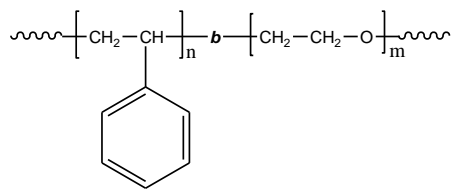


Sample Name: Poly(styrene-b-ethylene oxide)

Sample #: P18428-SEO

Structure:



Composition:

Mn x 10 ³ S-b-EO	PDI
20.5-b-8.0	1.02

Synthesis Procedure:

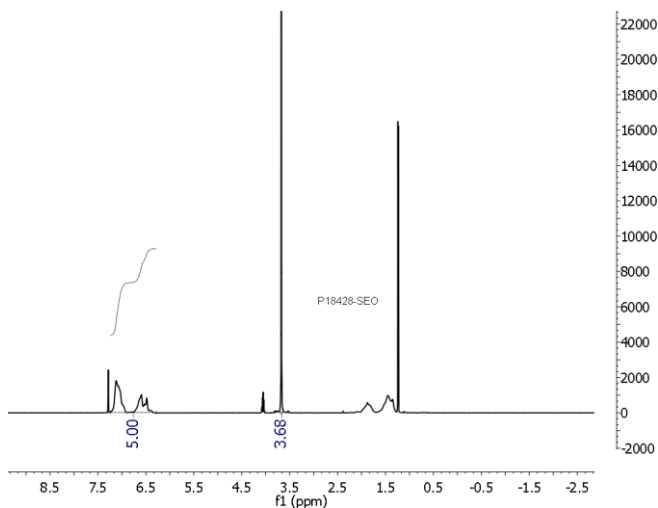
Poly(styrene-b-ethylene oxide) diblock copolymer is prepared by living anionic polymerization.

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:

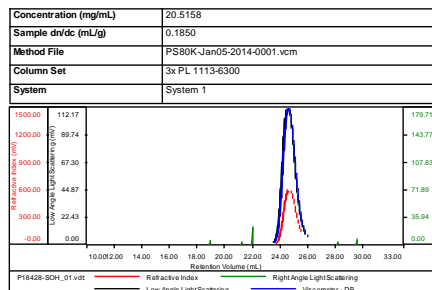
The polymer is soluble in THF (at 35 °C), CHCl₃, benzene, toluene, dioxane. Low molecular weight SEO with high contents of the polyethylene oxide block can also be solubilized in methanol and water.

¹H NMR spectrum of the sample

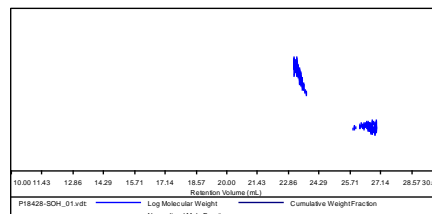


SEC profile of the block copolymer

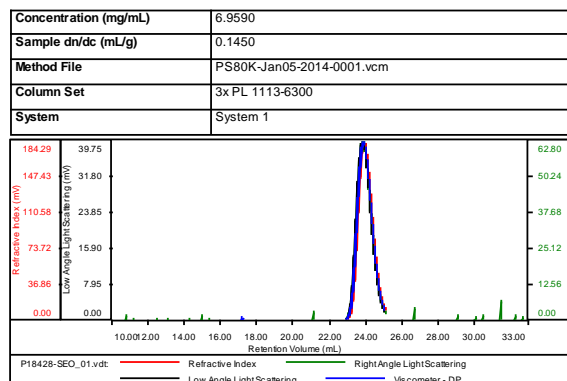
Sample ID: P18428-SOH



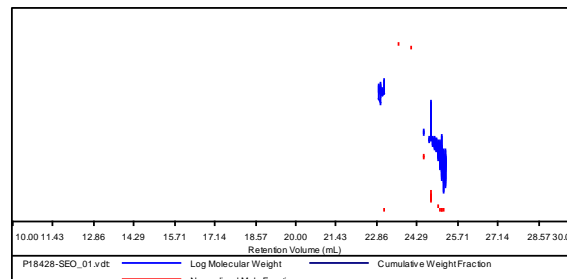
Sample	Mn	Mw	Mp	Mw/Mn	IV
P18428-SOH_01.vdt	20,277	20,531	20,390	1.013	0.1517



