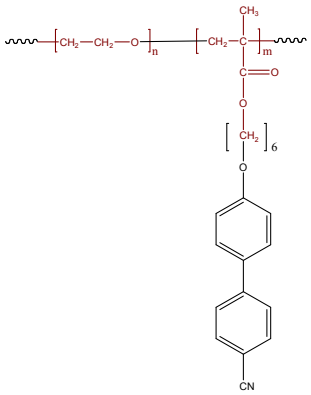
Sample Name:
Poly(ethylene oxide-b-6-(4'-cyanobiphenyl-4-yloxy)hexyl methacrylate

Sample #: P9311-EO4CNBPHMA
Structure:

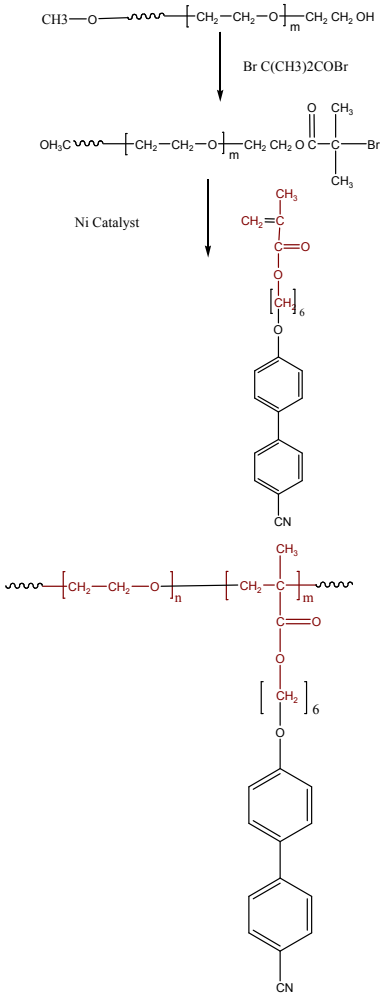


Composition:

Mn x 10^3 PEO-b-4CNBPHMA	PDI
2.0-b-9.0	1.19

Synthesis Procedure:

The scheme of the reactions are illustrated below:



Purification of the polymer:

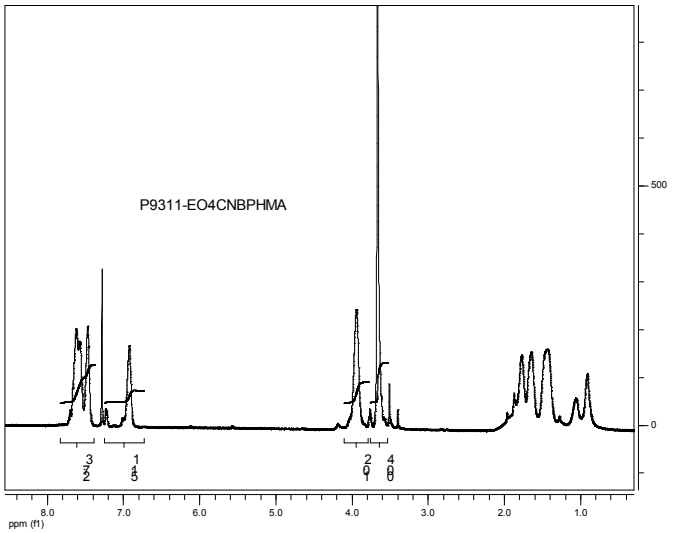
The un-reacted PEG can be removed by stirring the polymer in hot water. The obtained polymer dissolved in CHCl3/Toluene and pass through the column packed with silica. The Diblock copolymer obtained through the 2nd route where the macroinitiator of PEG bearing Br terminal group was used to initiate polymerization of 4-cyanobiphenyl-4-yloxy hexyl methacrylate. The obtained polymer solution in toluene/CHCl3 was passed through a column packed with silica to remove the traces amount of Nickel catalyst. The polymer was further purified by stirring in hot water to remove unreacted PEG macroinitiator. The polymer was recovered by precipitation in cold ether/hexane mixture.

Characterization:

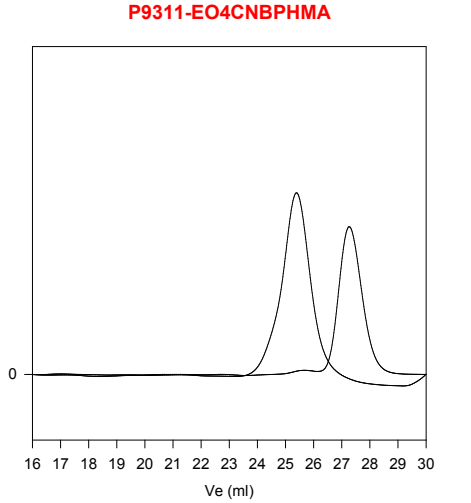
Solubility:

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

HNMR of the polymer:



SEC of the block copolymer:



Size exclusion chromatography of the product:
—— Poly(ethylene oxide), M_n=2000, M_w=2100, PI=1.05
—— Block Copolymer PEO(2000)-b-4-CNBPHMA (9000), PI=1.19