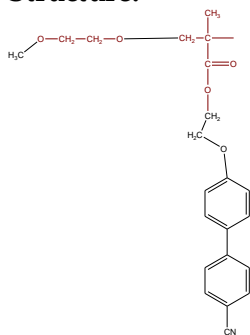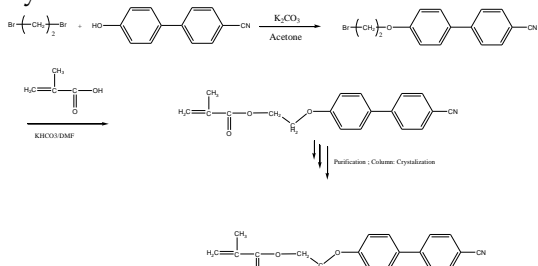**Sample Name:**
Poly(ethylene oxide-b-2-(4′-cyanobiphenyl-4-yloxy) Ethyl methacrylate
Sample #: *P11267B-EO4CNBPEthyl MA*

Structure:

Composition:

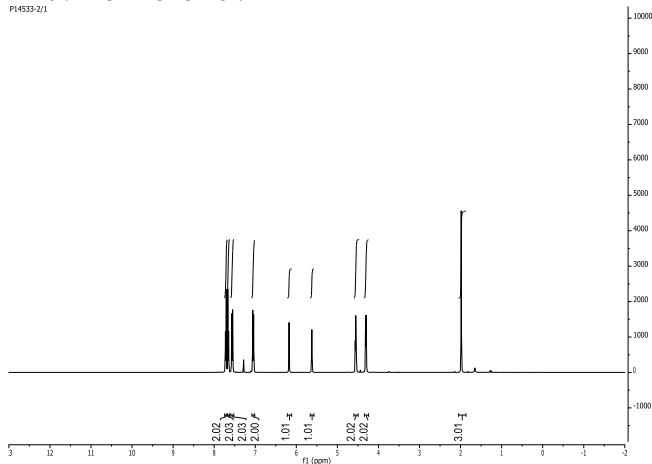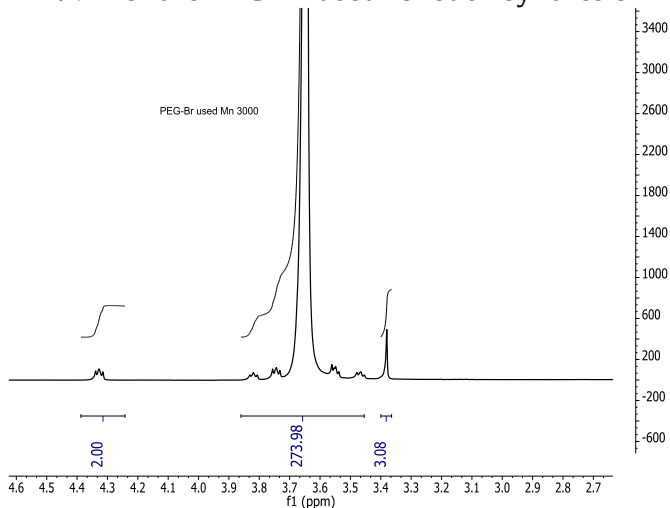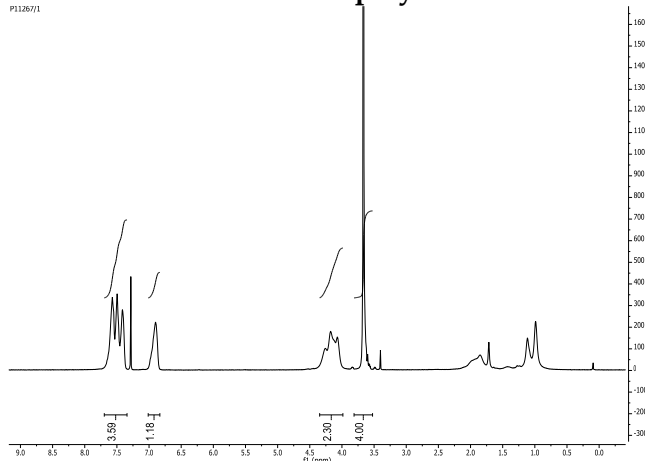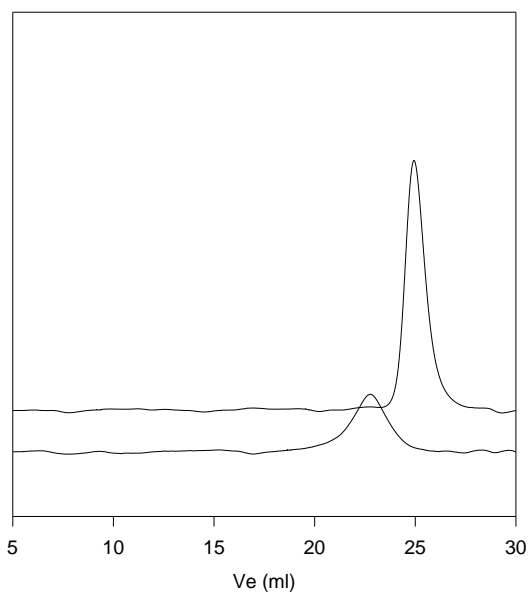| Mn x 10³ PEO-b-4CNBPEthylMA	PDI
3.0-b-11.0	1.35

Synthesis of Monomer:

Characterization: It was observed 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.

¹HNMR of monomer:

¹HNMR of the PEG-Br used for such synthesis

PEG-Br used Mn 3000

¹H NMR of the diblock copolymer

SEC of the diblock copolymer:

P11267-EO4CNBPEMA

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 (12000), PI=1.35