Sample ID: P18428-SEO



Sample	Mn	Mw	Mp	Mw/Mn	IV
P18428-SEO_01.vdt	28,756	29,196	29,496	1.015	0.2095

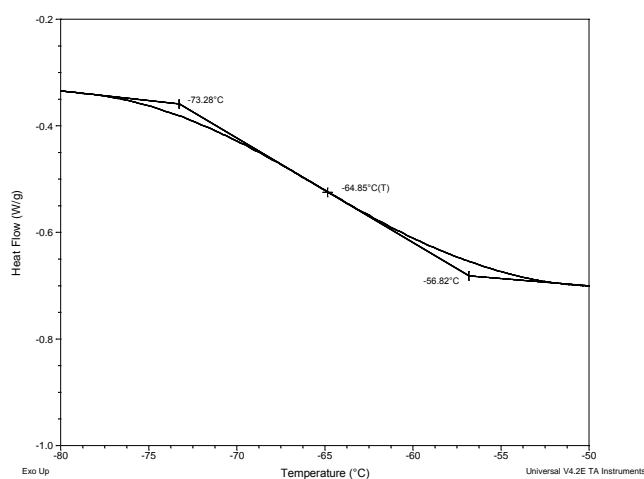


Thermal analysis of the sample# P18428-SEO

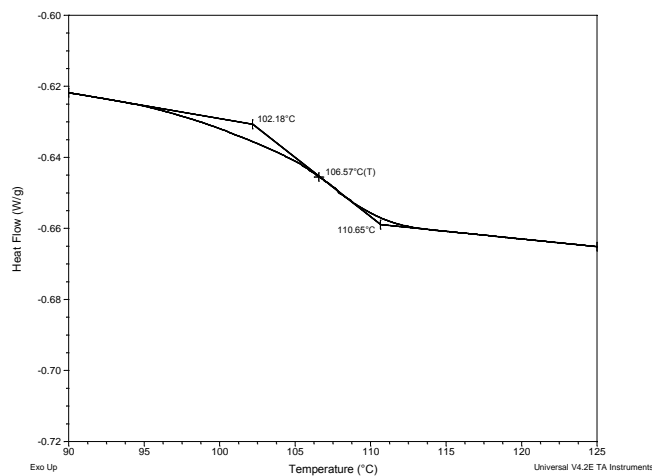
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 20°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Thermogram for the sample

For PEO block:



For PS block

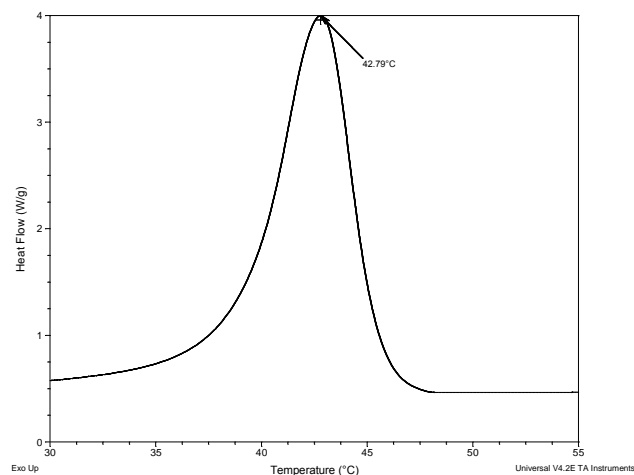
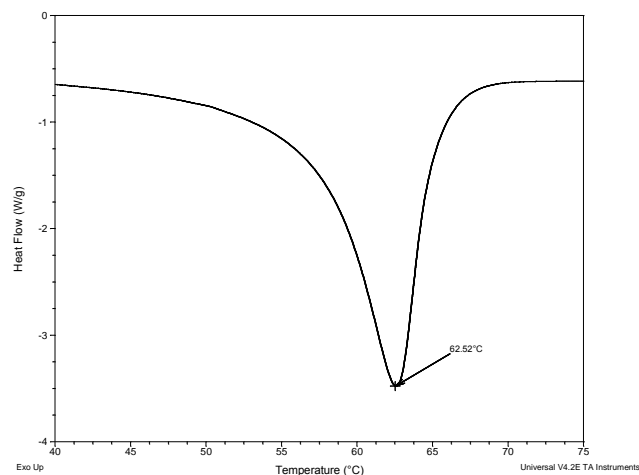


Thermal analysis results at a glance

T_g : -65°C	T_m : 63°C	T_c : 43°C
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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.



For PS block T_g : 107°C

For PEO block