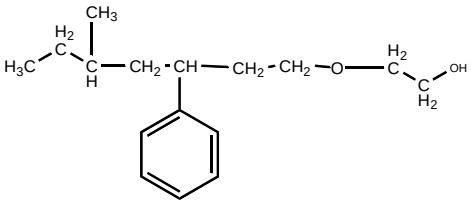
Sample Name: **Poly (styrene-b-ethylene oxide)**

Sample #: **P41552-SEO**

Structure:



Composition:

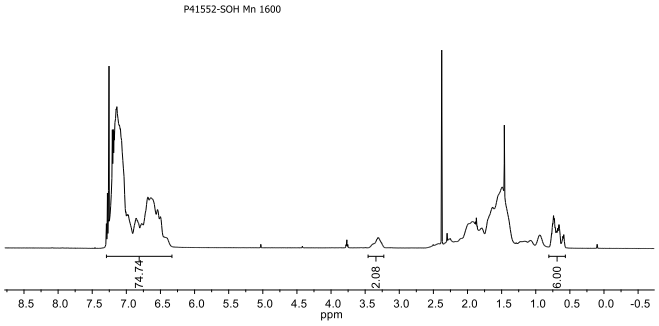
$M_n \times 10^3$ S-b-EO	PDI
1.6-b-2.9	1.09

Synthesis Procedure:
Poly (styrene-b-ethylene oxide) diblock copolymer was prepared by living anionic polymerization process.

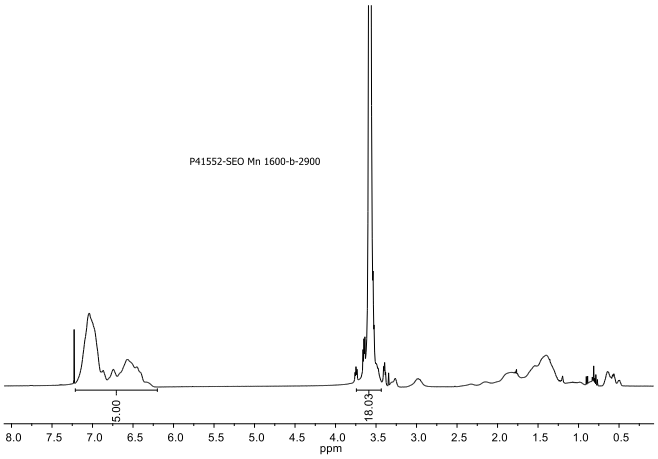
Characterization:
The polymer is characterized by size exclusion chromatography (SEC) and ^{1}H-NMR.

Solubility:
The polymer is soluble in THF, $CHCl_3$, benzene, toluene, dioxane. Low molecular weight SEO with high contents of the polyethylene oxide block can also be solubilized in methanol and water.

^{1}H NMR spectrum of the SOH sample:

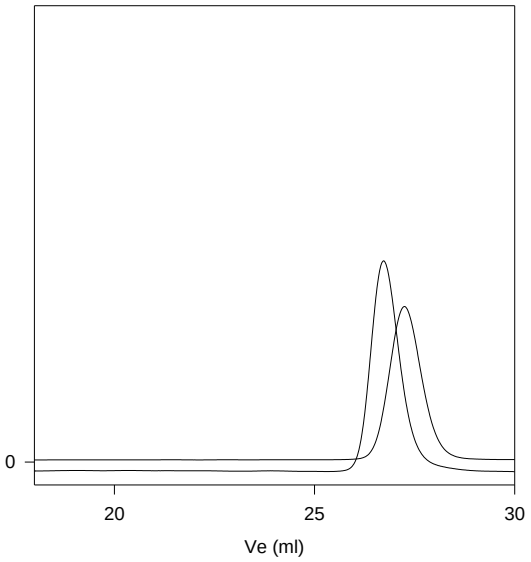


^{1}H NMR spectrum of the sample:



SEC profile of the block copolymer:

P41552-SEO



Size exclusion chromatography of poly(styrene-b-ethylene oxide)

—— Poly(styrene), M_n=1,600, M_w=1,700, PI=1.10

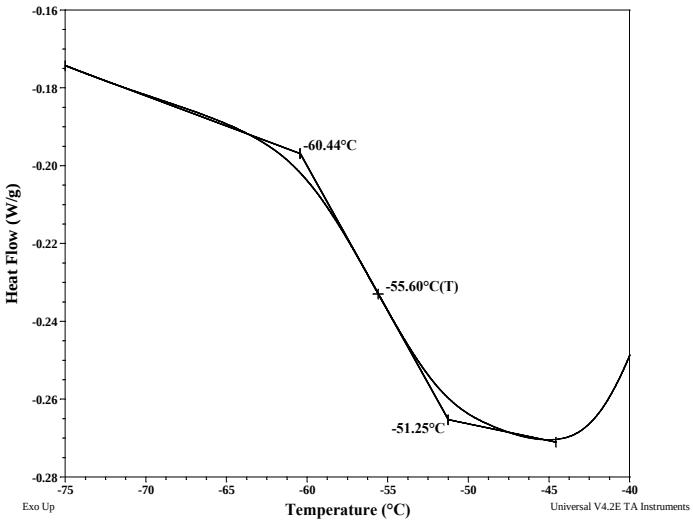
—— Block Copolymer PSt(1,600)-b-PEO(2,900), PI=1.09

The composition determined from HNMR.

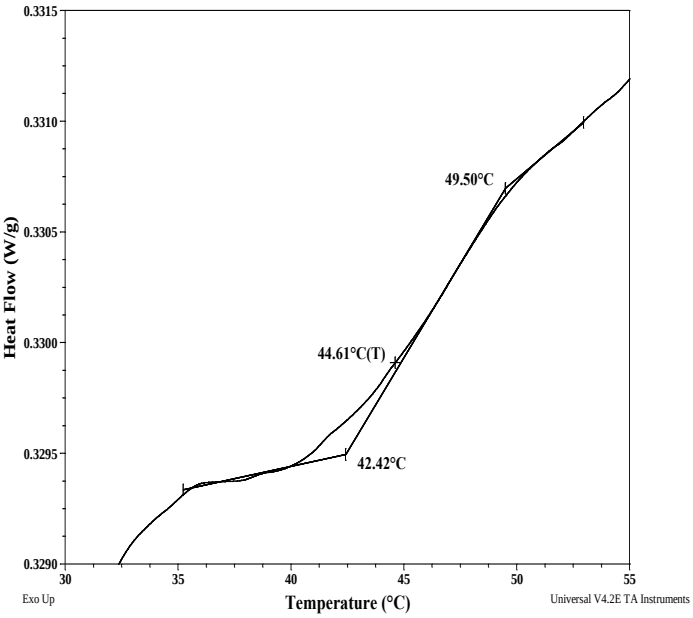
Thermal analysis of the sample P41552 SEO:
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 20ºC/min.The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Thermogram for the sample

For PEO block:



Thermogram for PS block:



Thermal analysis results at a glance

For PS block: T_g: 45ºC		
For PEO block		
T_g: -56ºC	T_m: 39ºC	T_c: Not found

Melting & crystallization curves for the PEO block
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: