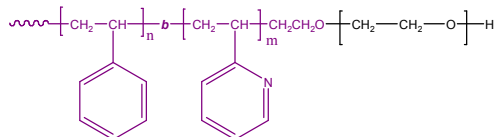


Sample Name:
Poly (styrene-b-2-vinyl pyridine-ethylene oxide)

Sample #: P40156-S2VPEO

Structure:



Composition:

Mn x 10 ³ S-b-2VP-b-EO 125.5-b-135.0-b-32.0 Calculated from ¹ H-NMR	PDI 1.07
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Synthesis Procedure:

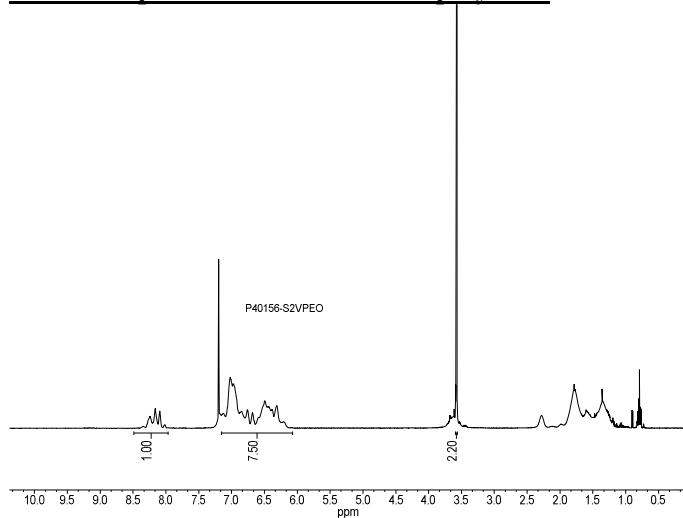
Poly (styrene-b-2-vinyl pyridine-ethylene oxide) triblock copolymer is prepared by living anionic polymerization by successive addition of monomer using Cumyl potassium as initiator.

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.

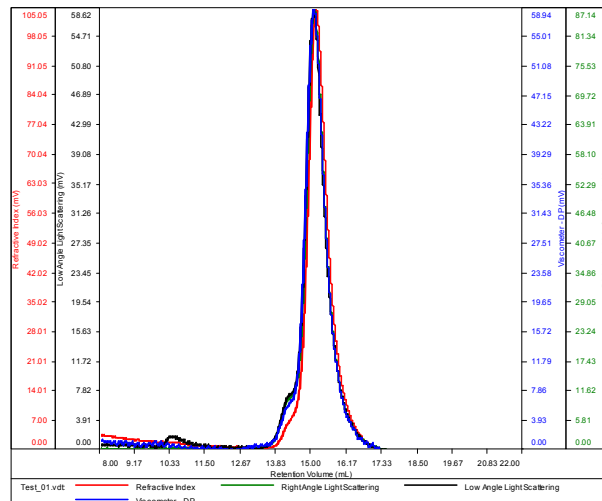
Solubility: Poly (styrene-b-2-vinylpyridine-b-ethylene oxide) is soluble in THF, toluene, and CHCl₃.

¹H NMR spectrum of the triblock polymer:



SEC elugram of the triblock polymer:
P40156-S

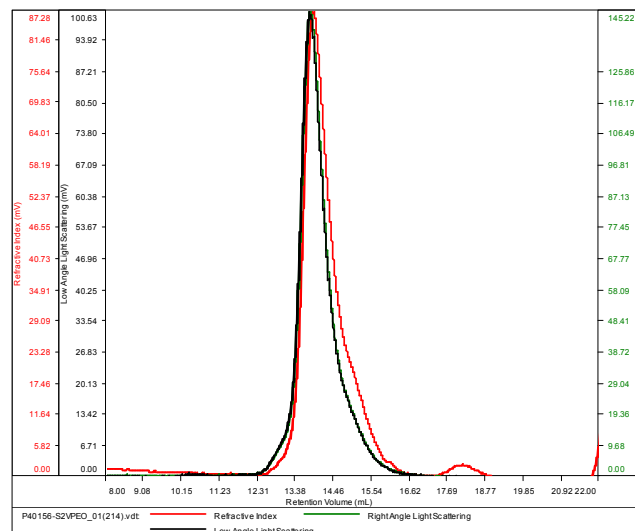
Conc (mg/mL)	1.3349
dn/dc (mL/g)	0.1650
Method	PS80k-October2016-0000.vcm
Solvent	DMF w 0.023M LiBr
Column	PSS



Sample	Mn	Mw	Mp	Mw/Mn	IV
Test_01.vdt	125,637	131,770	128,678	1.049	0.8131

P40156-S2VPEO

Conc (mg/mL)	1.5183
dn/dc (mL/g)	0.1400
Method	PS80k-October2016-0000.vcm
Solvent	DMF w 0.023M LiBr
Column	PSS



Sample	Mn	Mw	Mp	Mw/Mn	IV
P40156-S2VPEO_01(214).vdt	287,690	309,406	321,639	1.075	1.3434

Thermal Analysis of the sample S2VPEO

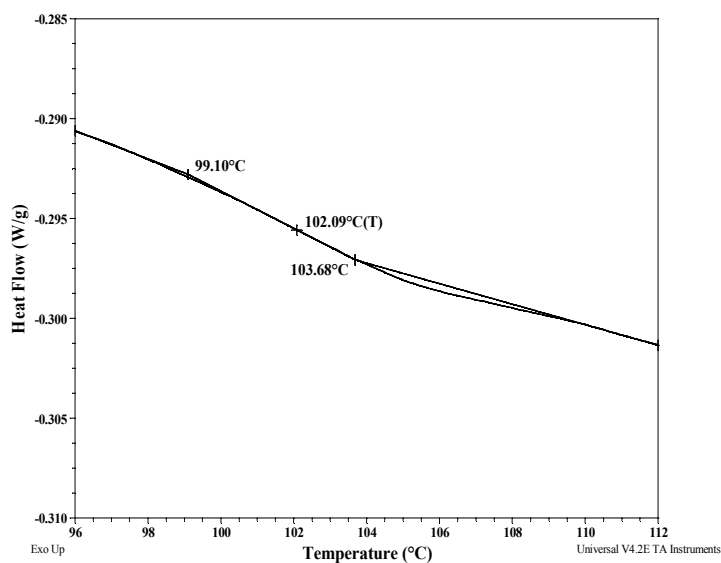
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Thermal analysis results at a glance

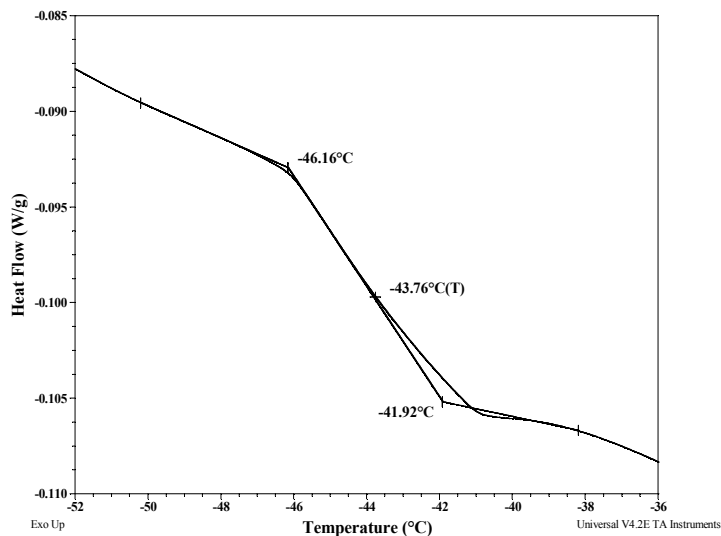
For PS block: T_g : 102°C	For 2VP block: T_g : Not distinct
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For PEO block		
T_g : -44°C	T_m : 61°C	T_c : 34°C

Thermogram for PS block:



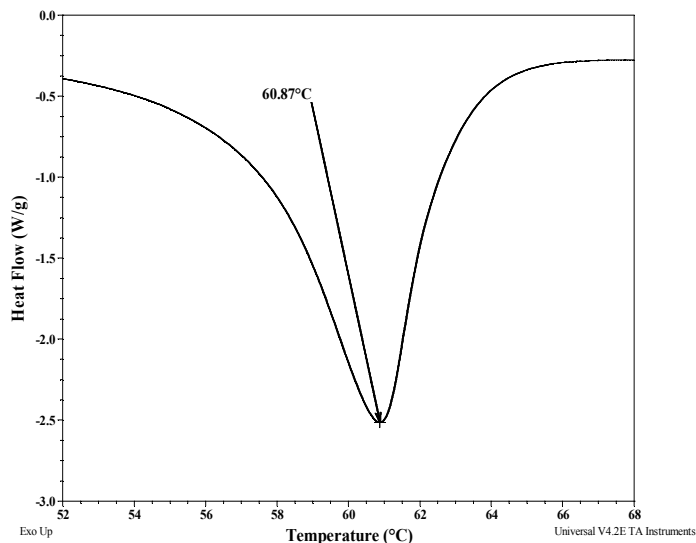
Thermogram for PEO block:



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:

