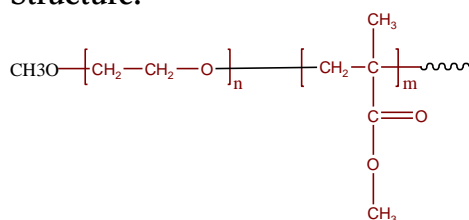


Sample Name:

Poly(ethylene oxide-b-methylmethacrylate)

Sample #: **P7355-EOMMA**

Structure:

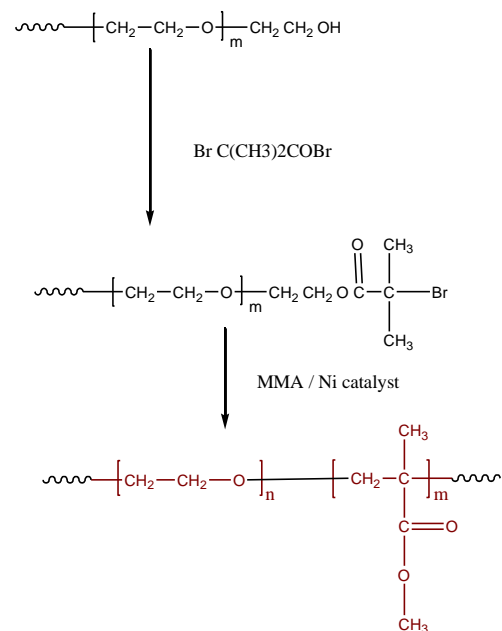


Composition:

$\text{Mn} \times 10^3$ PEO-b-MMA	PDI
5.0-b-22.0	1.12

Synthesis Procedure:

Poly(methyl methacrylate -b- ethylene oxide) is prepared as the scheme below:



Characterization:

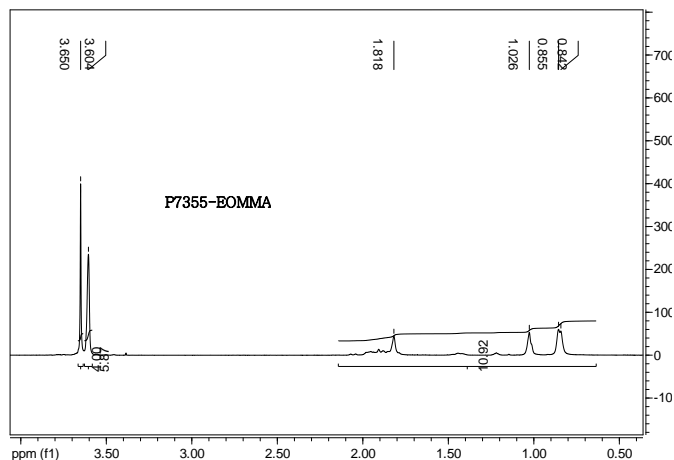
Polymer composition was determined by ^1H NMR taking the integration of PEG block at 3.6 ppm and methyl ester of PMMA block at 3.5 ppm.

Molecular weights of the first block and the M_w/M_n of the final and the first block was determined by SEC in THF.

Solubility:

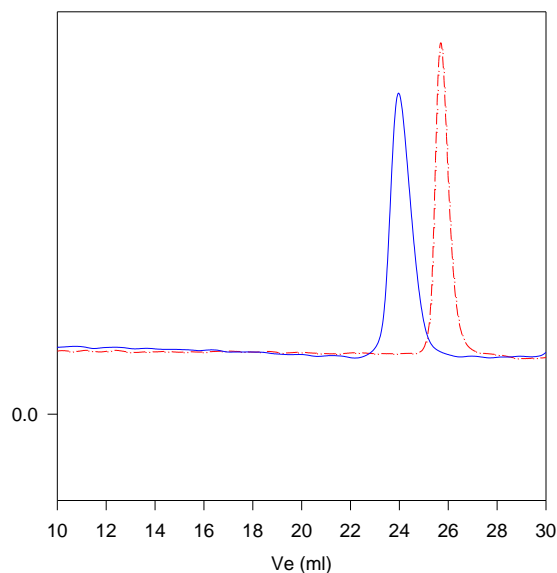
Poly(ethylene oxide -b- MMA) is soluble in CHCl_3 , THF, toluene. The polymer precipitated out from hexane.

^1H -NMR Spectrum of the block copolymer:



SEC of the block copolymer:

P7355-EOMMA



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

--- PEO, $\text{M}_n=5000$, $\text{M}_w=5200$, $\text{M}_w/\text{M}_n=1.05$

— Poly(ethylene oxide-b-methyl methacrylate)

Mn: PEO(5000)-b-MMA(22000) $\text{M}_w/\text{M}_n=1.12$

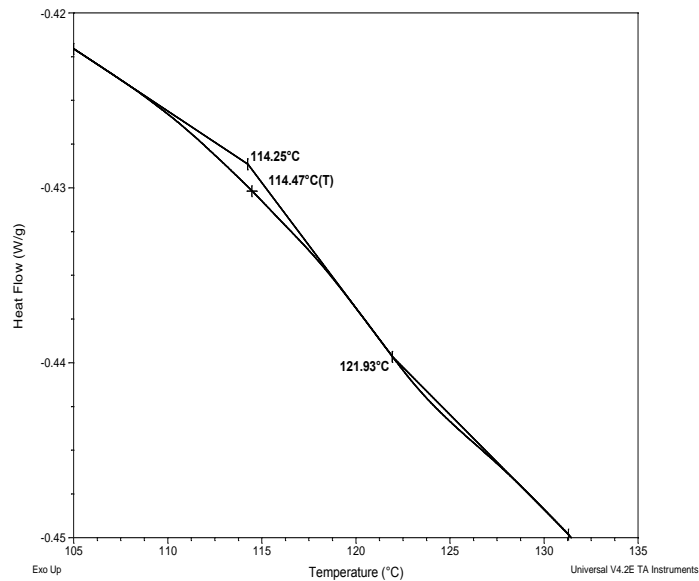
Thermal analysis of the sample# P7355-EOMMA

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 : 114°C	T_m : -	T_c : -
For PEO block		
T_g : -66 °C	T_m : 49°C	T_c : Not observed

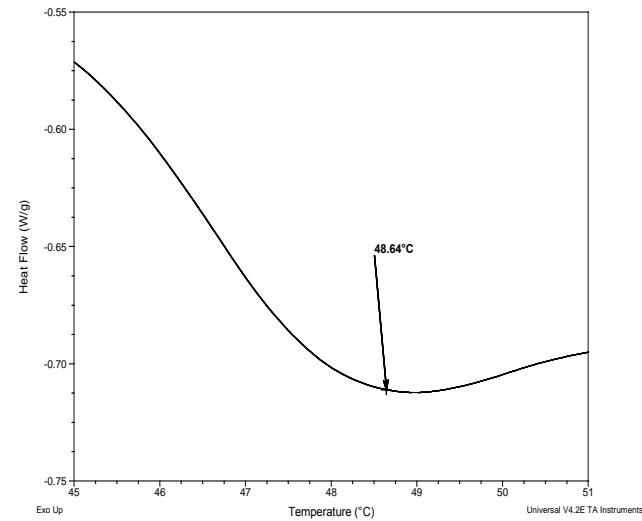
Thermogram for the MMA block



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

