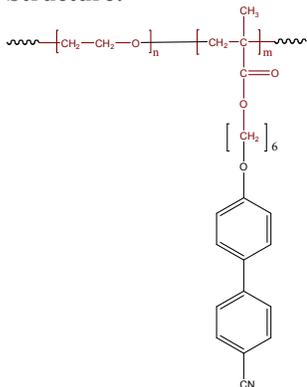


Sample Name:

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

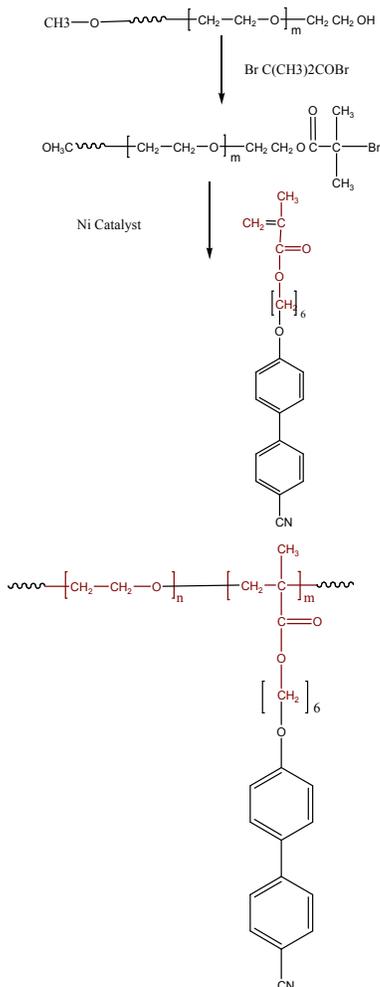
Sample #: P9377C-EO4CNBPHEMA

Structure:**Composition:**

Mn x 10 ³ PEO-b-4CNBPHEMA	PDI
3.5-b-13.5	1.18

Synthesis Procedure:

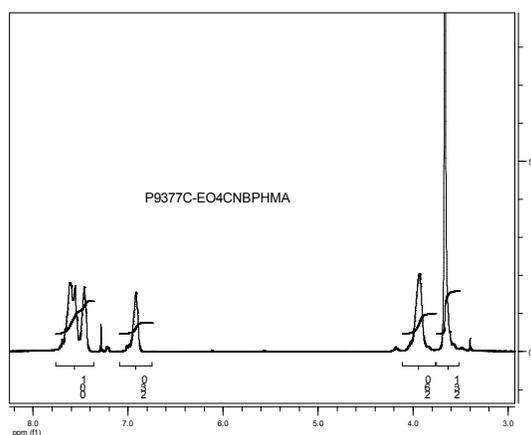
The scheme of the reactions is illustrated below:

**Purification of the polymer:**

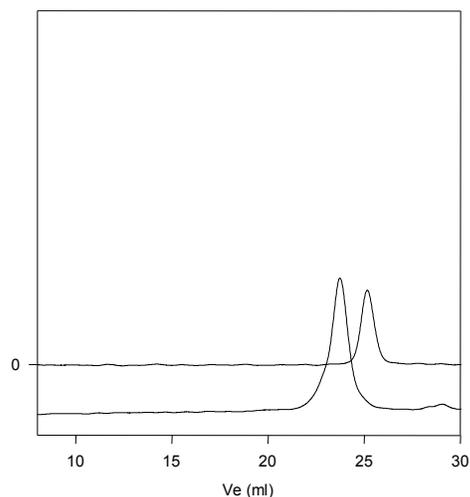
The un-reacted PEG can be removed by stirring the polymer in hot water. The obtained polymer dissolved in CHCl₃/Toluene and pass through the column packed with silica. The Diblock copolymer obtained through the 2nd route where the macroinitiator of PEG bearing Br terminal group was used to initiate polymerization 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 and toluene. The polymer precipitated out from hexane.

¹H NMR of the Product:**SEC of the block copolymer:**

P9377C-EO4CNBPHEMA



Size exclusion chromatography of the product:

- Poly(ethylene oxide), M_n=3500, M_w=3600, PI=1.05
- Block Copolymer PEO(3500)-b-4-CNBPHEMA (13500), PI=1.18