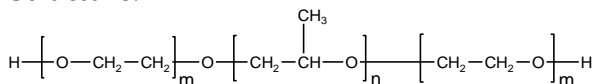


**Sample Name:**

**Poly(ethylene oxide-b-propylene oxide -b-ethylene oxide)**

**Sample #: P9836-EOPOEO**

**Structure:**



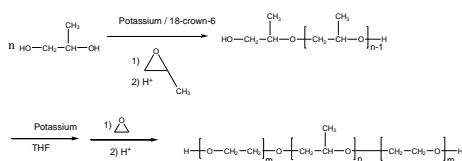
### Composition:

|                      |      |
|----------------------|------|
| Mn x 10 <sup>3</sup> | PDI  |
| 2.8-b-1.5-b-2.8      | 1.08 |
| Dp: 64-b-25-b-64     |      |

### Synthesis Procedure:

Poly(ethylene oxide-*b*-propylene oxide-*b*-ethylene oxide) is prepared by living anionic polymerization with sequence addition of propylene oxide followed by ethylene oxide.

The scheme of the reaction is illustrated below:



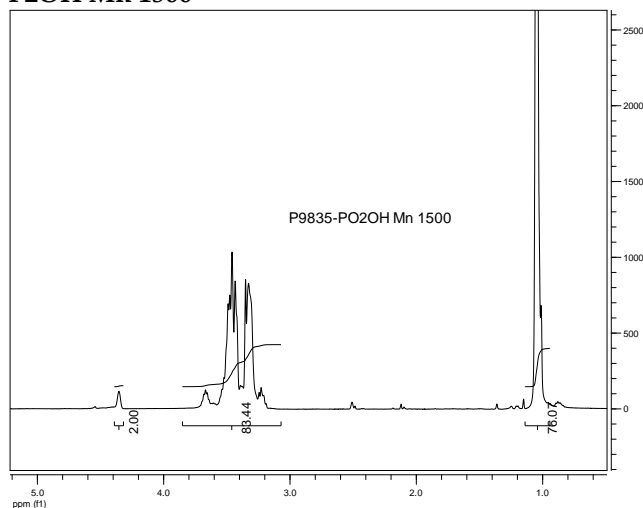
### Characterization:

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.

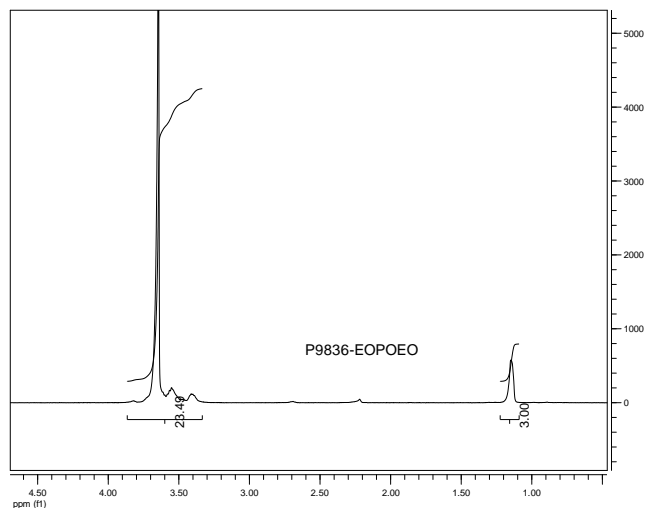
**Solubility:**

Polymer is soluble in THF, CHCl<sub>3</sub>, and toluene.

**P2OH Mn 1500**

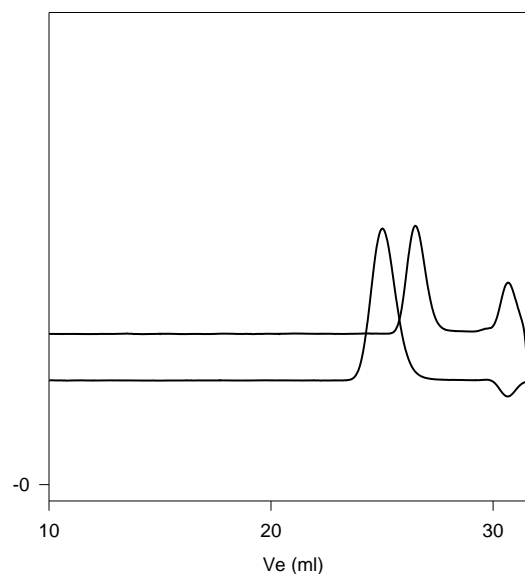


### HNMR of the Polymer:



**SEC of Sample:**

**P9836-EOPOEO**



Size exclusion chromatography of:  
(ethylene oxide-propylene oxide-ethylene oxide) triblock copolymer:

— Poly(propylene oxide) center block:  $M_n=1500$ ,  $M_w=1630$ ,  $M_w/M_n=1.09$

— Block Copolymer EO(2800)-b-PO(1500)-b-EO(2800),  $M_w/M_n=1.08$

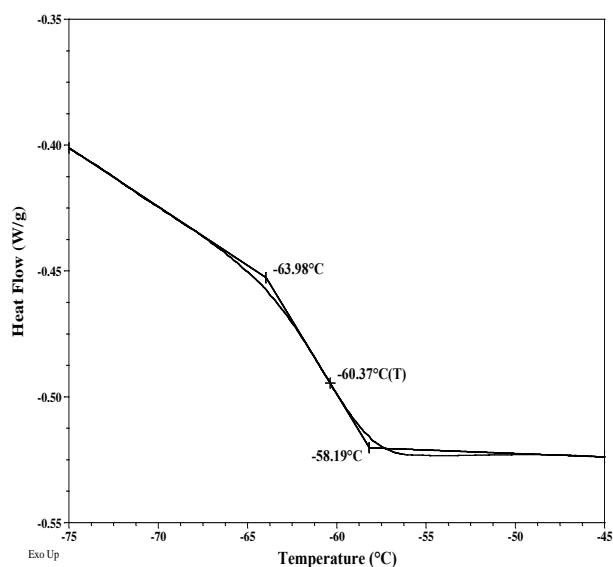
## Thermal analysis of the sample# P9836-EOPOEO

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 (EO-PO-EO)

| Sample   | $T_m$ (°C) | $T_c$ (°C) | $T_g$ (°C) |
|----------|------------|------------|------------|
| EO block | 49         | 18         | -60        |
| PO block |            | -          | -          |

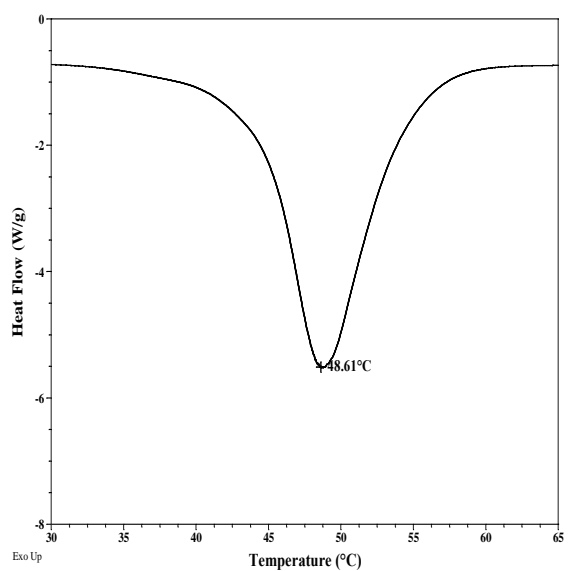
### Typical thermogram for the PO-EO block



## 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:



### Crystallization curve for PEO block:

