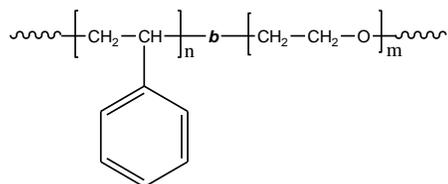


**Sample Name:** Poly(styrene-b-ethylene oxide)

**Sample #:** P18164-SEO

**Structure:**



**Composition:**

Mn x 10 <sup>3</sup> S-b-EO	PDI
33.0-b-13.5	1.12

**Synthesis Procedure:**

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

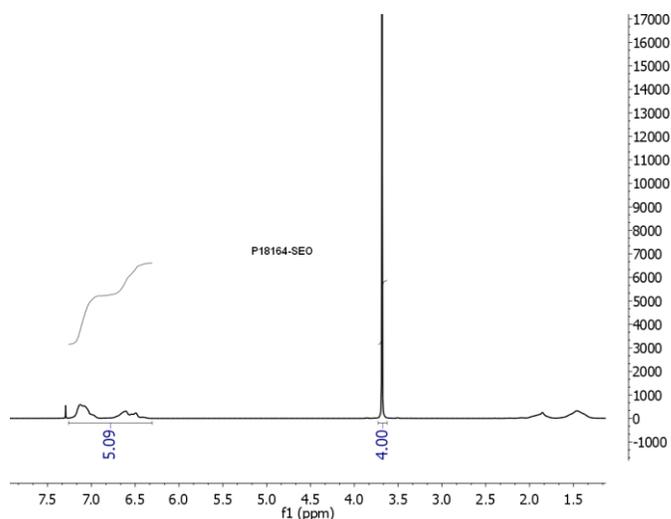
**Characterization:**

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 <sup>1</sup>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.

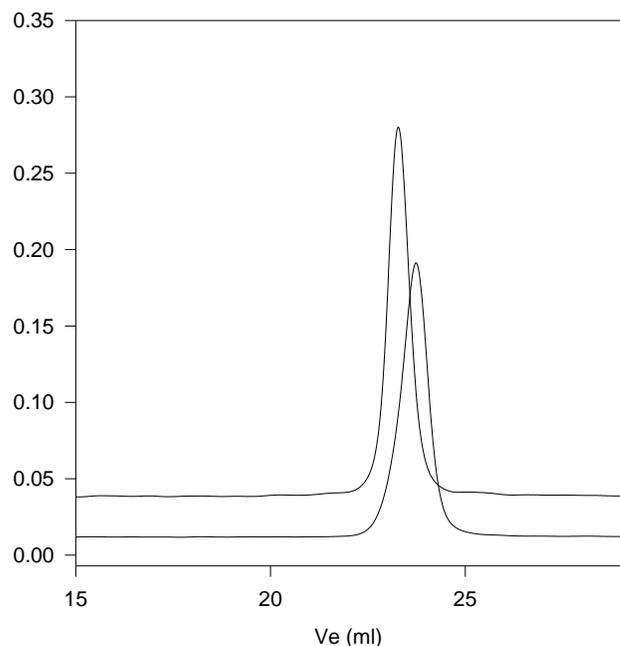
**Solubility:**

The polymer is soluble in THF (at 35 °C), CHCl<sub>3</sub>, benzene, toluene, dioxane. Low molecular weight SEO with high contents of the polyethylene oxide block can also be solubilized in methanol and water.

**<sup>1</sup>H NMR spectrum of the sample**



**SEC profile of the block copolymer**  
**P18164-SEO**



— Poly(styrene), M<sub>n</sub>=33,000, M<sub>w</sub>=37,500, PI=1.14  
— Block Copolymer PSt(33,000)-b-PEO(13,500), PI=1.12  
Composition from <sup>1</sup>H NMR

