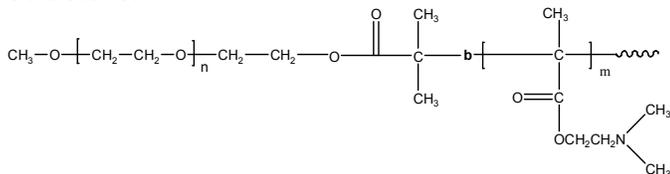


Sample Name:

**Poly(ethylene oxide -b- 2-(dimethylamino)ethyl methacrylate)**

Sample #: P14907- EODMAEMA

Structure:



Composition:

Mn x 10 <sup>3</sup>	PDI
PEO-b-PDMAEMA	
10.5-b-18.0	1.22

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:

By SEC and HNMR

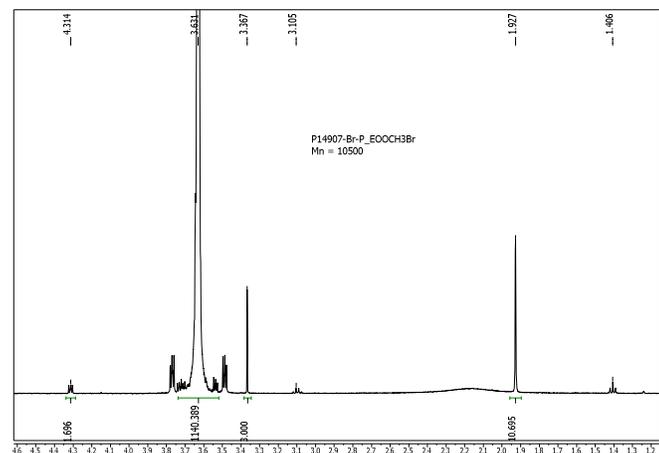
**Purification of the polymer and removal of any un-reacted homopolyethylene oxide from the diblock copolymer:**

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.

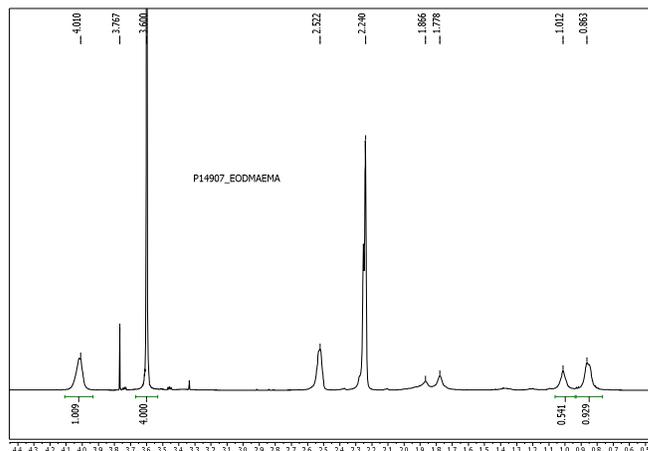
Solubility:

The polymer is soluble in water.

HNMR mPEG-Br

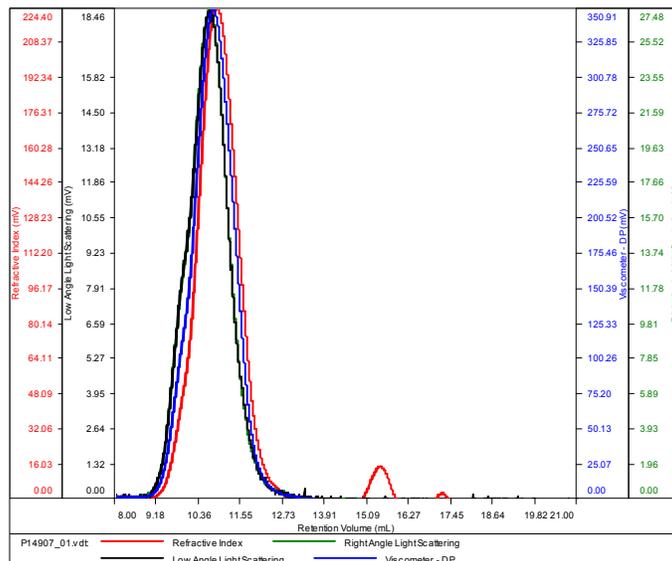


**1H-NMR Spectrum of the block copolymer:**



SAMPLE ID: P14907-EODMAEMA

Conc (mg/mL)	7.9823
dn/dc (mL/g)	0.1050
Method	ps80k-July292015-0000.vcm
Solvent	DMF w 0.03M LiBr
Column	PSS



