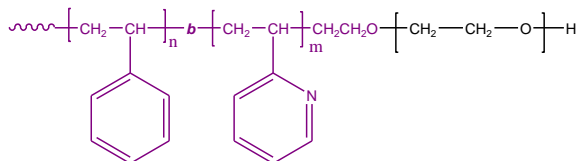


## Sample Name:

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

Sample #: P18216-S2VPEO

## Structure:



## Composition:

Mn x 10 <sup>3</sup> S-b-2VP-b-EO	PDI
88.8-b-60.5-b-102.0 Calculated from <sup>1</sup> H-NMR	1.19

## 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.

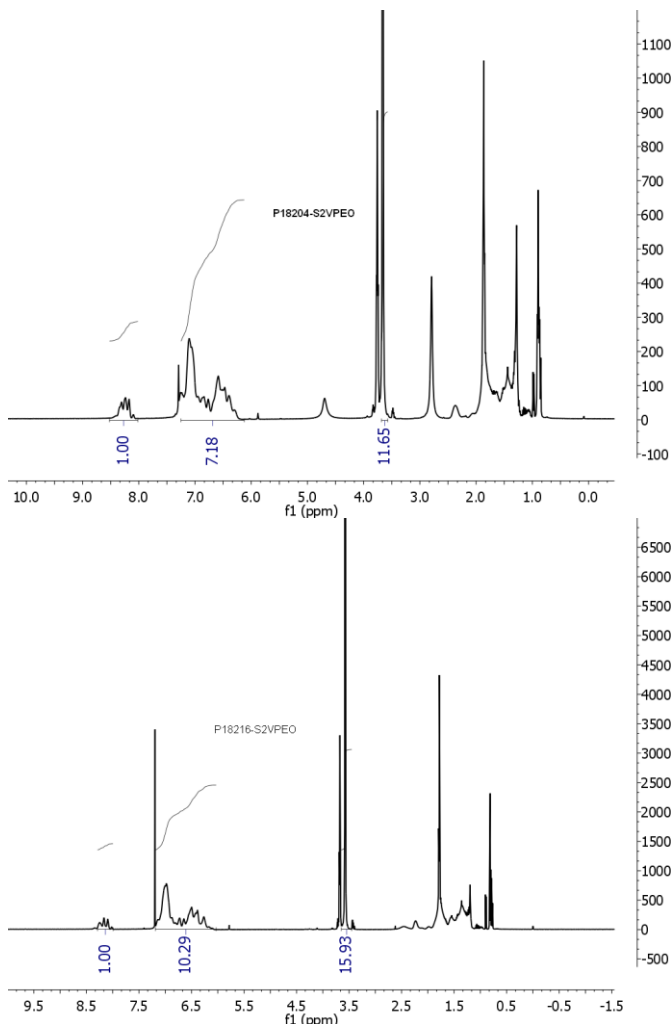
## Characterization:

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

## Solubility:

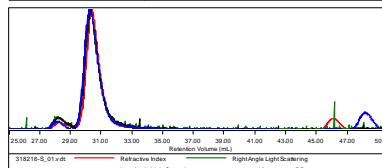
Poly(styrene-b-2-vinylpyridine-b-ethylene oxide) is soluble in THF, toluene, and CHCl<sub>3</sub>.

<sup>1</sup>H-NMR Spectrum of the polymer S2 VPEO triblock copolymer

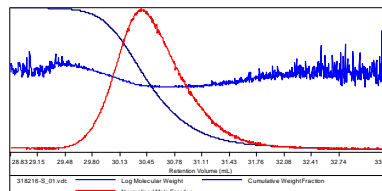


Sample ID: P18216-S

Concentration (mg/mL)	3.1404
Sample div/dt (mL/g)	0.1850
Method File	PS80K-Sep26-2013-0000.vcm
Column Set	3x PL 1113-6300
System	System 1

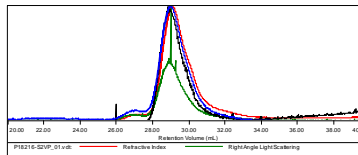


Sample	Mn	Mw	Mp	Mw/Mn	IV
318216-S_01.vdt	88,836	91,913	83,431	1.035	0.5102

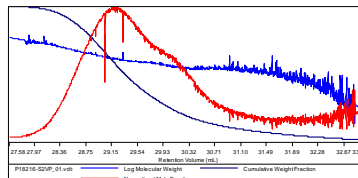


Sample ID: P18216-S2VP

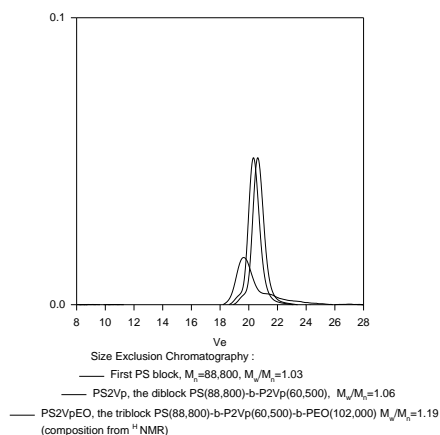
Concentration (mg/mL)	3.8957
Sample div/dt (mL/g)	0.1620
Method File	PS80K-Sep26-2013-0000.vcm
Column Set	3x PL 1113-6300
System	System 1



Sample	Mn	Mw	Mp	Mw/Mn	IV
P18216-S2VP_01.vdt	148,395	165,879	174,488	1.118	0.5732



## SEC for the triblock polymer: P18216-S2VPEO



## 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.

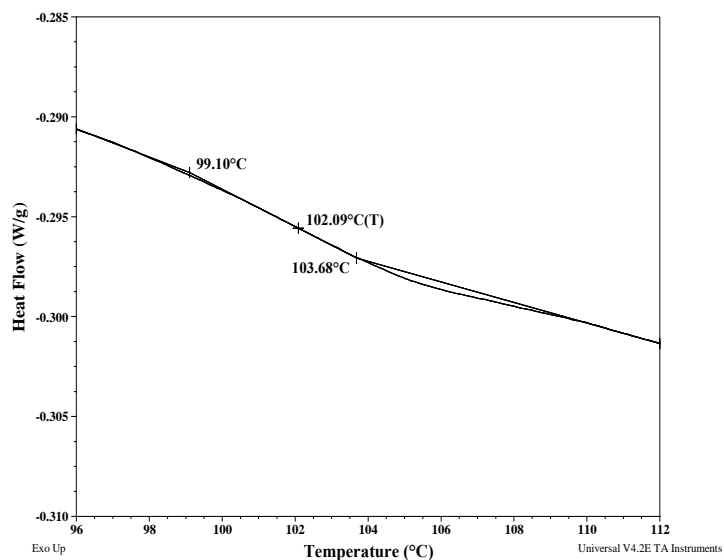
## Thermal Analysis of the sample S2VPEO

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 ( $T_g$ ).

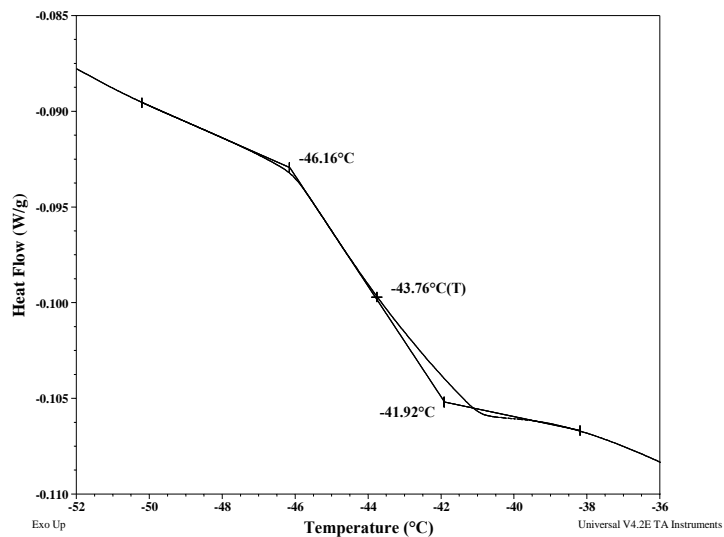
### Thermal analysis results at a glance

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:



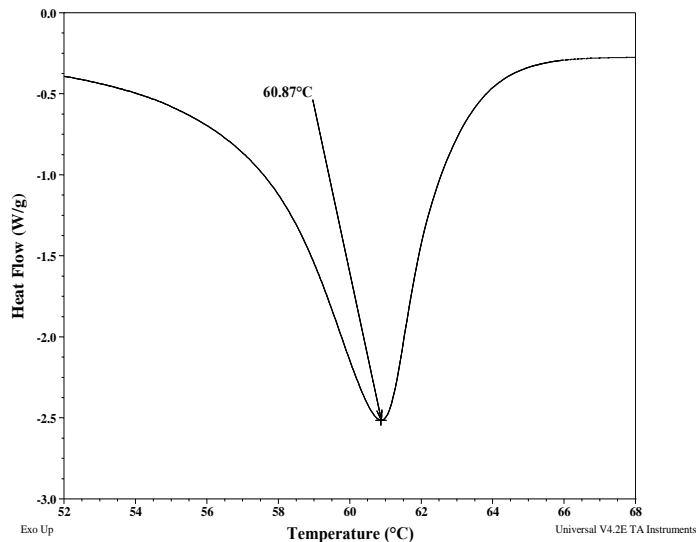
### Thermogram for PEO block:



## 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

