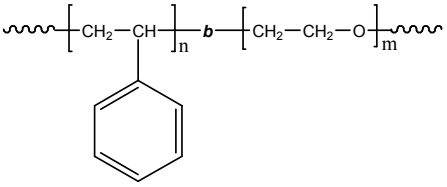
Sample Name: **Poly(styrene-b-ethylene oxide)**

Sample #: **P13140-SEO**

Structure:



Composition:

Mn x 10^3 S-b-EO	PDI
28.0-b-11.0	1.11

Synthesis Procedure:

Poly(styrene-b-ethylene oxide) diblock copolymer is prepared by living anionic polymerization.

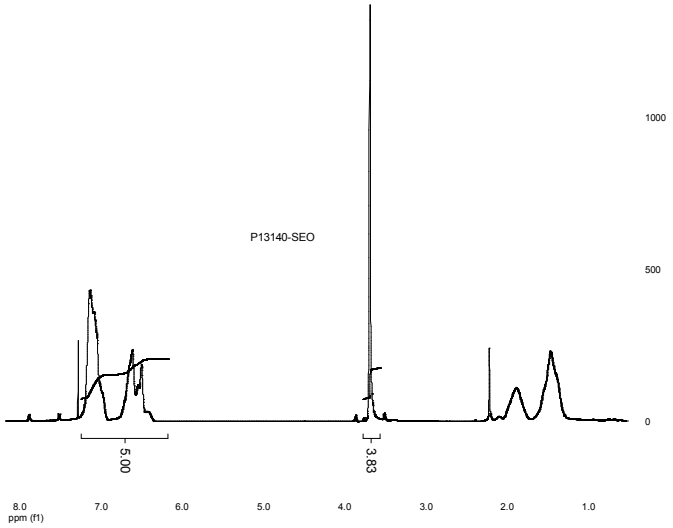
Characterization:

The molecular weight and polydispersity index (PDI) of the block copolymer are characterized by size exclusion chromatography (SEC). The composition of the block copolymer was calculated from ^{1}H-NMR by comparing the peak area of the phenyl polystyrene protons between 6.4 to 7.2 ppm and the ethylene oxide protons at 3.65 ppm.

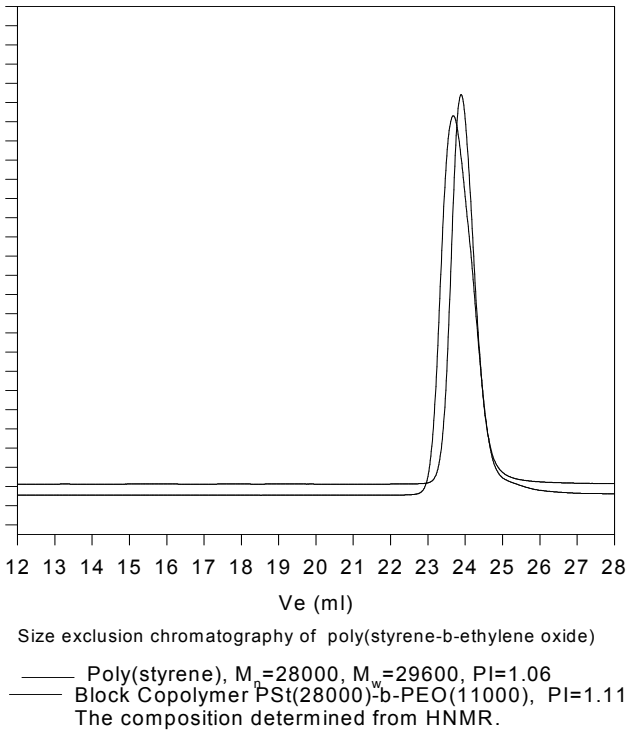
Solubility

he polymer is soluble in THF (at 35 °C), $CHCl_3$, 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 sample



