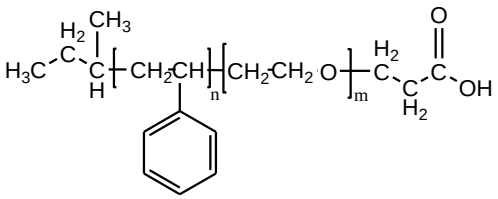
Sample Name: **COOH terminated Poly(styrene-b-ethylene oxide)**

Sample #: **P2972A-SEOCOOH**

Structure:



Composition:

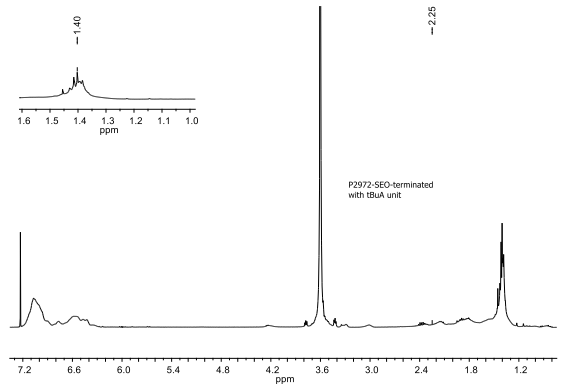
Mn x 10^3 S-b-EO	PDI
1.6-2.5	1.08

Synthesis Procedure:
Poly(styrene-b-ethylene oxide) diblock copolymer is prepared by living anionic polymerization. tBuA end terminated polymer hydrolysed in THf with Hcl.

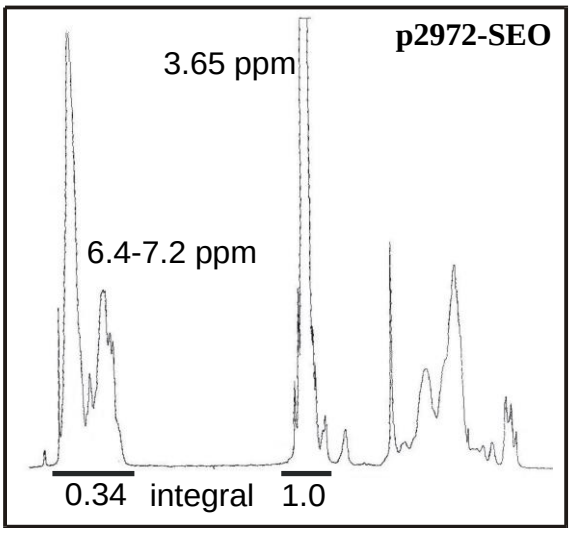
Characterization:
The molecular weight and polydispersity index (PDI) of the block copolymer are characterized by size exclusion chromatography (SEC). The composition of the block copolymer was calculated from ^{1}H-NMR by comparing the peak area of the phenyl polystyrene protons between 6.4 to 7.2 ppm and the ethylene oxide protons at 3.65 ppm.

Solubility: The polymer is soluble in THF (at 35 °C), $CHCl_3$, benzene, toluene, dioxane. Low molecular weight SEO with high contents of the polyethylene oxide block can also be solubilized in methanol and water.

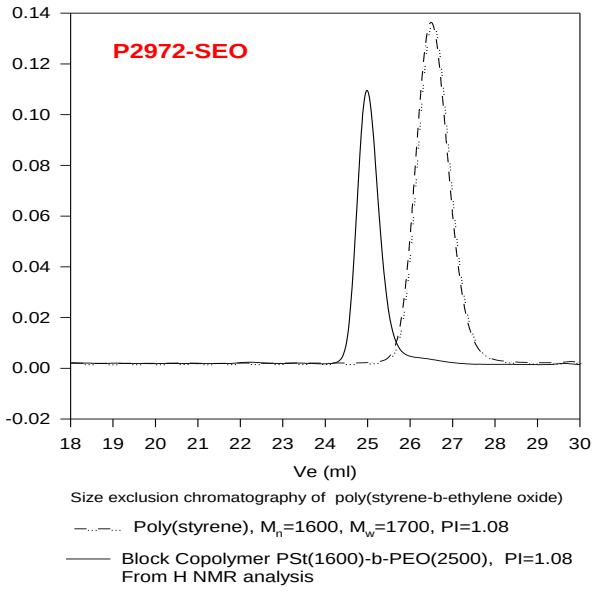
HNMR of tBuA end terminated polymer:



^{1}H NMR spectrum of the sample:



SEC profile of the block copolymer:



Thermal analysis of the sample #2972

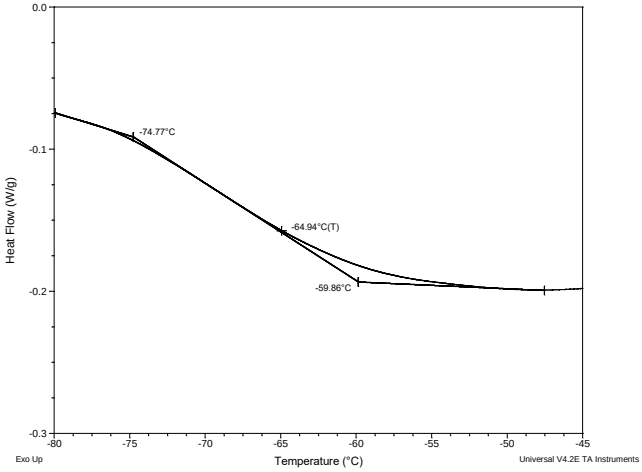
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 15ºC/min.The inflection glass transition temperature (T_g) has been considered..

Thermal analysis results at a glance

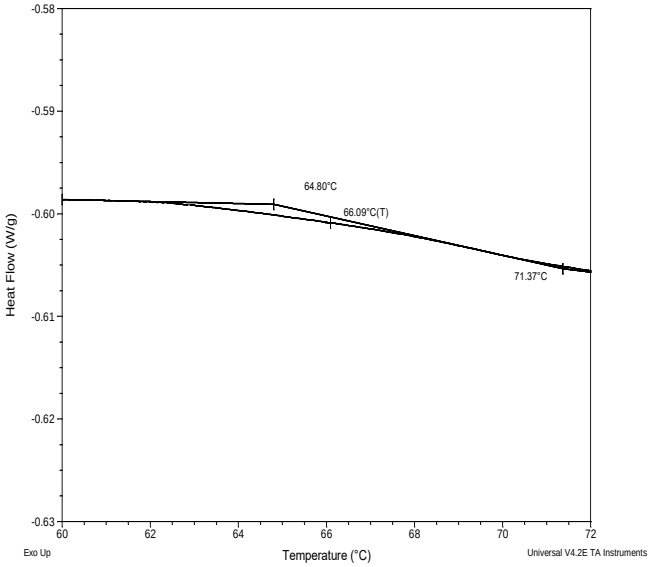
For PS block T_g: 66ºC		
For PEO block		
T_g: -65ºC	T_m: 46ºC	T_c: -28ºC

Thermogram for the sample:

For PEO block:



For PS block



Melting and crystallization curve for the PEO block

The peak melting temperature (T_m) was obtained on heating where as cooling of sample resulted the peak crystallization temperature (T_c).