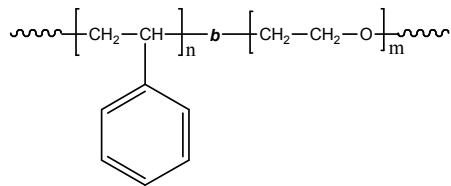


¹H NMR spectrum of the sample

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

Sample #: **P4718-SEO**

Structure:



Composition:

Mn x 10 ³ S-b-EO	PDI
38.0-b-102.0	1.10

Synthesis Procedure:

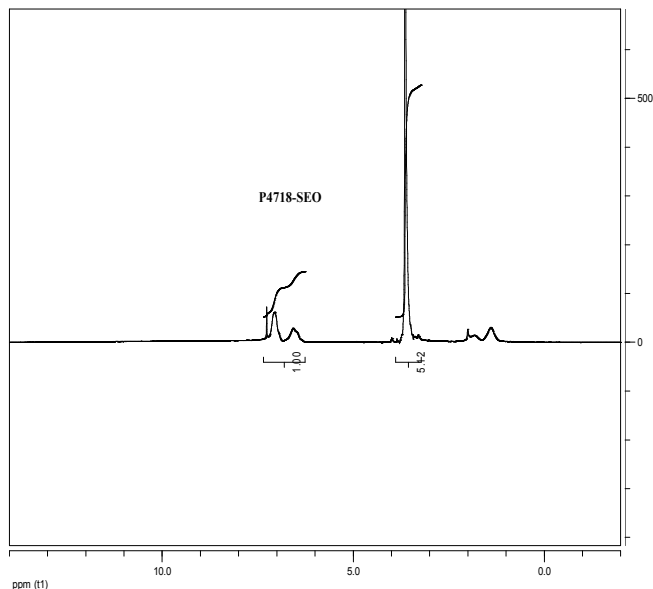
Poly(styrene-b-ethylene oxide) diblock copolymer is prepared by living anionic polymerization.

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 ¹H-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.

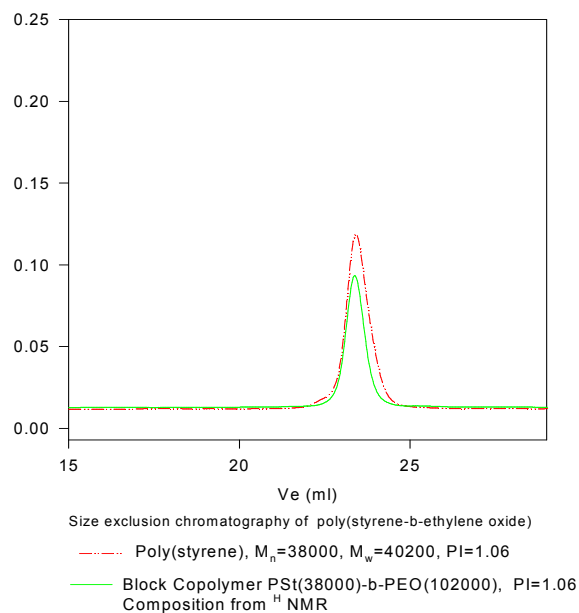
Solubility:

The polymer is soluble in THF (at 35 °C), CHCl₃, benzene, toluene, dioxane. Low molecular weight SEO with high contents of the polyethylene oxide block can also be solubilized in methanol and water.



SEC profile of the block copolymer

P4718-SEO



Thermal analysis of the sample# P4718-SEO

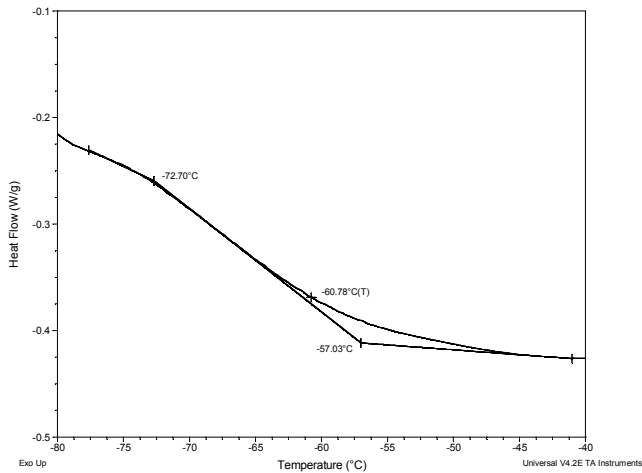
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 20°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Thermal analysis results at a glance

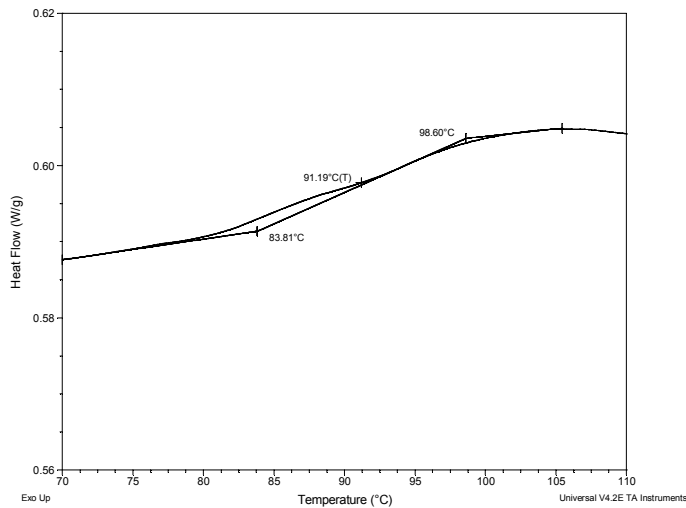
For PS block T_g : 91°C		
For PEO block		
T_g : -61°C	T_m : 62°C	T_c : 45°C

Thermogram for the sample

PEO block



For PS block



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.

