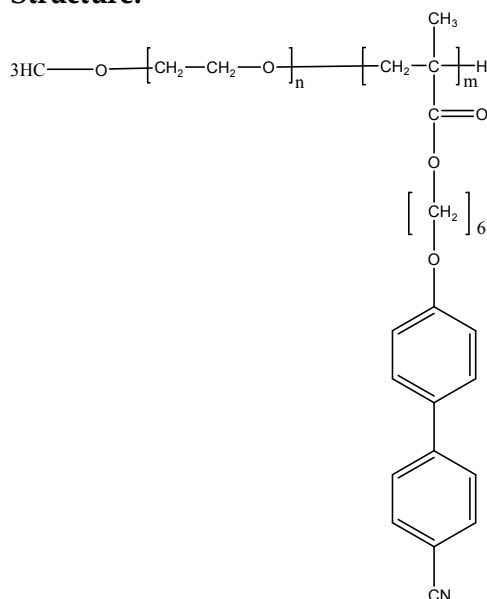


**Sample Name:**

Poly(ethylene oxide-b-6-(4'-cyanobiphenyl-4-yloxy)hexyl methacrylate

Sample #: *P9525C-EO4CNBPHMA*

**Structure:****Composition:**

Mn x 10 <sup>3</sup> PEO-b-4CNBPHMA	PDI
4.4-b-8.8	1.5

**Synthesis Procedure:**

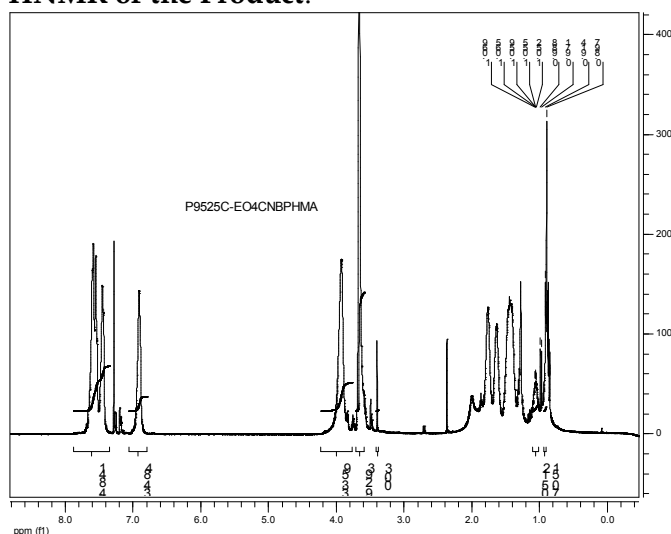
Polymer is synthesized by ionic polymerization process.

**Purification of the polymer:**

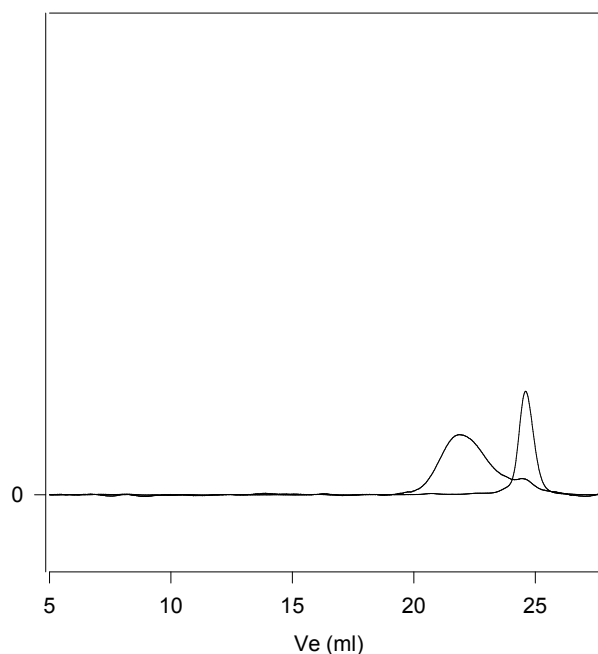
The un-reacted PEG can be removed by stirring the polymer in hot water/Methanol. The obtained polymer dissolved in CHCl<sub>3</sub>/toluene and pass through the column packed with silica. The polymer was recovered by precipitation in cold ether/hexane mixture.

**Solubility:**

Polymer is soluble in CHCl<sub>3</sub>, THF and toluene. The polymer precipitated out from hexane.

**HNMR of the Product:****SEC of the block copolymer:**

**P9525C-EO4CNBPHMA**



Size exclusion chromatography of the product:

- Poly(ethylene oxide), M<sub>n</sub>=4400, M<sub>w</sub>=4800, PI=1.09
- Block Copolymer PEO(4400)-b-4-CNBPMA (8800), PI=1.5

### Thermal analysis of the P9525C- EO4CNBPHMA

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°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 ( $T_g$ ).

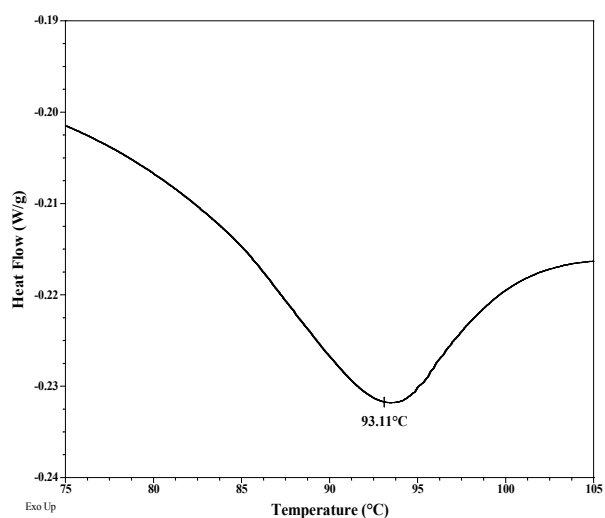
### Melting and crystallization curve for the sample

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.

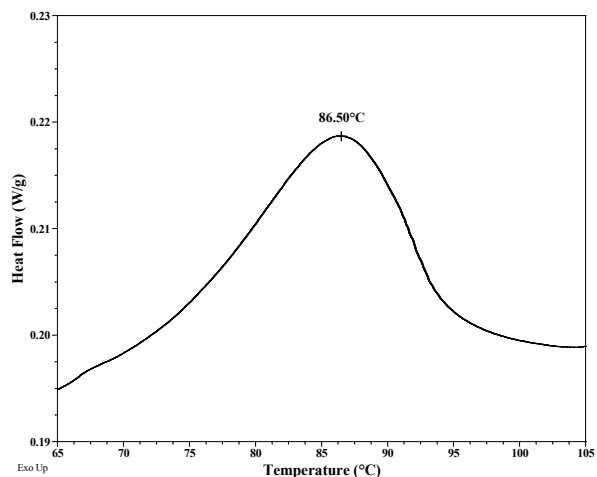
Typical thermal analysis results at a glance:

Sample	$T_m$ (°C)	$T_c$ (°C)	$T_g$ (°C)
EO	38	-14	-20
4CNBPHMA	93	87	-

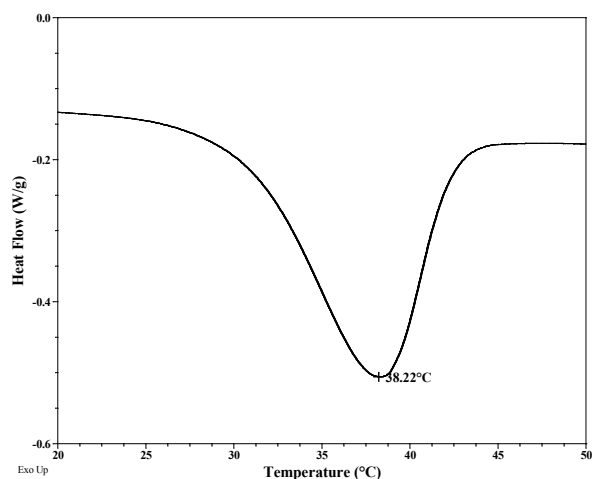
### Melting curve for EO4CNBPHMA



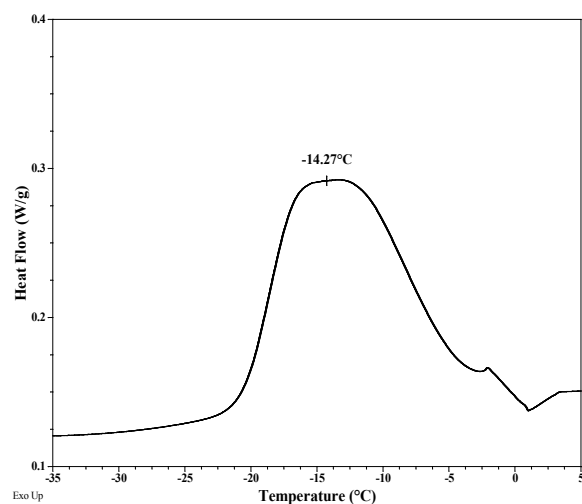
### Crystallization curve for EO4CNBPHMA



### Melting curve for PEO block:



### Crystallization curve for PEO block:



### Thermogram for PEO block:

