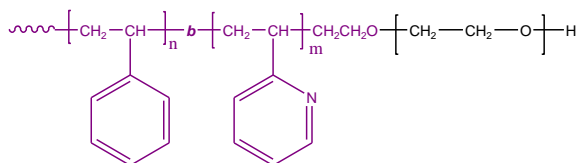


Sample Name:Poly(styrene-*b*-2-vinyl pyridine-ethylene oxide)**Sample #:** P18221A-S2VPEO**Structure:****Composition:**

Mn x 10 ³ S- <i>b</i> -2VP- <i>b</i> -EO	PDI
22.5- <i>b</i> -19.0- <i>b</i> -33.0 Calculated from ¹ H-NMR	1.11

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.

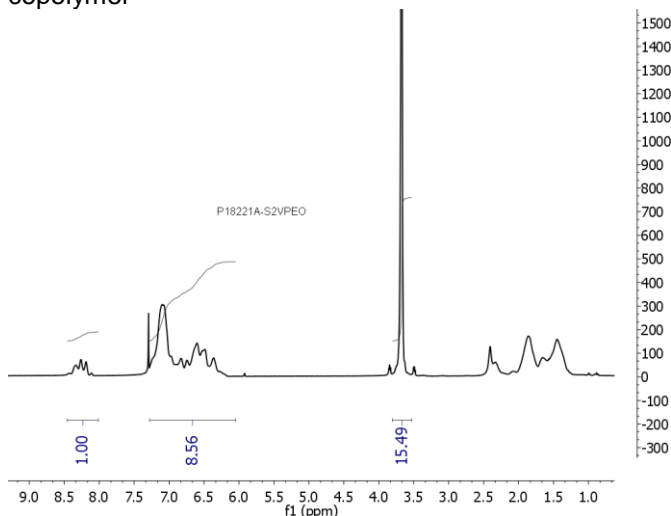
Characterization:

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

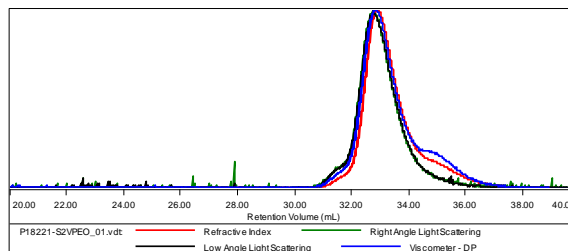
Solubility:

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

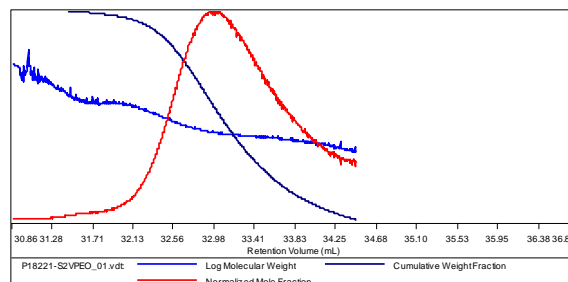
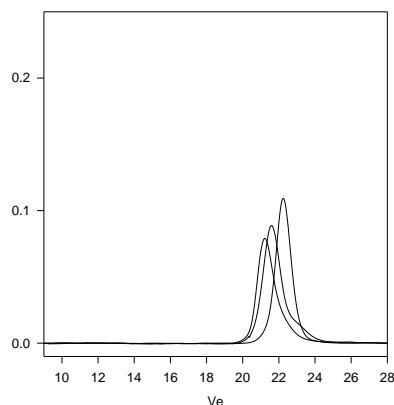
¹H-NMR Spectrum of the polymer S2 VPEO triblock copolymer

**SEC for the triblock polymer:****Sample ID:** P18221A-S2VPEO

Concentration (mg/mL)	9.4156
Sample dn/dc (mL/g)	0.1010
Method File	PS80K-Sep26-2013-0000.vcm
Column Set	3x PL 1113-6300
System	System 1



Sample	Mn	Mw	Mp	Mw/Mn	IV
P18221-S2VPEO_01.vdt	70,696	75,114	71,327	1.062	0.3073

**P18221A-S2VPEO**

Size Exclusion Chromatography :

— First PS block, M_n=22,000, M_w/M_n=1.09— PS2Vp, the diblock PS(22,000)-*b*-P2Vp(19,000), M_w/M_n=1.09— PS2VpEO, the triblock PS(22,000)-*b*-P2Vp(19,000)-*b*-PEO(33,000) M_w/M_n=1.11 (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.

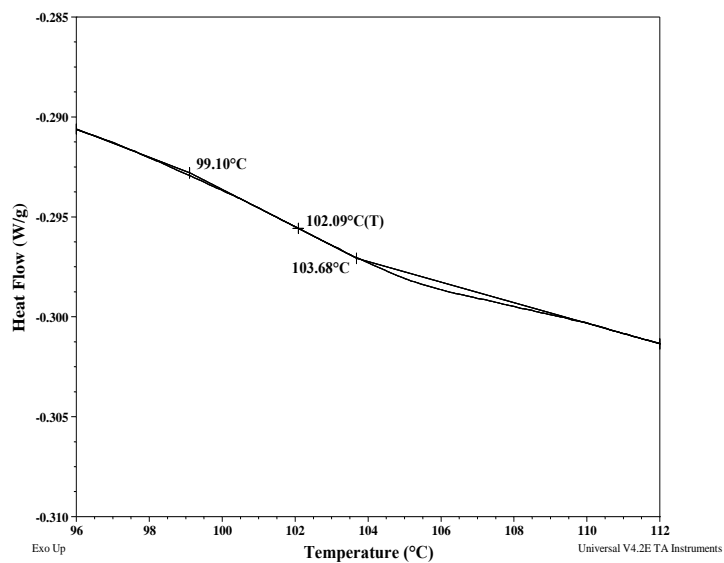
Thermal Analysis of the sample S2VPEO

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).

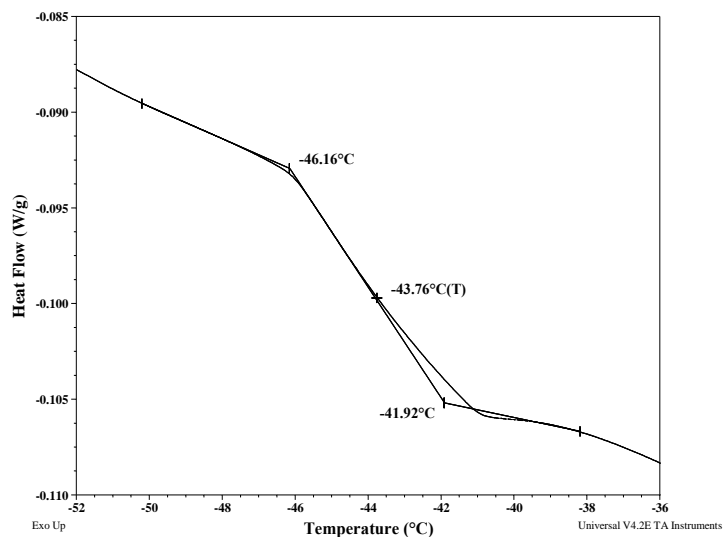
Thermal analysis results at a glance

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:



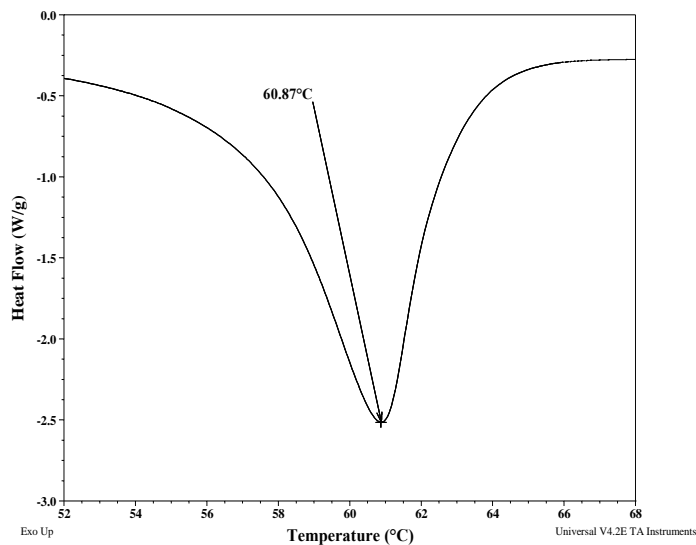
Thermogram for PEO block:



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

