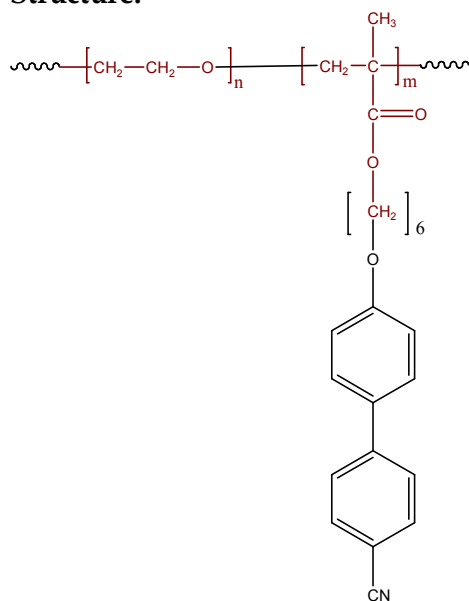


**Sample Name:**

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

Sample #: P9519-EO4CNBPHMA

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

Mn x 10 <sup>3</sup> PEO-b-4CNBPHMA	PDI
1.5-b-7.0	1.25
Microstructure of 4CNBPHMA block	Syndio;Hetero;iso contents 39:50:11

**Synthesis Procedure:**

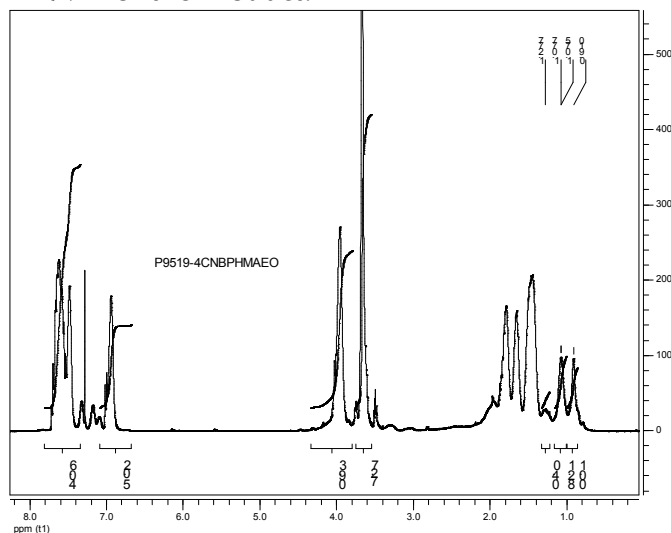
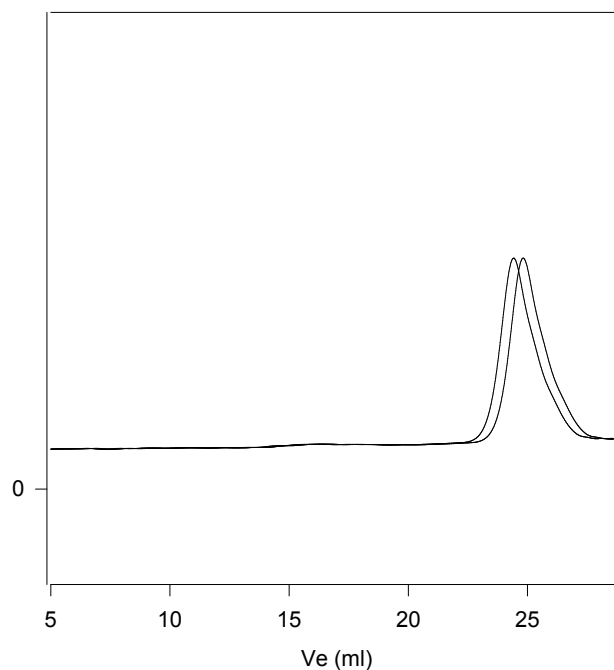
Polymer is synthesized by ionic polymerization process.

