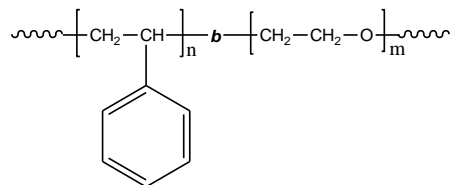


Sample Name: Poly(styrene-b-ethylene oxide)

Sample #: P44156A-SEO

Structure:



Composition:

Mn x 10 ³ S-b-EO	PDI
9.0-b-13.5	1.02

Synthesis Procedure:

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

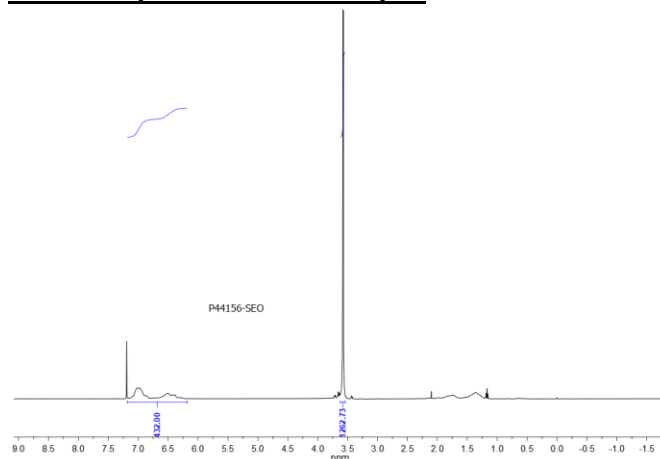
Characterization:

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.

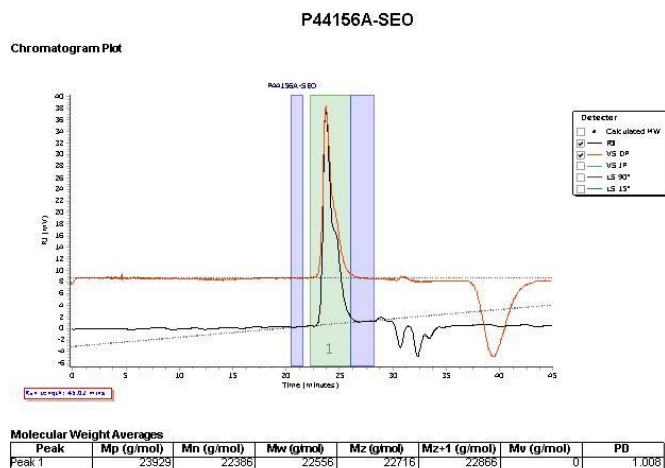
Solubility:

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.

¹H NMR spectrum of the sample:



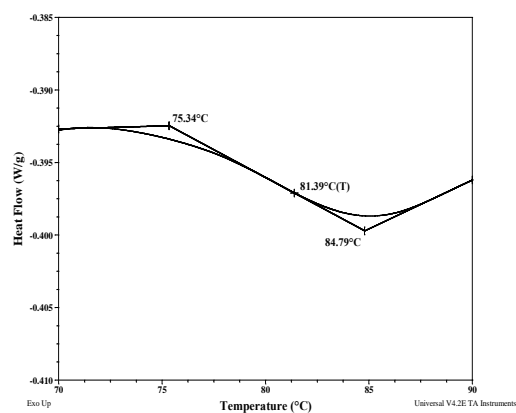
SEC profile of the block copolymer



Thermal analysis of the sample P44156A-SEO:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°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 PS block:



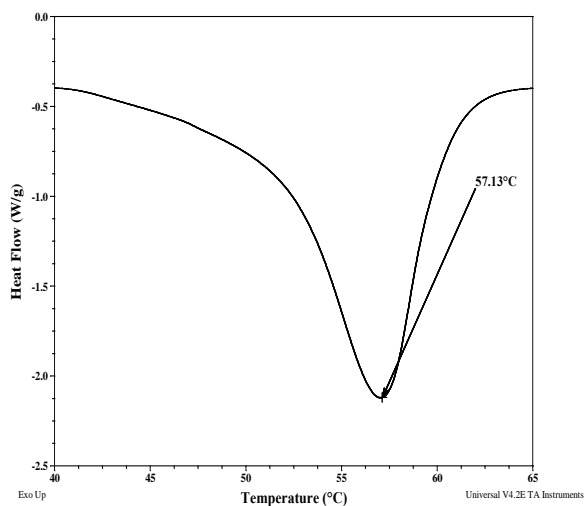
Thermal analysis results briefly

For PS block: T_g : 81°C		
For PEO block		
T_g : Not distinct	T_m : 57°C	T_c : 35°C

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:



Crystallization curve for PEO block:

