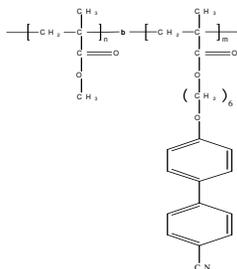


**Sample Name:**

**Poly(Methylmethacrylate-b-6-(4'-cyanobiphenyl-4-yloxy)hexylmethacrylate)**

**Sample #: P8962-MMA4CNBPHMA**

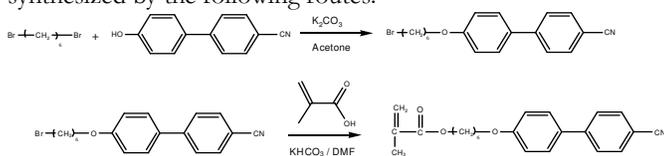
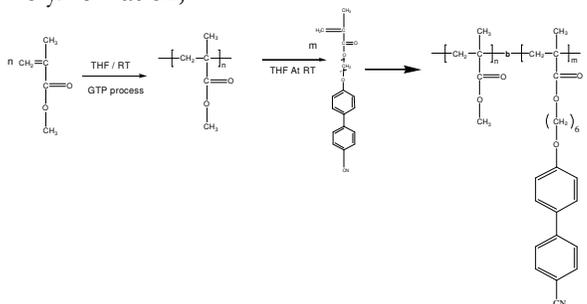
**Structure:****Composition:**

Mn x 10 <sup>3</sup> MMA-b-4CNBPHMA	Mw/Mn (PDI)
27.0-b-3.0	1.15
T <sub>g</sub> for MMA block:	118°C

**Synthesis Procedure:**

Poly(methylmethacrylate-b-6-(4'-cyanobiphenyl-4-yloxy)hexylmethacrylate) is prepared by GTP-polymerization or anionic living polymerization of MMA with 6-(4'-cyanobiphenyl-4-yloxy)hexylmethacrylate) in THF.

6-(4'-cyanobiphenyl-4-yloxy)hexylmethacrylate) monomer is synthesized by the following routes:

**Polymerization;****Characterization:**

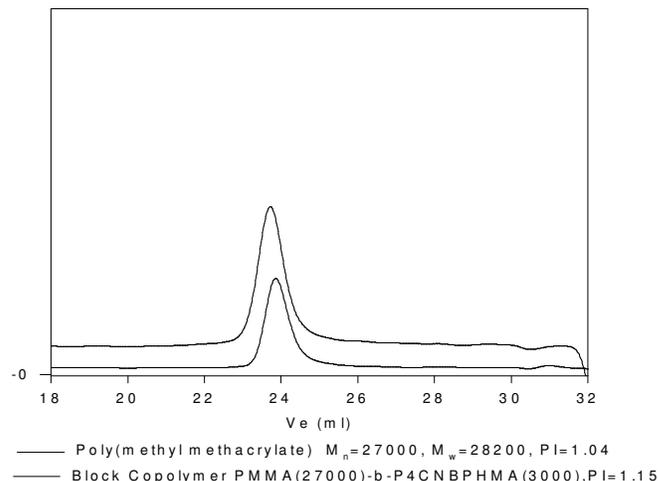
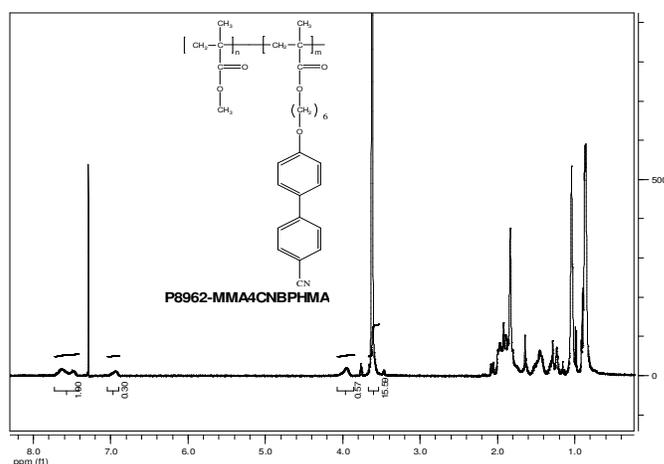
Polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from <sup>1</sup>H-NMR spectroscopy by comparing the peak area of the MMA protons near 3.6 ppm with the 4CNBPHMA protons at about 7.5 ppm (biphenyl protons).

**Solubility:** The polymer is soluble in THF, chloroform and toluene. It is precipitated in methanol.

**Thermal analysis:** Thermal analysis was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min.

**SEC of the Polymer:**

**P8962-MMA4CNBPHMA**

**<sup>1</sup>H NMR spectrum of the sample:****DSC thermogram for MMA block:**