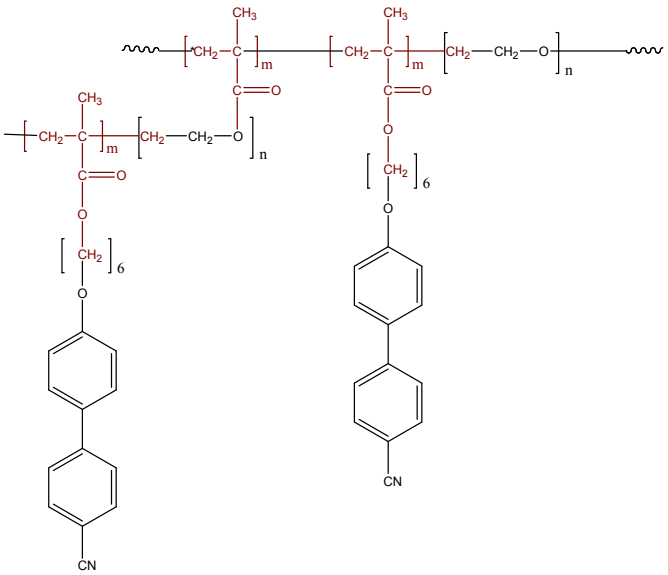
Sample Name:
Poly(6-(4′-cyanobiphenyl-4-yloxy)hexyl methacrylate-block -6-(4′-cyanobiphenyl-4-yloxy)hexyl methacrylate-PEO)

Sample #:
P9522B-4CNBPHMA-b-EO-G-***4CNBPHMAEO***

Structure:



Composition:

Mn x 10^3 4CNBPHMA-EO-G-4CNBPHMAEO	PDI
3.0-b-7.0-G-12.0	1.20
Microstructure of 4CNBPHMA block	Syndio;Hetero;iso contents 52:46:2

Synthesis Procedure:

Polymer is synthesized by ionic polymerization process.

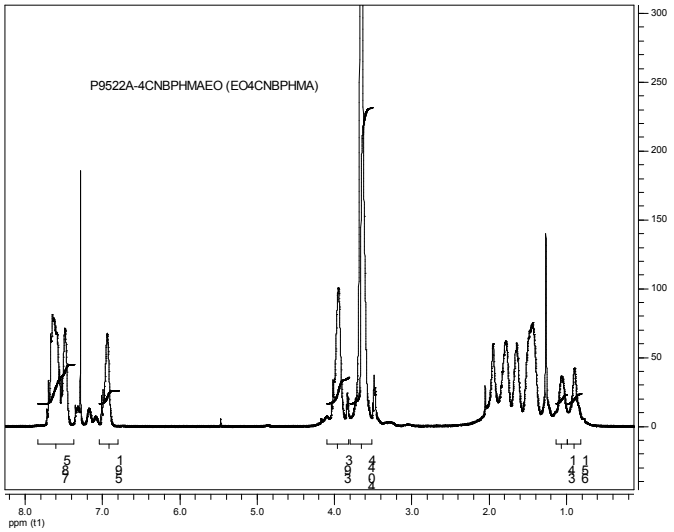
Purification of the polymer:

The un-reacted PEG can be removed by stirring the polymer in hot water/Methanol. The obtained polymer dissolved in $CHCl_3$/toluene and pass through the column packed with silica. The polymer was recovered by precipitation in cold ether/hexane mixture.

Solubility:

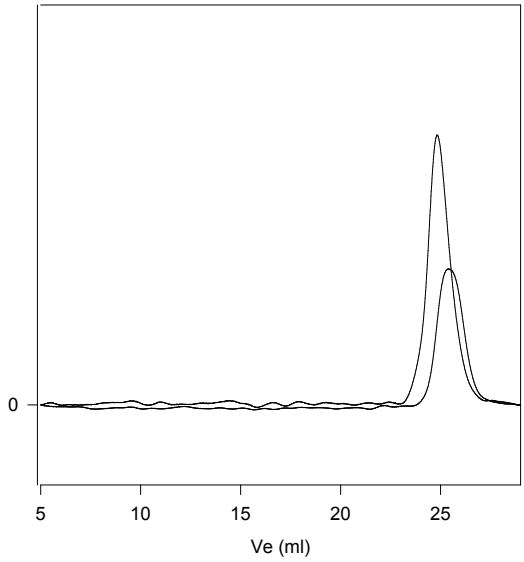
Polymer is soluble in $CHCl_3$, THF and toluene. The polymer precipitated out from hexane.

HNMR of the Product:



SEC of the block copolymer:

P9522B-4CNBPHMA-G-4CNBPHMAEO



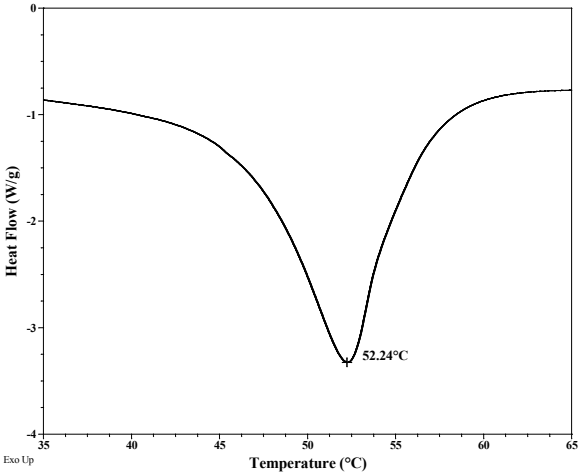
Size exclusion chromatography of the product:
—— Poly(4CNBPHMA), M_n=5000, M_w=6000, PI=1.20
—— Block Copolymer 4CNBPHMA(5000)-G-4CNBPHMAEO(17000), PI=1.20

Thermal analysis of the P9522A-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 PEO block:



Typical thermal analysis results at a glance:

Sample	T_m (°C)	T_c (°C)	T_g (°C)
EO	52	28	-
4CNBPHMA	-	-	-

Crystallization curve for PEO block: