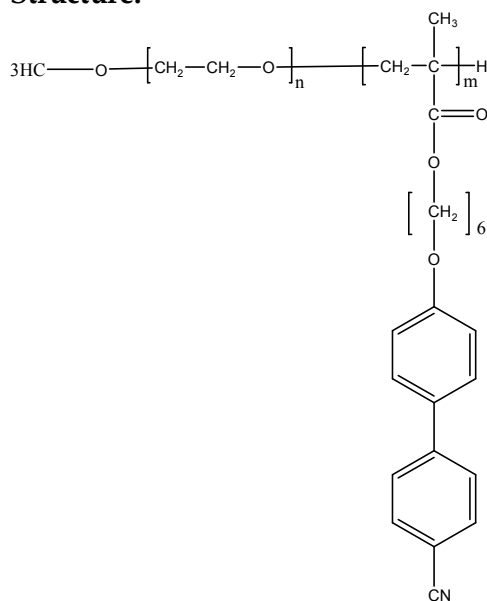


Sample Name:

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

Sample #: **P9511-EO4CNBPHMA**

Structure:**Composition:**

Mn x 10 ³ PEO-b-4CNBPHMA	PDI
4.0-b-13.0	1.8

Synthesis Procedure:

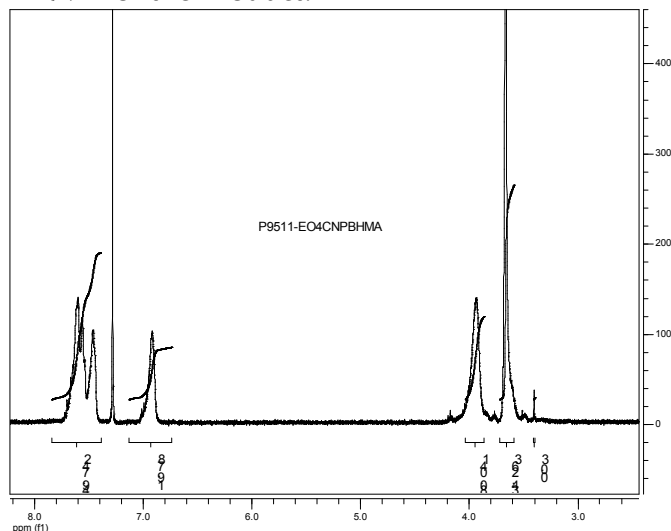
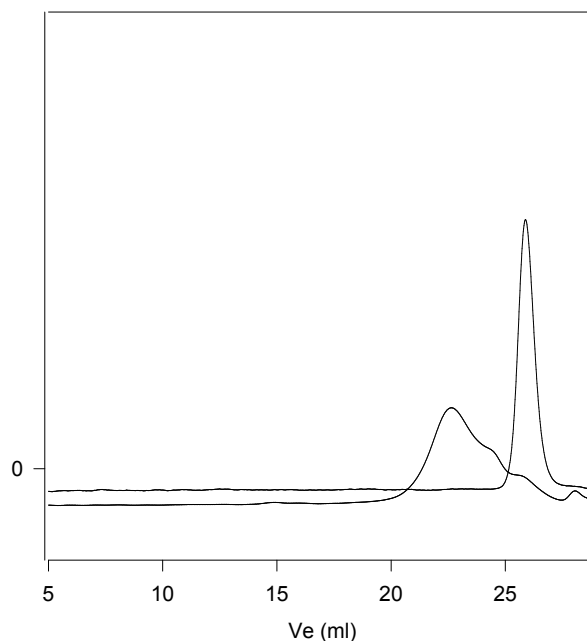
Polymer is synthesized by ionic polymerization process.

Purification of the polymer:

The un-reacted PEG can be removed by stirring the polymer in hot water/Methanol. The obtained polymer dissolved in CHCl₃/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 CHCl₃, THF and toluene. The polymer precipitated out from hexane.

HNMR of the Product:**SEC of the block copolymer:****P9511-EO4CNBPHMA**

Size exclusion chromatography of the product:

—— Poly(ethylene oxide), M_n=4000, M_w=4200, PI=1.05

—— Block Copolymer PEO(4000)-b-4-CNBPHMA (13000), PI=1.8

Thermal analysis of the P9511-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).

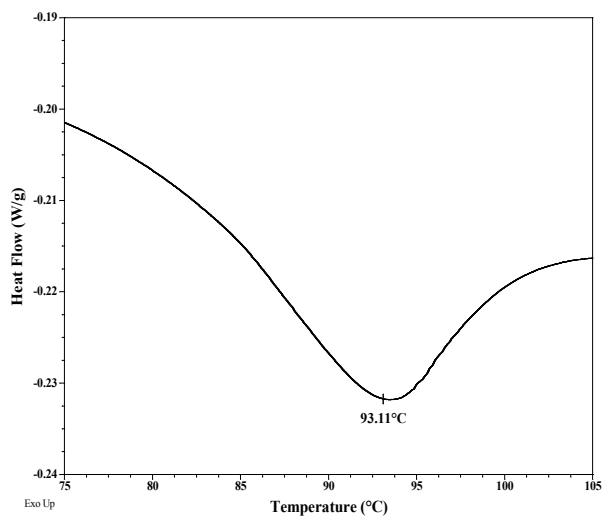
Melting and crystallization curve for the sample

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.

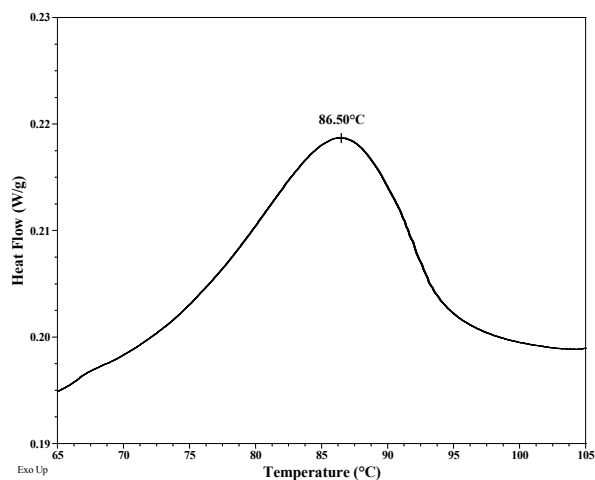
Typical thermal analysis results at a glance:

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

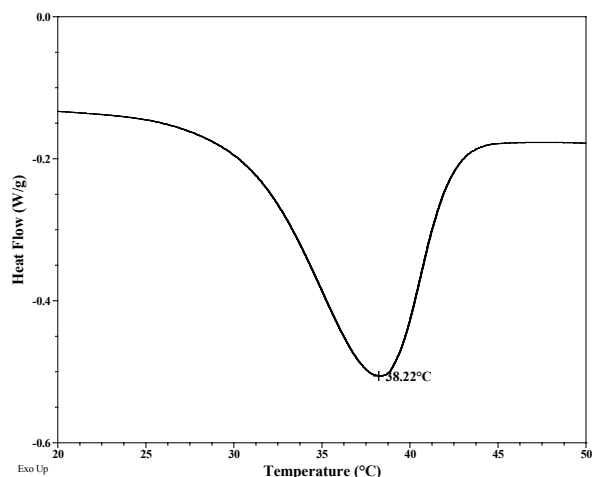
Melting curve for EO4CNBPHMA



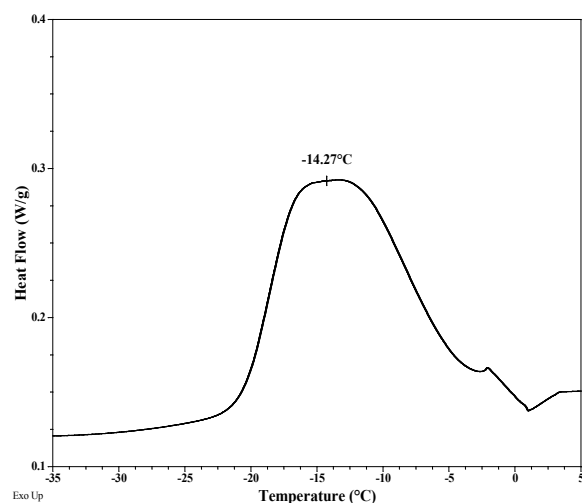
Crystallization curve for EO4CNBPHMA



Melting curve for PEO block:



Crystallization curve for PEO block:



Thermogram for PEO block:

