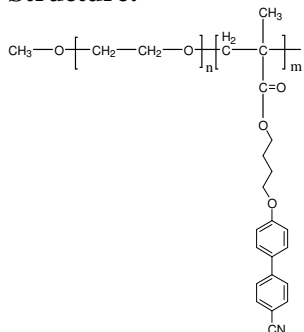


Sample Name:

Poly[ethylene oxide-b-4-(4'-cyanobiphenyl-4-yloxy) butyl methacrylate]

Sample #: P11264-EO4CNBPButylMA

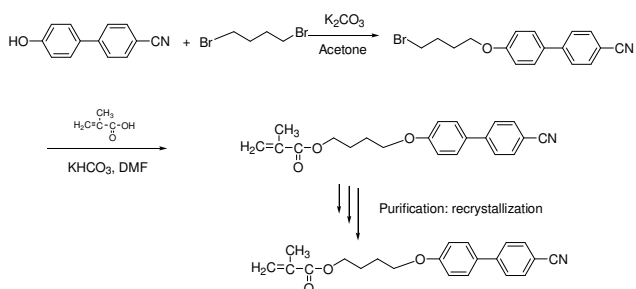
Structure:



Composition:

Mn x 10 ³	PDI
PEO-b-4CNBPButylMA	
3.0-b-11.8	1.22

Synthesis of Monomer:



Characterization:

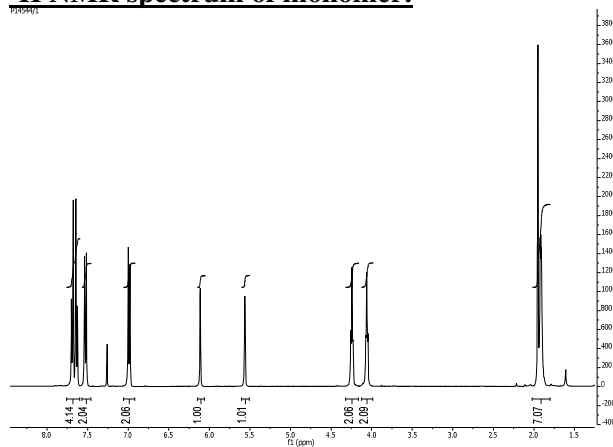
The polymer was characterized by ¹H NMR and SEC. It was observed that the SEC columns must have high plate counts to avoid any adsorption with the column packing material. We have used new columns (supelco GHXL 4000 and Water mixed bed column). THF (4% V/V) (Et)3N as carrier solvent and the polymer solution was prepared in THF with DMF as solvent. (5:5 solution). The SEC carried out at 35 °C column temperature.

Purification of the polymer:

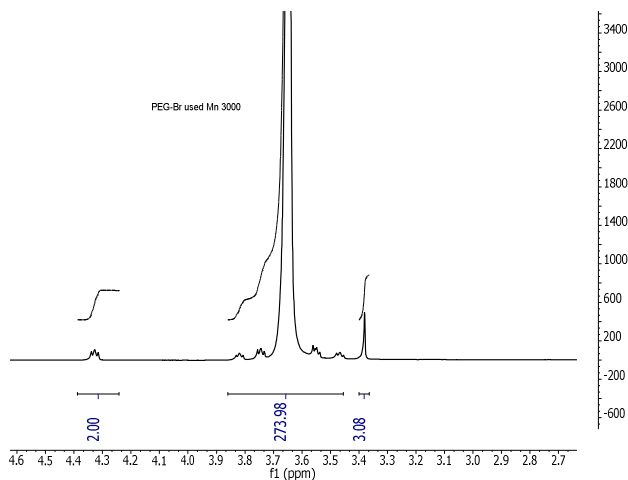
Removal of catalyst: By passing the polymer solution in CHCl₃ through Al₂O₃ (neutral) packed column. The obtained polymer solution was concentrated.

Removal of un-reacted monomer: Polymer was precipitated in hot ethanol-hexane mixture. This steps ensure removal of unreacted monomer which was verified by GPC and by HNMR.

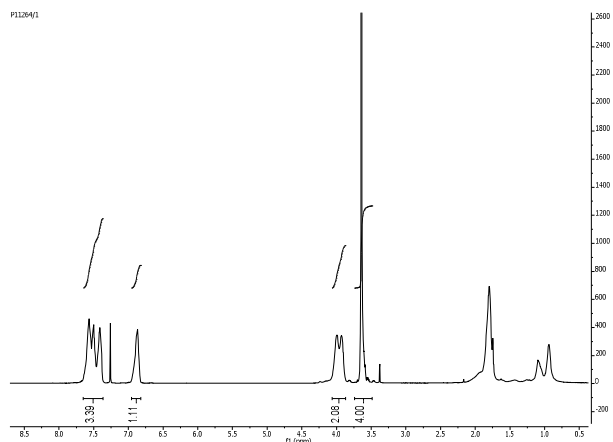
¹H NMR spectrum of monomer:



¹H NMR spectrum of the PEG-Br used for such synthesis:

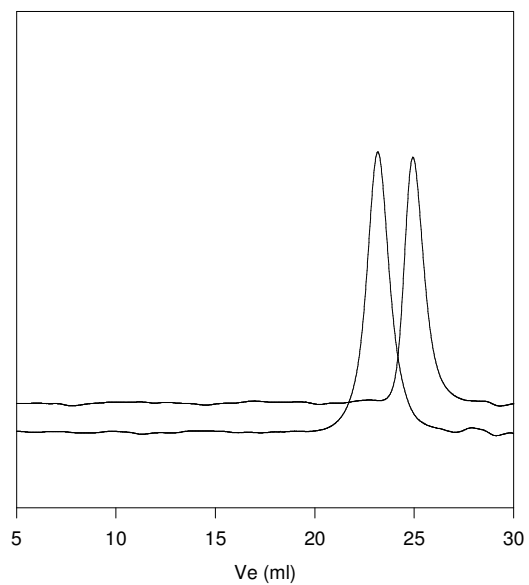


¹H NMR spectrum of the diblock copolymer:



SEC elugram of the diblock copolymer:

P11264-EO4CNBPBMA



Size exclusion chromatography of the product:

- Poly(ethylene oxide), $M_n=3,000$, $M_w=3300$, $PI=1.09$
- Block Copolymer PEO(3,000)-b-4-CNBPEMA (11800), $PI=1.22$