**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:****P9519-4CNBPHMAEO (EO4CnBPHMA)**

Size exclusion chromatography of the product:

— Poly(4CNBPHMA), M<sub>n</sub>=7000, M<sub>w</sub>=8800, PI=1.25

--- Block Copolymer 4CNBPHMA(7000)-b-EO(1500), PI=1.25

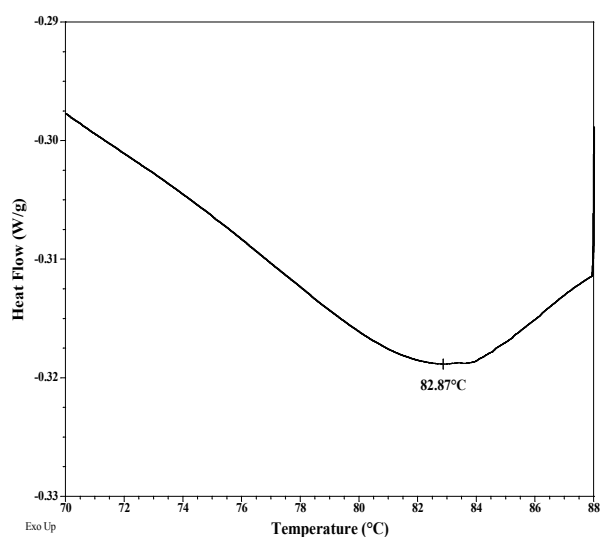
## Thermal analysis of the P9519-EO4CNBPHMA

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 ( $T_g$ ).

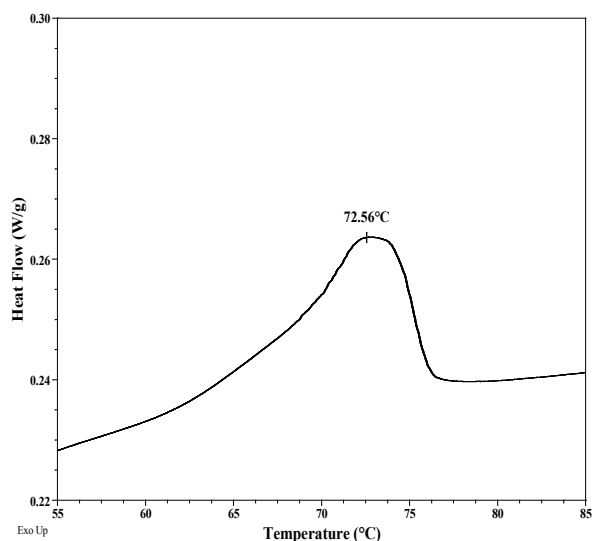
### Melting and crystallization curve for the sample

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.

### Melting curve for EO4CNBPHMA



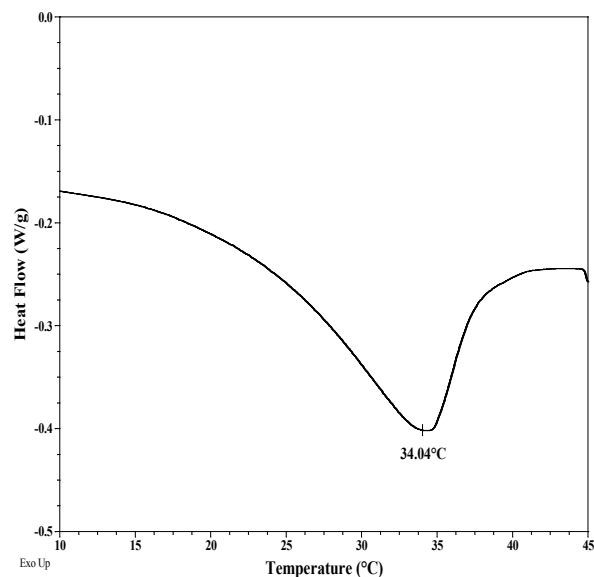
### Crystallization curve for EO4CNBPHMA



Typical thermal analysis results at a glance:

Sample	$T_m$ (°C)	$T_c$ (°C)	$T_g$ (°C)
EO	34	-	-49
4CNBPHMA	83	73	-

### Melting curve for PEO block:



### Thermogram for PEO block:

