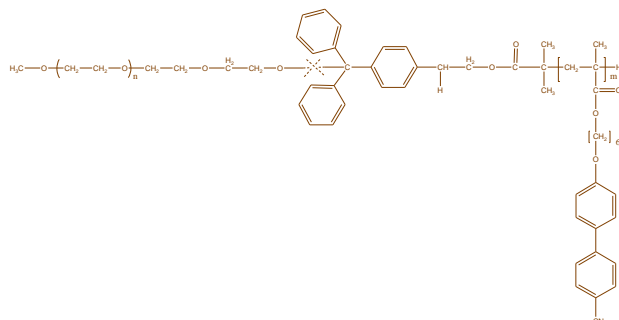


Sample Name: Acid Cleavable Poly(ethylene oxide-b-4-cyano biphenyl hexylmethacrylate)

Sample #: P9669C-EO4CNBPHMA cleavable

Structure:



Composition:

Mn x 10 ³	PDI
PEO-b-P4CNBPHMA	
5.0-b-25.0	1.25

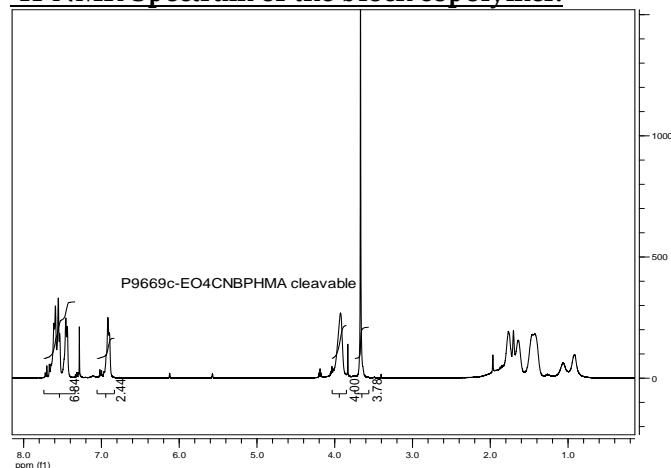
Characterization:

PEG-Br and final block copolymer were analyzed by size exclusion chromatography (SEC) to obtain the molecular weight of PEG and polydispersity index (PDI) for both PEG and block copolymer. The final block copolymer composition was calculated from ¹H-NMR spectroscopy by comparing the peak area of the ethylene oxide protons at about 3.6 ppm with the benzene ring protons at about 6-8 ppm.

Solubility:

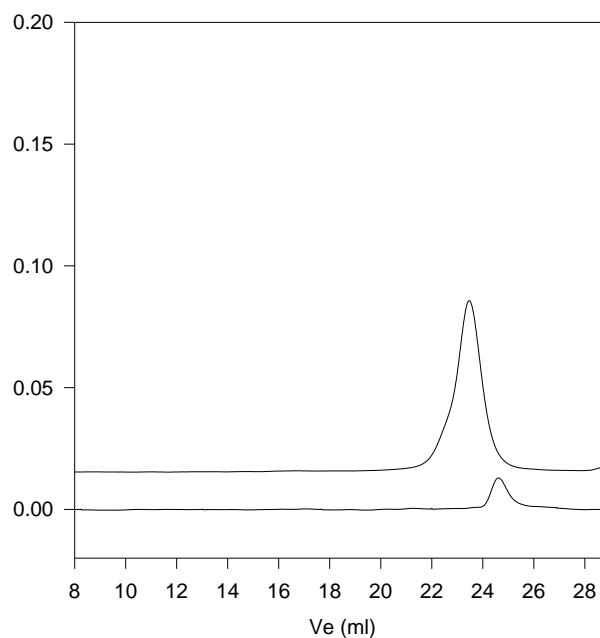
Poly(ethylene oxide-b-4CNBPHMA) is soluble in THF, acetone, and chloroform and it precipitates out in hexane or methanol.

¹H-NMR Spectrum of the block copolymer:



SEC of the block copolymer:

P9669C-EO4CNBPHMA Cleavable

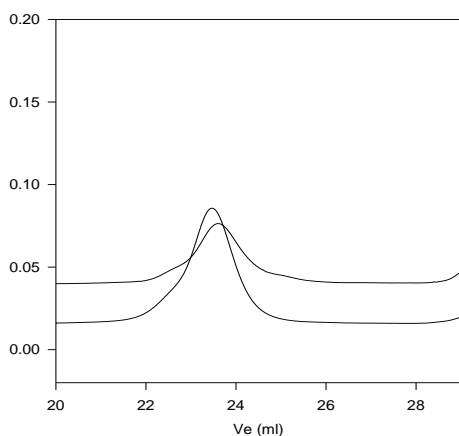


Size exclusion chromatography of poly(EO-b-4CNBPHMA)

- PEG block M_n=5000, M_w=5300, Mw/Mn=1.05
- Poly(ethylene glycol-b-4CNBPHMA)
Mn: PEO(5000)-b-4CNBPHMA(25000) Mw/Mn=1.25
Composition from ¹H NMR

SEC after acid Cleavage:

P9669C-EO4CNBPHMA Cleavable



Size exclusion chromatography of poly(EO-b-4CNBPHMA)

- Poly(ethylene glycol-b-4CNBPHMA)
Mn: PEO(5000)-b-4CNBPHMA(25000) Mw/Mn=1.25
Before and after Acid Cleavage

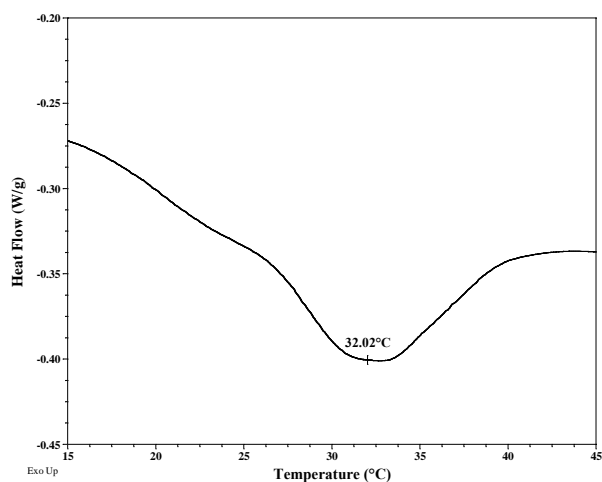
Thermal analysis of the P9669C- EO4CNBPHMA

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).

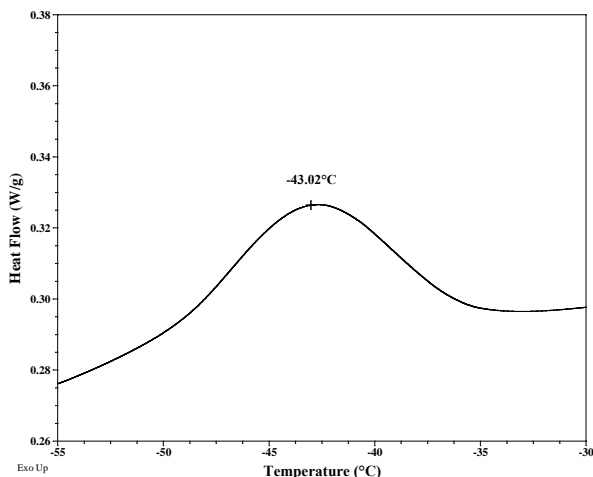
Melting and crystallization curve for the sample

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



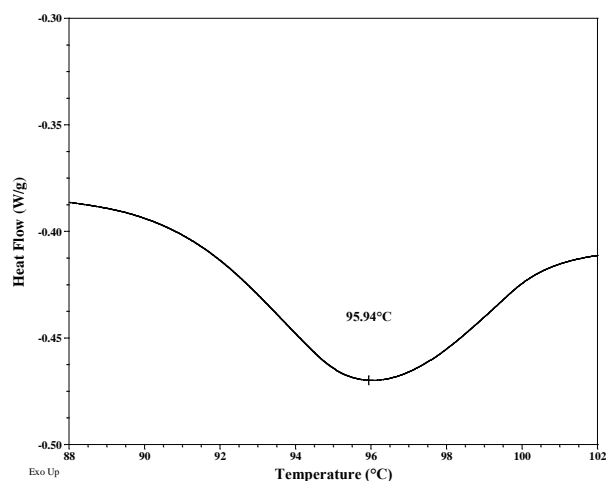
Crystallization curve for PEO



Thermal analysis results at a glance:

Sample	T_m (°C)	T_c (°C)	T_g (°C)
EO	32	-43	Not distinct
4CNBPHMA	96	94	-

Melting curve for 4CNBPHMA



Crystallization curve for 4CNBPHMA