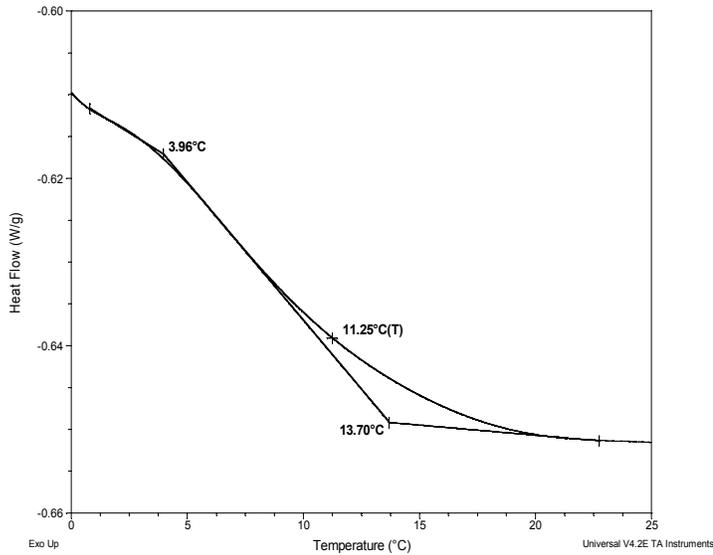
Sample	Mn	Mw	Mp	Mw/Mn	IV
P14907_01.vdt	28,423	34,794	30,441	1.224	0.4588

## Thermal analysis of # P14907-EODMAEMA

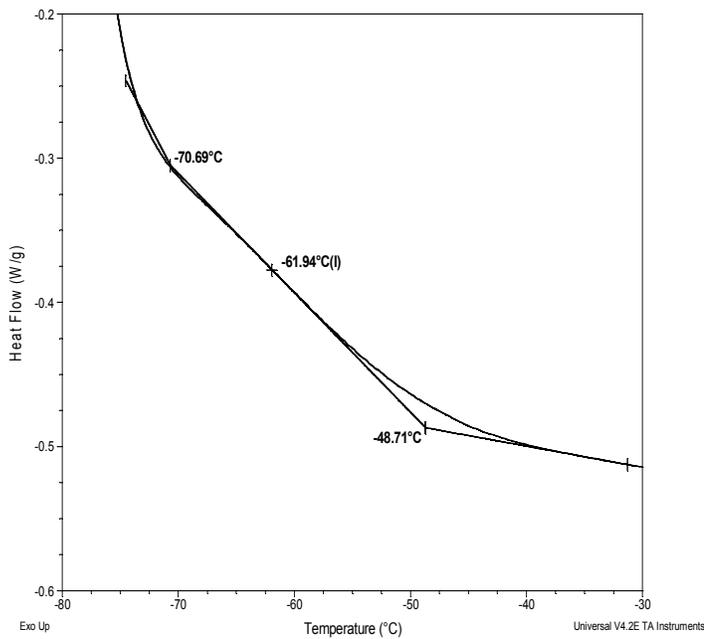
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 15°C/min. The midpoint of the slope change of the heat flow plot of the second **heating scan** was considered as the glass transition temperature ( $T_g$ ).

### Thermograms for the sample

#### For DMAEMA block



#### For PEO block



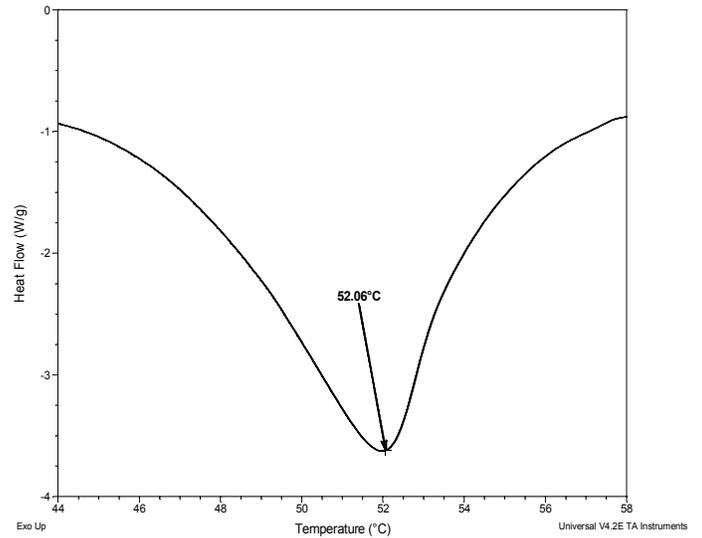
## Thermal analysis results at a glance

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

