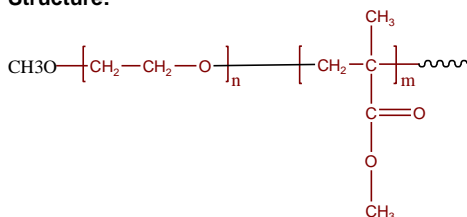


Sample Name:

## Poly(ethylene oxide-b-methylmethacrylate)

Sample #: P7357-EOMMA

Structure:

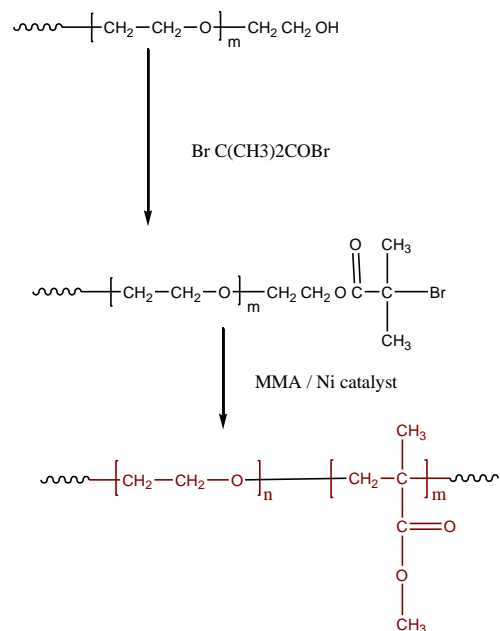


Composition:

Mn x 10 <sup>3</sup> PEO-b-MMA	PDI
5.0-b-23.4	1.3

Synthesis Procedure:

Poly(Ethylene oxide-methylmethacrylate) is prepared as the scheme below:



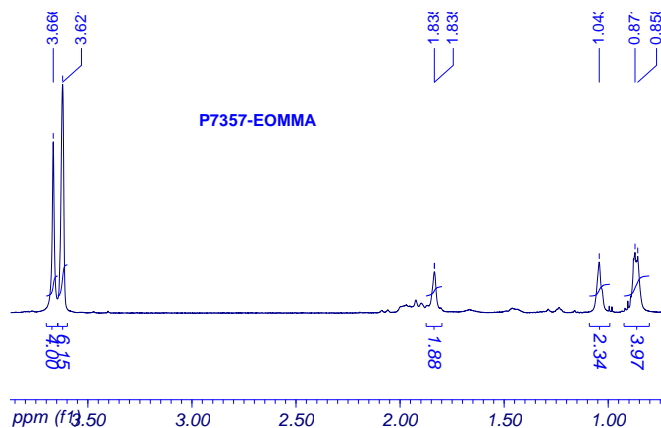
Characterization:

Polymer composition was determined by H NMR taking the integration of PEG block at 3.66 ppm and methyl ester of PMMA block at 3.62 ppm. Molecular weights of the first block and the Mw/Mn of the final and the first block was determined by SEC in THF.

Solubility:

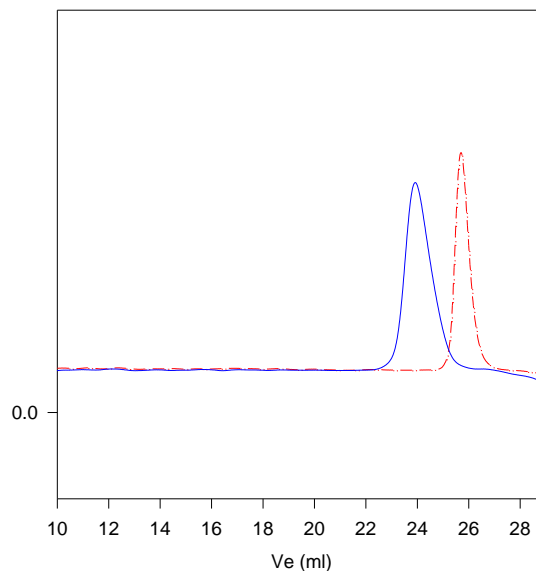
Poly(ethylene oxide -b- MMA) is soluble in  $\text{CHCl}_3$ , THF, toluene. The polymer precipitated out from hexane.

## <sup>1</sup>H-NMR Spectrum of the block copolymer:



## SEC of the block copolymer:

P7357-EOMMA



Size exclusion chromatography of poly(ethylene oxide-b-methyl methacrylate)

--- PEO,  $M_n=5000$ ,  $M_w=5200$ ,  $M_w/M_n=1.05$

— Poly(ethylene oxide-b-methyl methacrylate)

Mn: PEO(5000)-b-MMA(23400)  $M_w/M_n=1.3$

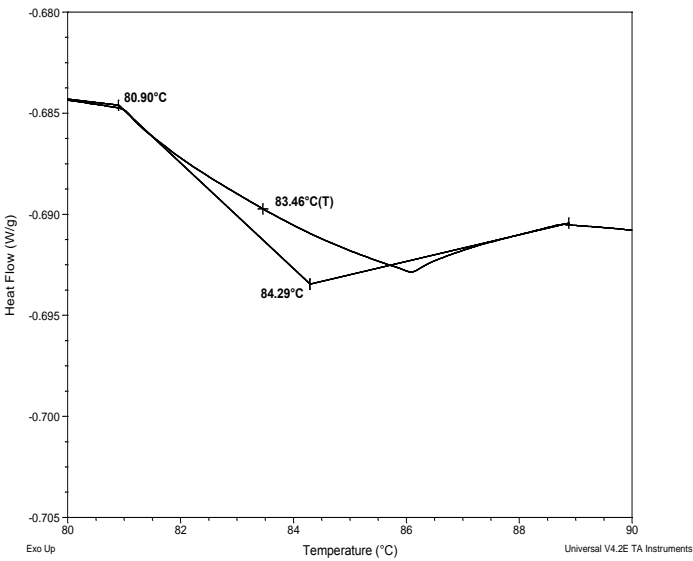
Thermal analysis of the sample# P7357-EOMMA

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

For PMMA block		
$T_g$ : 83°C	$T_m$ : -	$T_c$ : -
For PEO block		
$T_g$ : -51 °C	$T_m$ : 57°C	$T_c$ : Not observed

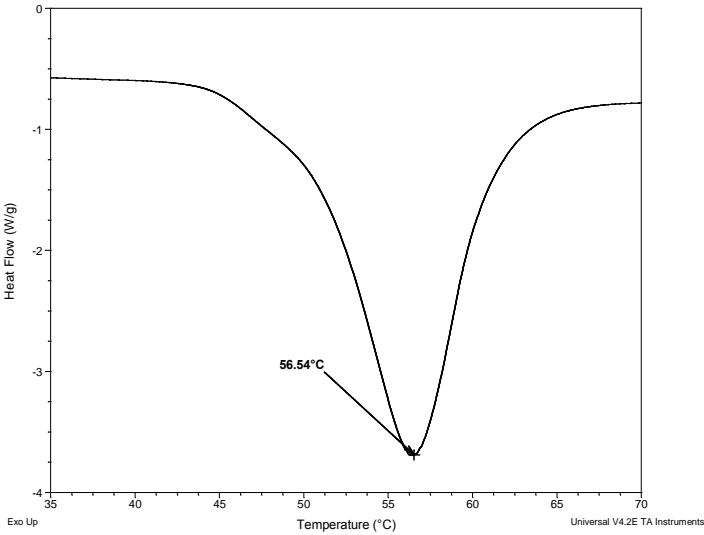
Thermogram for the MMA block



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



Thermogram for the PEO block

