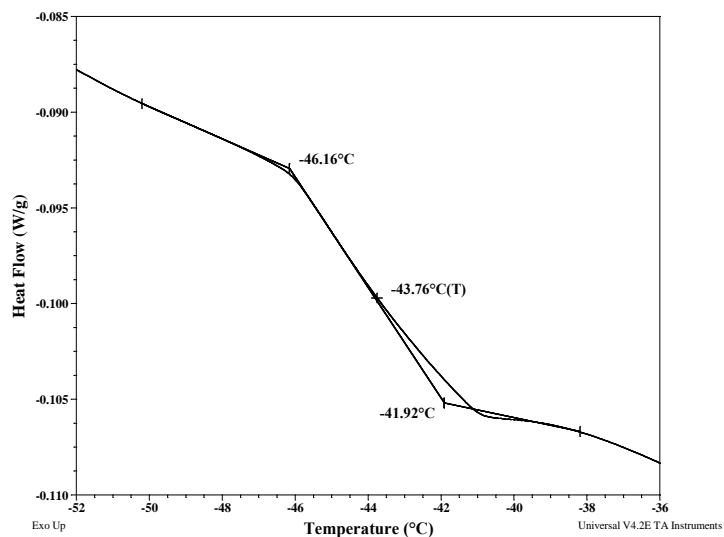
Thermal analysis results at a glance

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:



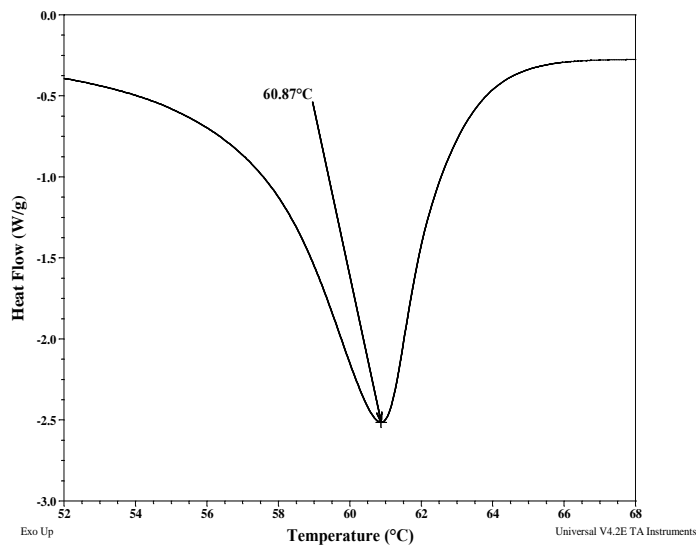
Thermogram for PEO block:



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

