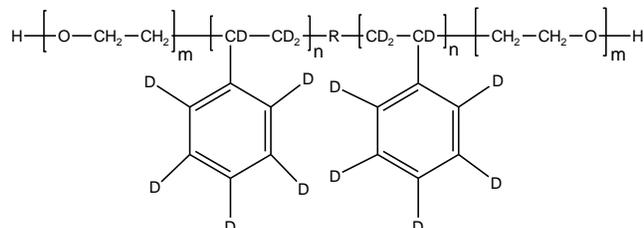


**Sample Name:**

**Poly(ethylene oxide-b-deuterated polystyrene -  
b-ethylene oxide)**

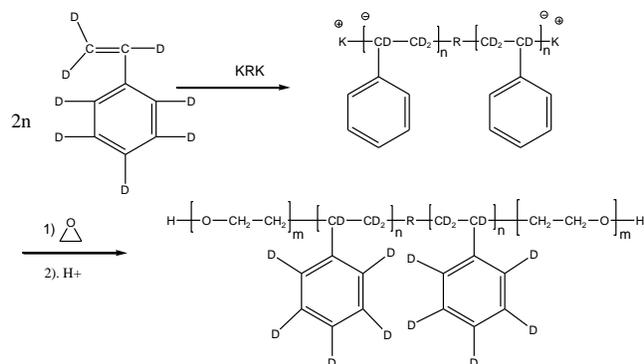
**Sample #: P9064-EOdPSEO**

**Structure:****Composition:**

$M_n \times 10^3$	PDI
3.2-b-17.1-b-3.2	1.15

**Synthesis Procedure:**

Poly(ethylene oxide-b-deuterated poly styrene (d8) -b-ethylene oxide) is prepared by living anionic polymerization with sequence addition of deuterated styrene (d8) followed by ethylene oxide. The scheme of the reaction is illustrated below:

**Characterization:**

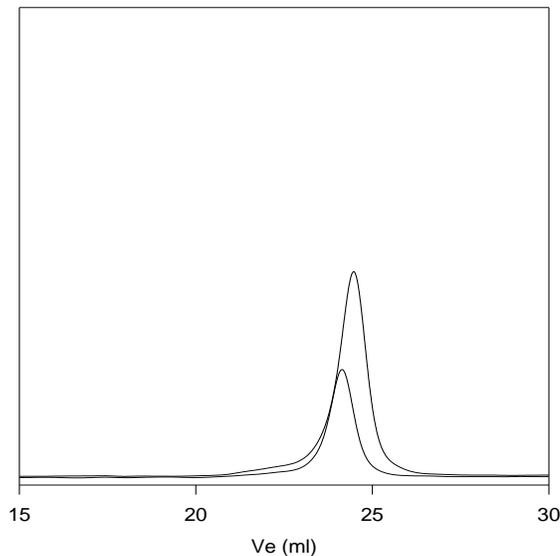
The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector.

**Solubility:**

The polymer is soluble in THF,  $\text{CHCl}_3$  and toluene.

**SEC of Sample:**

**P9064-EOdPSEO**



Size exclusion chromatography of poly(ethylene oxide-b-styrene-b-ethylene oxide)

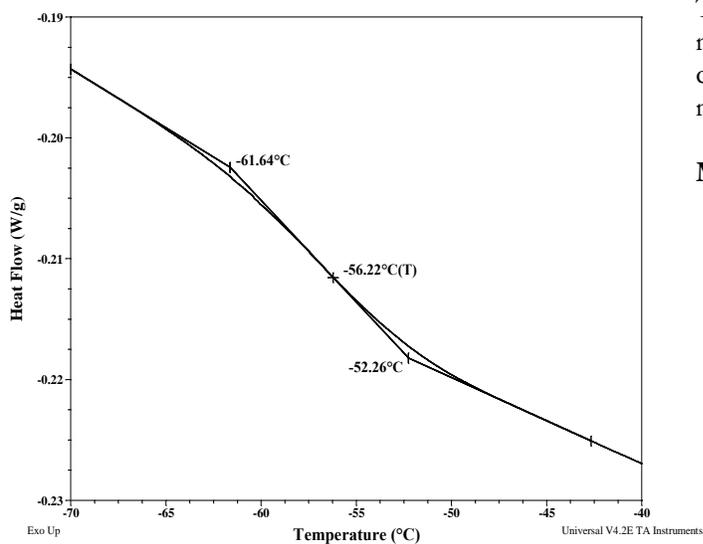
— Deuterated (d8) Poly(styrene),  $M_n=17100$ ,  $M_w=20500$ ,  $PI=1.2$

— Block Copolymer PEO(3100)-b-dPS(17100)-b-PEO(3100),  $PI=1.15$

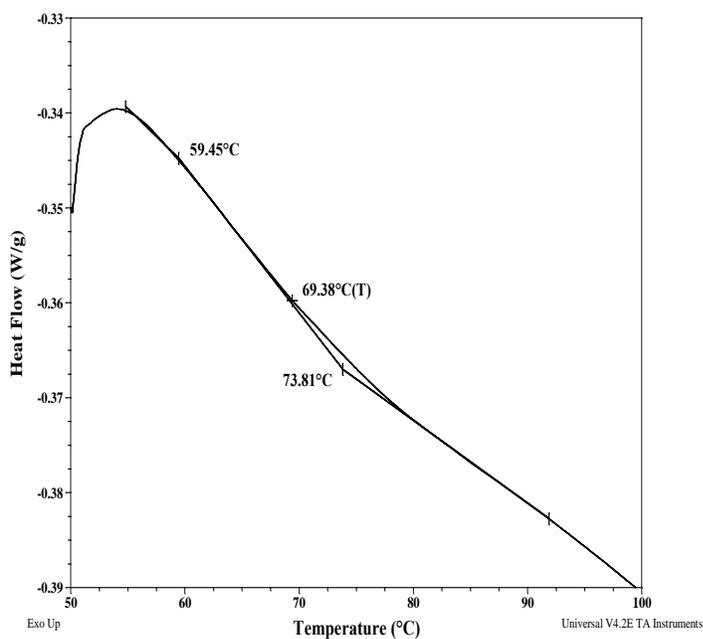
## Thermal analysis of the sample# P9064-EOdPSEO

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 PEO block:



### Thermogram for PS block:



## Thermal analysis results at a glance

For PS block		
$T_g$ : 69°C		
For PEO block		
$T_g$ : -56°C	$T_m$ : 29°C	$T_c$ : Not found

### Melting and crystallization curve for the sample

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 for PEO block

