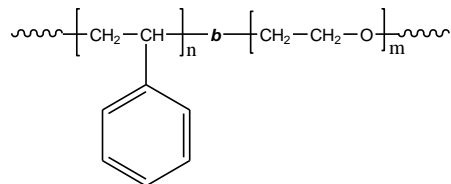


**Sample Name:** Poly(styrene-b-ethylene oxide)

**Sample #:** P11215C-SEO

**Structure:**



**Composition:**

$M_n \times 10^3$ S-b-EO	PDI
20.5-b-7.5	1.09

**Synthesis Procedure:**

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

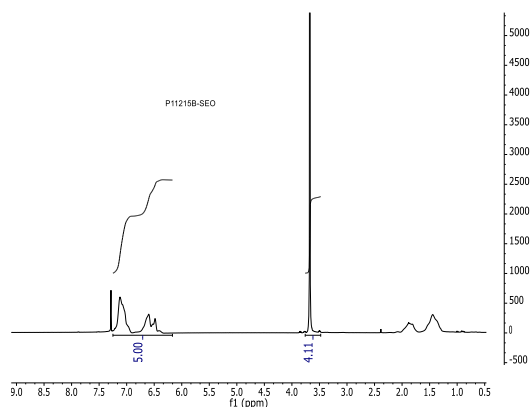
**Characterization:**

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  $^1\text{H-NMR}$  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.

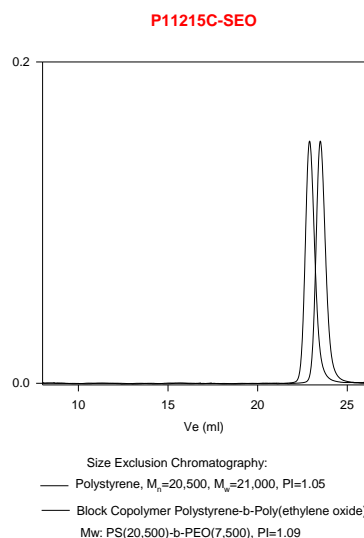
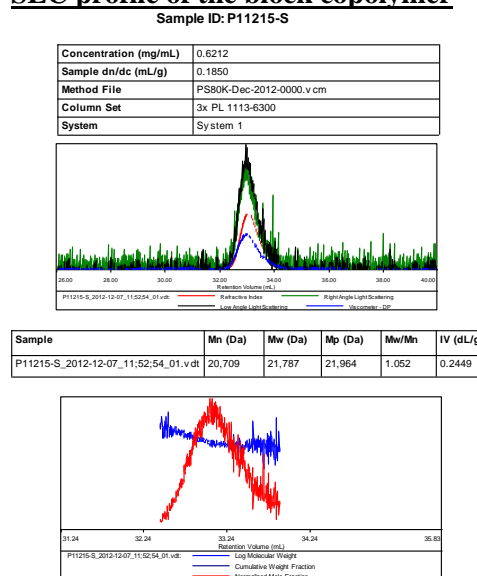
**Solubility:**

The polymer is soluble in THF (at 35 °C),  $\text{CHCl}_3$ , benzene, toluene, dioxane. Low molecular weight SEO with high contents of the polyethylene oxide block can also be solubilized in methanol and water.

**$^1\text{H NMR}$  spectrum of the sample**



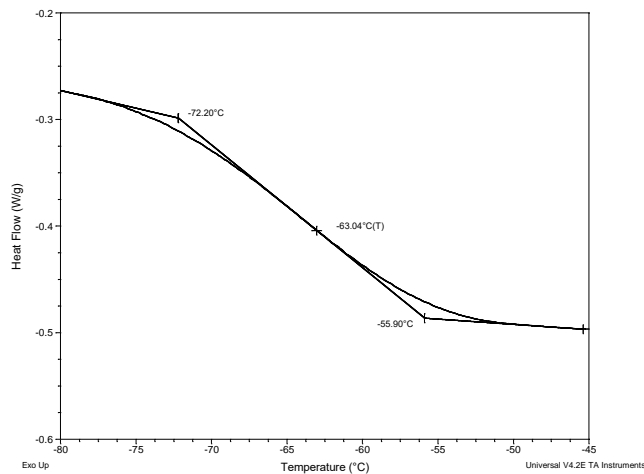
**SEC profile of the block copolymer**



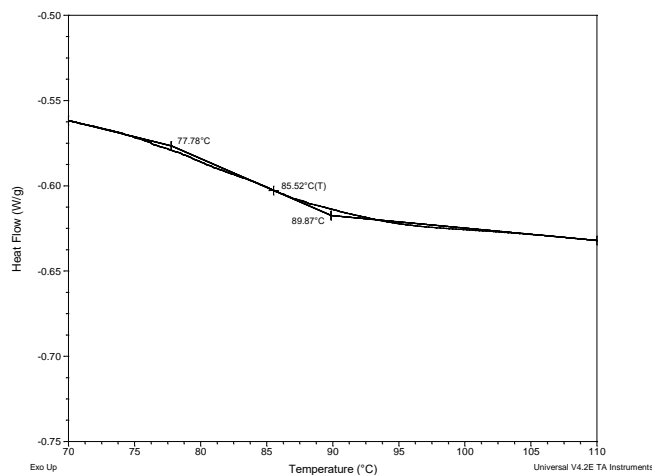
**Thermal analysis of the sample# P11215C-SEO**

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 ( $T_g$ ).

**Thermogram for the sample  
For PEO block:**



**For PS block**



**Thermal analysis results at a glance**

For PS block $T_g$ : 86°C		
For PEO block		
$T_g$ : -63°C	$T_m$ : 48°C	$T_c$ : -35°C

**Melting and crystallization curve 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.

