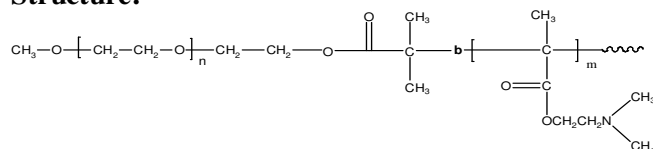


Sample Name: Poly (ethylene oxide-b-2-(dimethylamino) ethyl methacrylate)

Sample #: P19597C- EODMAEMA

Structure:



Composition:

Mn x 10 ³ PEO-b-PDMAEMA	PDI
2.0-b-3.0	1.28

Synthesis Procedure:

Poly [ethylene oxide-b-2-(dimethylamino) ethyl methacrylate] is prepared by living anionic polymerization of ethylene oxide followed by control radical process for 2-(dimethyl amino) ethyl methacrylate polymerization.

Characterization:

The polymer was characterized by SEC and ¹H NMR.

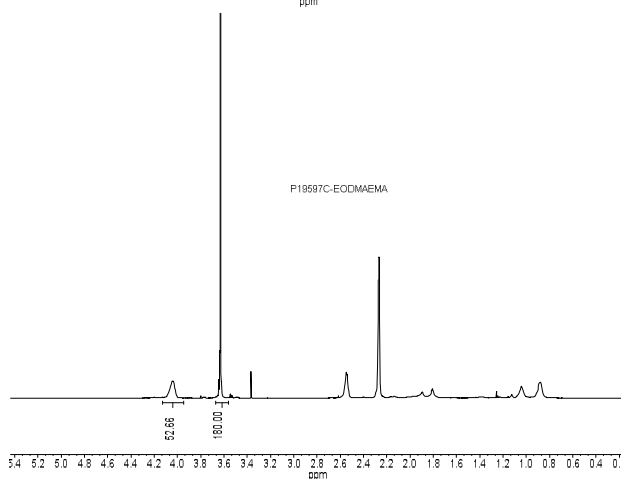
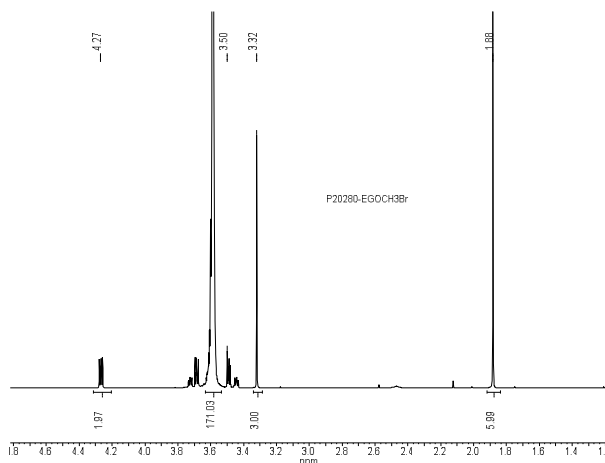
Purification of the polymer and removal of any unreacted homopolyethylene oxide from the diblock copolymer:

Polymer dissolved in water and the pH of the medium increased to about 13 by addition of NaOH. The polymer precipitated out by warming the solution at 80°C. The process was repeated twice to remove homo PEO completely. The obtained polymer dissolved in methanol and pH was adjusted to about 8 by adding HCL and filtered. The solvent was removed by rota-evaporator. The highly viscous solution was cold precipitated by hexane/ether mixture and finally dried under vacuum at 40°C.

Solubility:

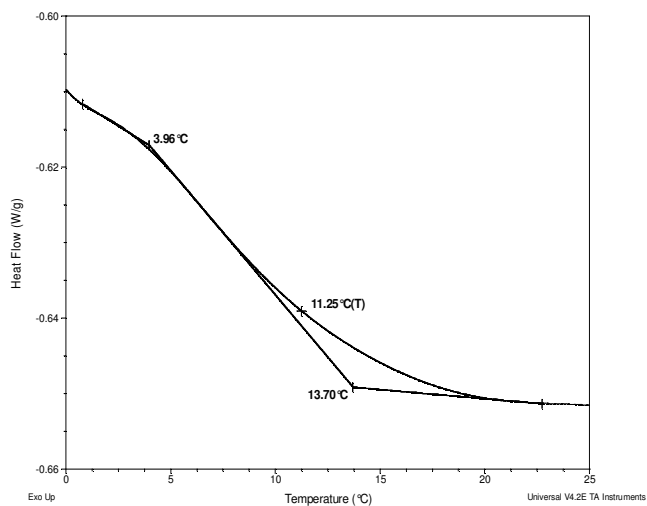
The polymer is soluble in water.

¹H-NMR spectrum of the macroinitiator :

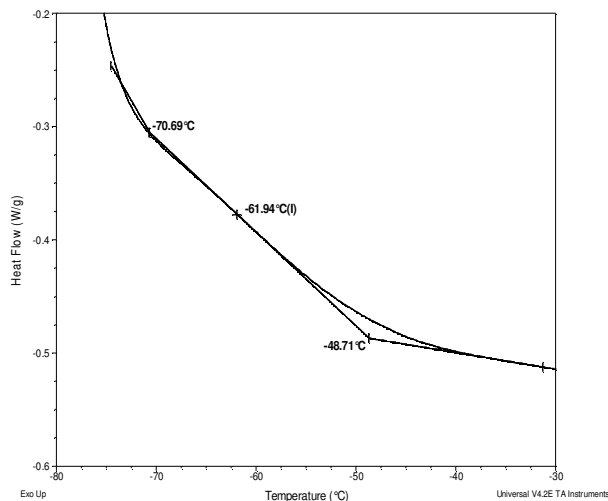


Thermograms for the sample

For DMAEMA block



For PEO block



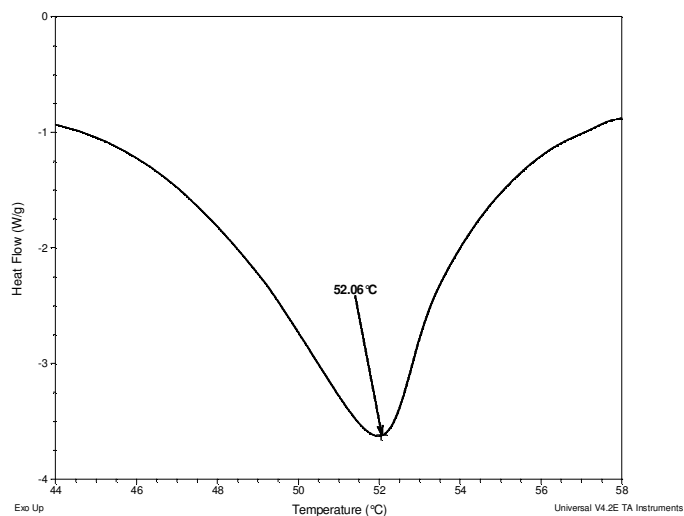
Thermal analysis results at a glance

For DMAEMA block		
T_g : 11°C	T_m : -	T_c : -
For PEO block		
T_g : -62°C	T_m : 52°C	T_c : 16°C

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. The T_c was calculated during **cooling ramp**.

Melting curve for PEO block



Crystallization curve for PEO block