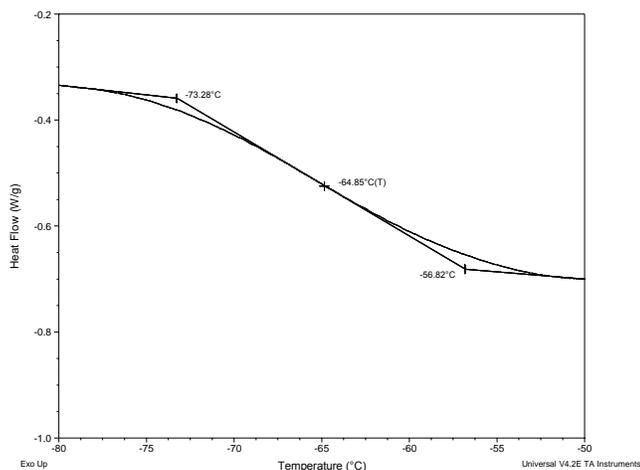
**Thermal analysis of the sample# P15018-SEO**

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 ( $T_g$ ).

<b>For PS block <math>T_g</math>: 107°C</b>		
<b>For PEO block</b>		
$T_g$ : -65°C	$T_m$ : 63°C	$T_c$ : 43°C

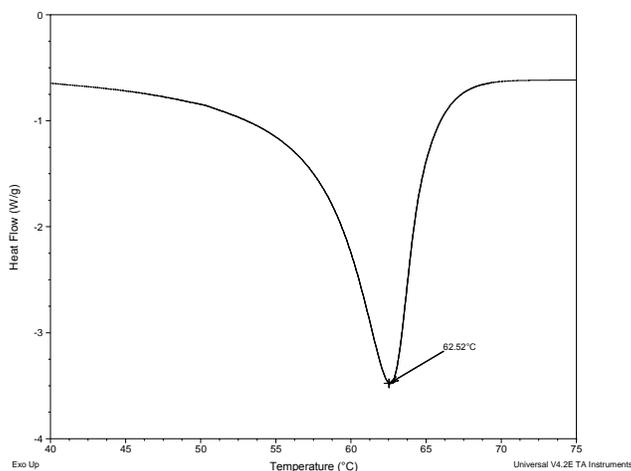
### Thermogram for the sample

#### For PEO block:

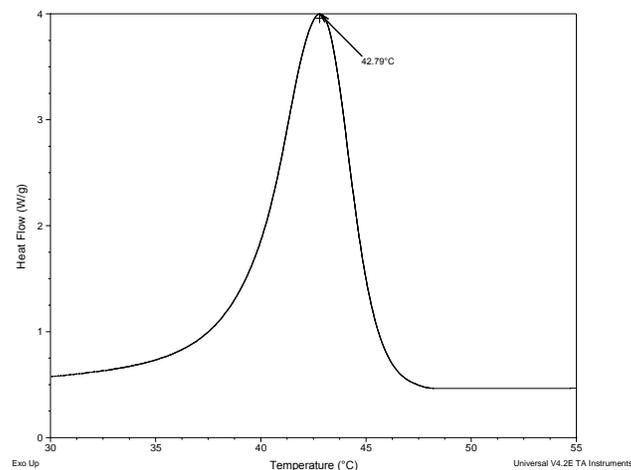
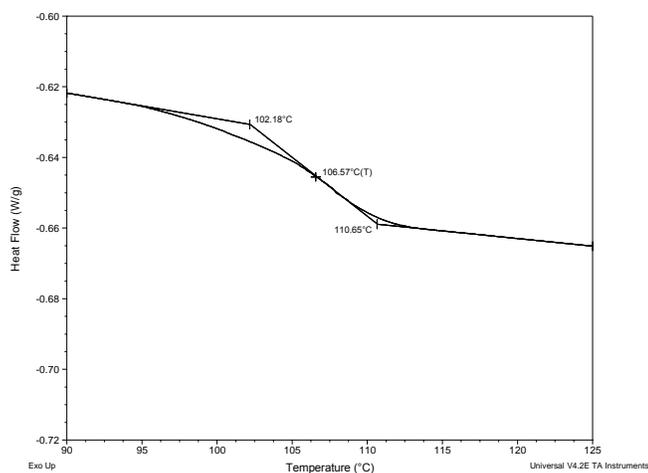


### Melting and crystallization curve for the PEO block

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



#### For PS block



### Thermal analysis results at a glance