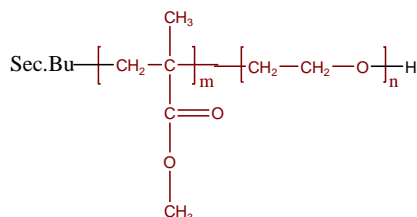


Sample Name:

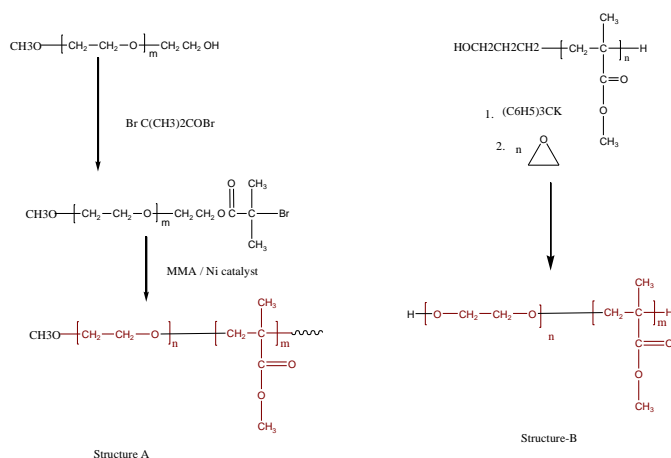
Poly(Ethylene oxide-b- methyl methacrylate)

Sample #: P18710B-EOMMA**Structure:** This has structure A**Composition:**

Mn x 10 ³ PEO-b-MMA	PDI
2.0-b-5.0	1.17

Synthesis Procedure:

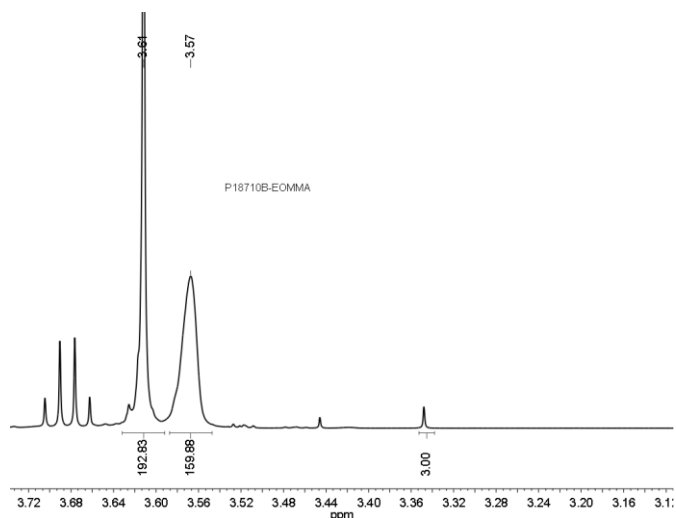
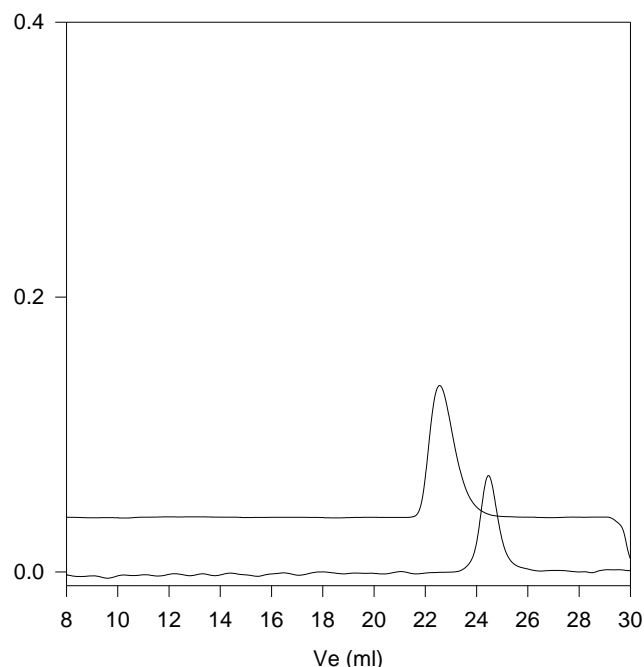
Poly(methyl methacrylate -b- ethylene oxide) is prepared by different routes. The scheme of the reactions are illustrated below:

**Purification of the polymer:**

The non-reacting PEG from the synthesized polymer can be removed by stirring the polymer in hot water. The obtained polymer dissolved in CHCl₃/toluene and pass through the column packed with silica bed. The di-block copolymer obtained through second route where the macro-initiator bearing Br terminal group was used to initiate polymerization of the MMA. The obtained polymer solution in toluene/CHCl₃ was passed through a column packed with silica to remove the traces amount of Nickel catalyst. The polymer was further purified by stirring in hot water to remove un-reacted PEG macro-initiator and finally recovered by precipitation in cold ether/hexane mixture.

Characterization:**Solubility:**

Poly(ethylene oxide -b- MMA) is soluble in CHCl₃, THF, toluene. The polymer precipitated out from hexane.

¹H-NMR Spectrum of the block copolymer:**SEC of the block copolymer:****P18710B-EOMMA**

Size exclusion chromatography of poly(EO-b-MMA)

— PEO, M_n=2000, M_w=2160, M_w/M_n=1.08

— Poly(ethylene oxide-b-methyl methacrylate)

Mn: PEO(2000)-b-MMA(5000) M_w/M_n=1.17

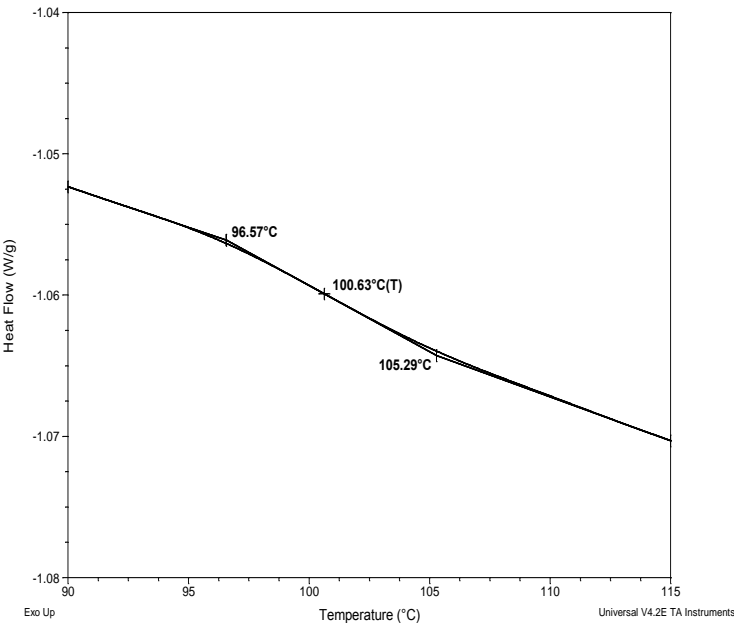
Thermal analysis of the sample# P18710b
-EOMMA

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 : 101°C	T_m : -	T_c : -
For PEO block		
T_g : -67 °C	T_m : 48°C	T_c : Not observed

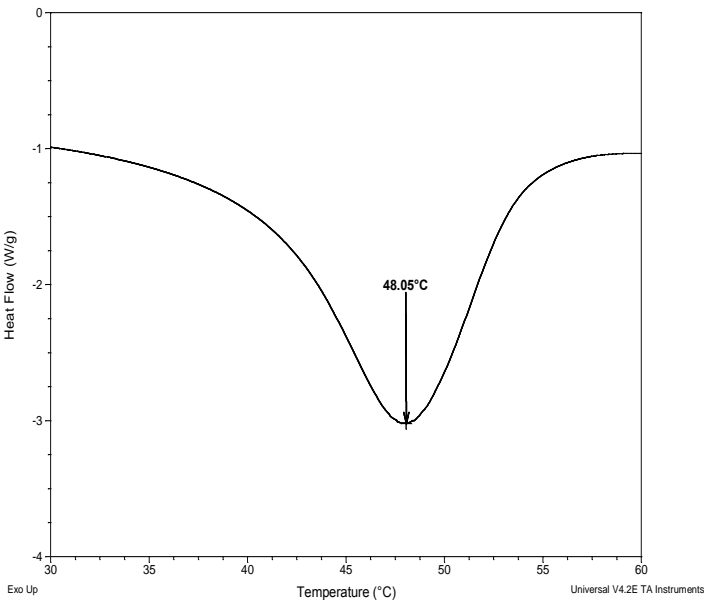
Thermogram for the MMA block



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