SEC profile of the block copolymer



Thermal analysis of the sample# P13140-SEO

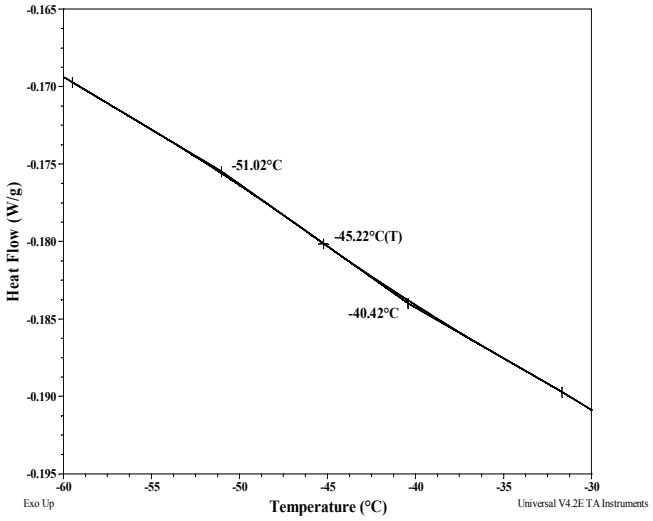
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 20°C/min.The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Thermal analysis results at a glance

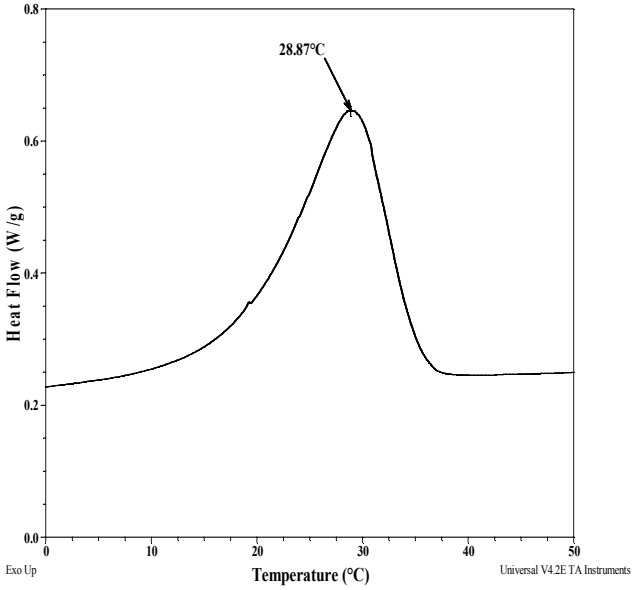
For PS block T_g: 98 °C		
For PEO block		
T_g: -45 °C	T_m: 52 °C	T_c: 29 °C

Thermograms for the sample

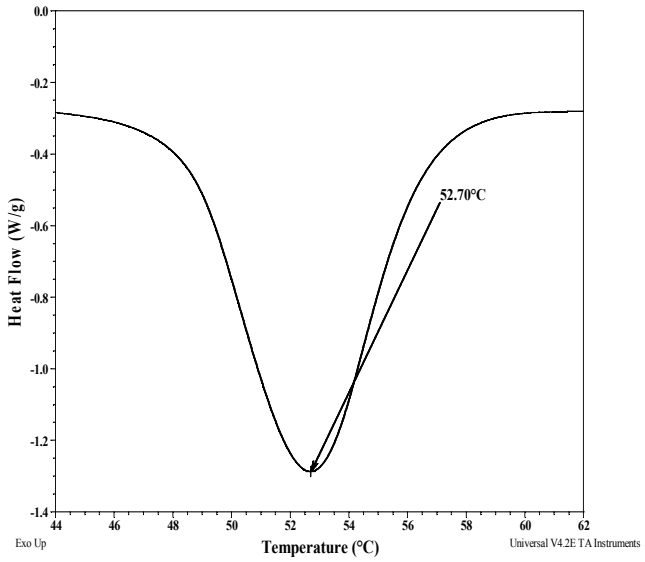
For PEO block



Crystallization curve for PEO block:



Melting curve for PEO block:



For PS block