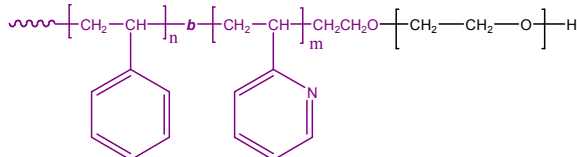


Sample Name:

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

Sample #: **P40164-S2VPEO**

Structure:



Composition:

Mn x 10 ³ S-b-2VP-b-EO	PDI
150.0-b-30.0-b-50.0 Calculated from ¹ H NMR	1.05

Synthesis Procedure:

Poly (styrene-b-2-vinyl pyridine-ethylene oxide) triblock copolymer was synthesized 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 calculated from ¹H-NMR spectroscopy.

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

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).

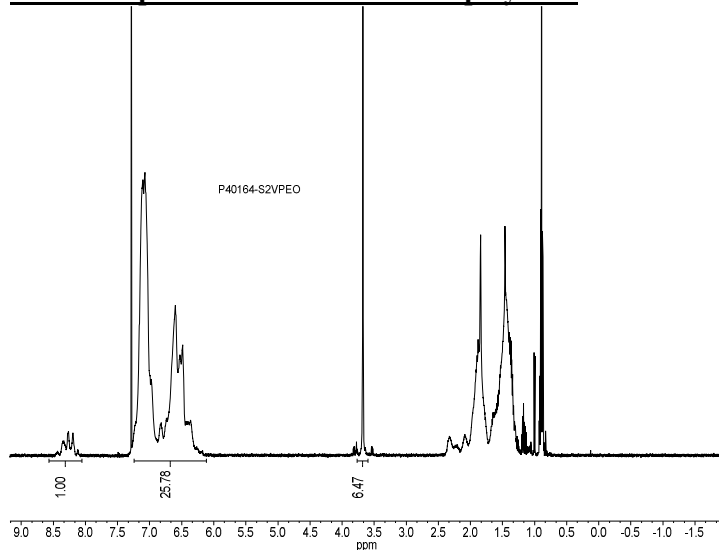
The melting temperature (T_m) was taken as the maximum of the endothermic peak where as the crystallization temperature (T_c) was considered as the minimum of the exothermic peak.

Thermal analysis results at a glance

For PS block: T _g : 102°C	For 2VP block: T _g : Not distinct
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For PEO block		
T _g : -44°C	T _m : 61°C	T _c : 34°C

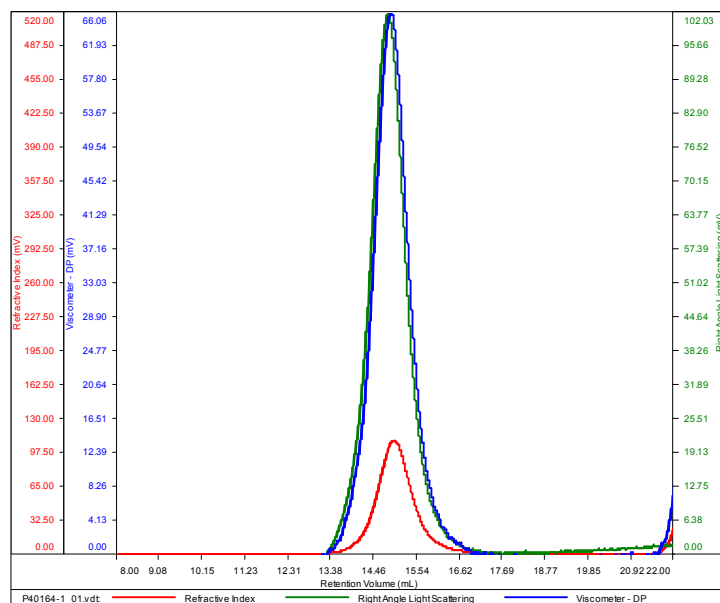
¹H NMR spectrum of the triblock copolymer:



SEC elugram of the first block:

P40164-S

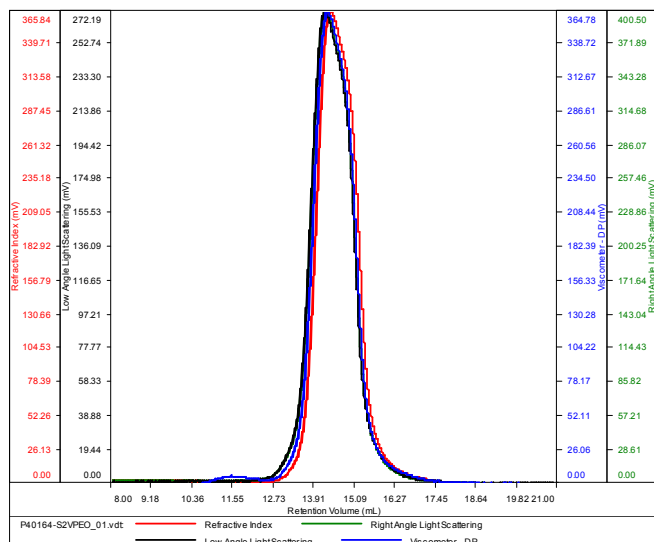
Conc (mg/mL)	1.7975
dn/dc (mL/g)	0.1650
Method	PS80k-August-08-2016-0000.vcm
Solvent	DMF w 0.023M LiBr
Column	PSS



Sample	Mn	Mw	Mp	Mw/Mn	IV
P40164-1_01.vdt	150,167	162,454	148,207	1.082	0.8990

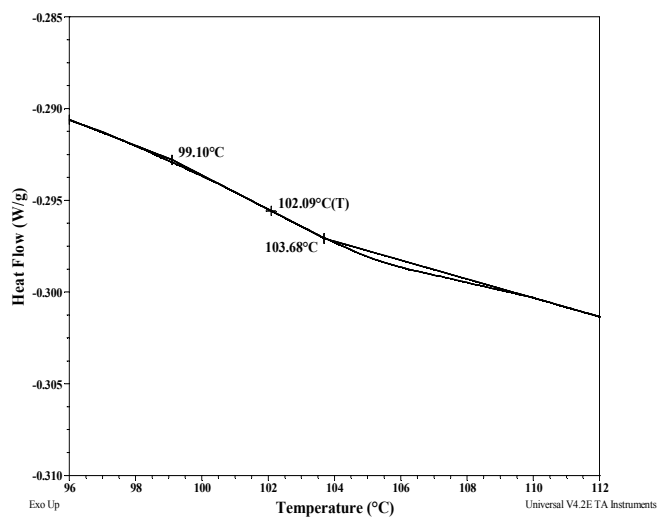
SEC elugram of the triblock copolymer: P40164-S2VPEO

Conc (mg/mL)	27.5043
dn/dc (mL/g)	0.1100
Method	PS80k_December-2016-0004.vcm
Solvent	DMF w 0.023M LiBr
Column	PSS

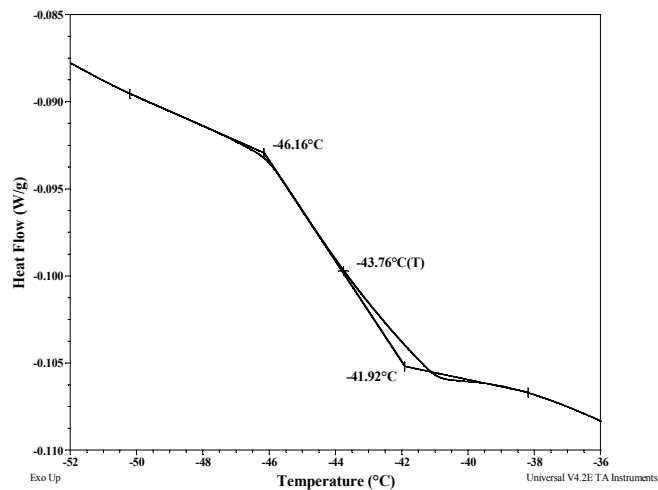


Sample	Mn	Mw	Mp	Mw/Mn	IV
P40164-S2VPEO_01.vdt	230,480	242,098	228,765	1.050	0.3973

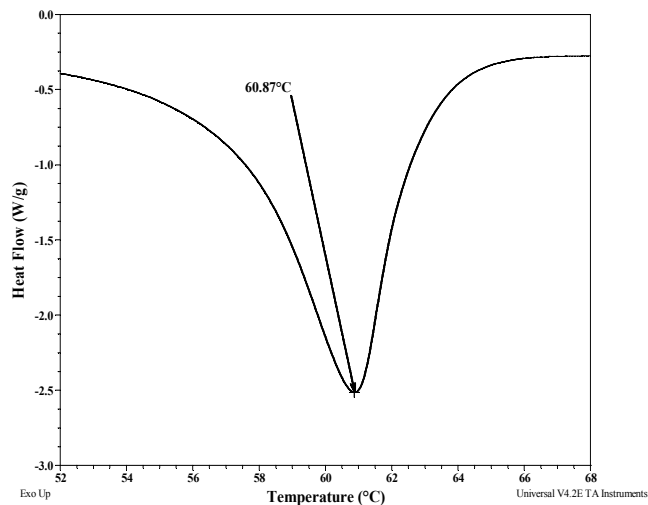
DSC thermogram for PS block:



DSC thermogram for PEO block:



Melting curve for PEO block:



Crystallization curve for PEO block:

