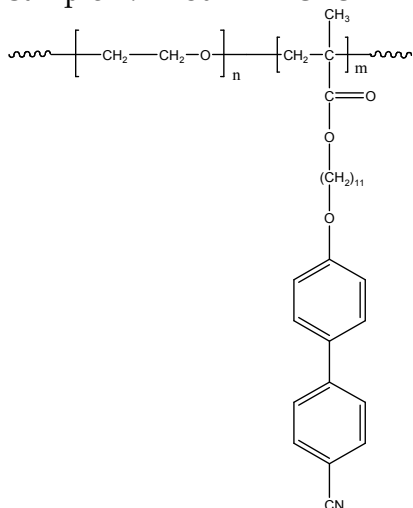


Sample Name:

Poly(ethylene oxide-b-11-(4'-cyanobiphenyl-4-yloxy) undecyl methacrylate

Sample #: **P15011A-EO4CNBP11CMA**



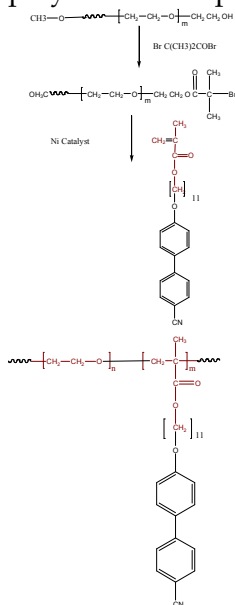
Structure:

Composition:

Mn x 10 ³ PEO-b-4CNBP11CMA	PDI
2.0-b-1.0	1.20
Microstructure of 4CNBP11CMA	Syndio:hetero:iso 53:32:15

Synthesis Procedure:

Polymer is synthesized by controlled radical polymerization process.

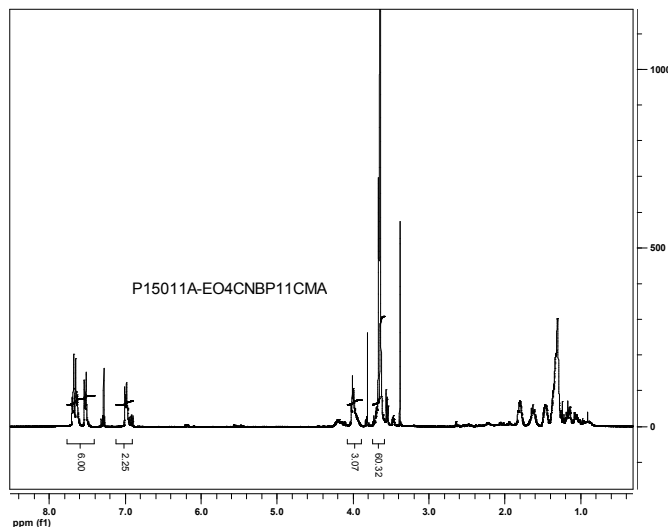
**Purification of the polymer:**

The un-reacted PEG can be removed by stirring the polymer in hot water/Methanol. The obtained

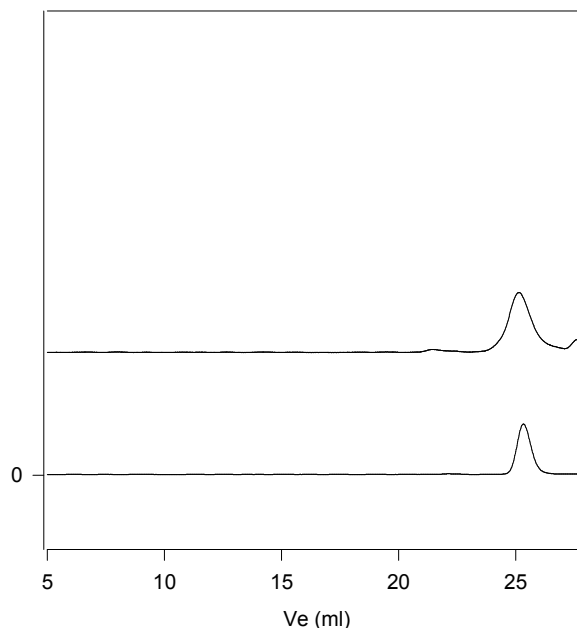
polymer dissolved in CHCl₃/toluene and pass through the column packed with silica. The polymer was recovered by precipitation in cold ether/hexane mixture.

Solubility:

Polymer is soluble in CHCl₃, THF and toluene. The polymer precipitated out from hexane.

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

P15011A-EO4CNBP11CMA



Size exclusion chromatography of the product:

— Poly(ethylene oxide), M_n=2000, M_w=2210, PI=1.09

— Block Copolymer PEO(2000)-b-4-CNBP11CMA (1000), PI=1.2

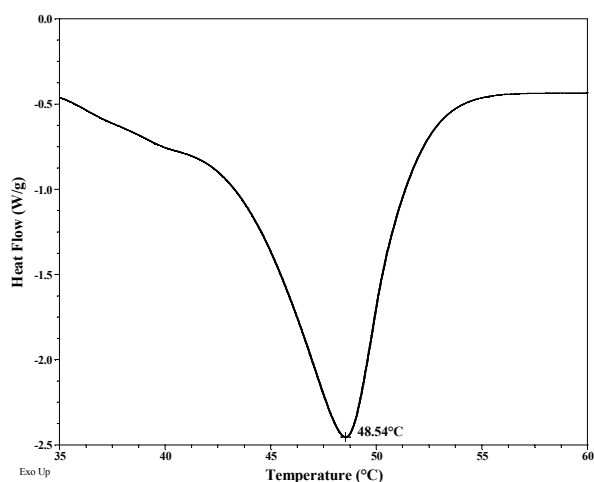
Thermal analysis of *P15011A-EO4CNBP11CMA*

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).

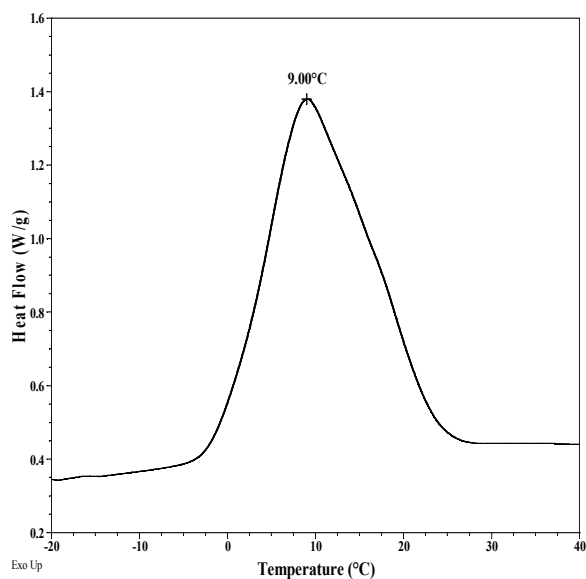
Melting and crystallization curve for the sample

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:



Crystallization curve for PEO block:



Thermal analysis results at a glance:

Sample	T_m (°C)	T_c (°C)	T_g (°C)
EO	49	09	-11
4CNBPHMA	Not distinct	Not distinct	-

Thermogram for PEO block:

