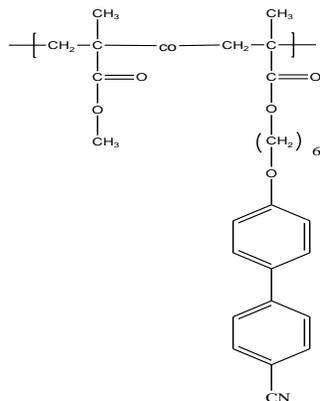


**Sample Name:**

Poly(Methylmethacrylate-co-6-(4'-cyanobiphenyl-4-yloxy)hexylmethacrylate)

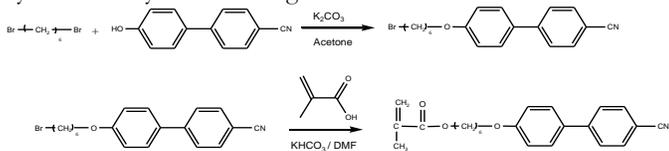
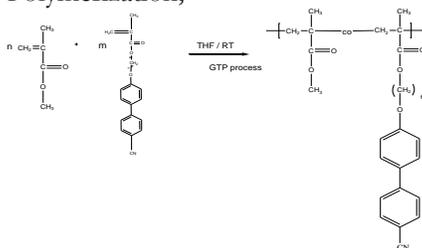
**Sample #:** P8963-MMA4CNBPMAran

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

Mn x 10 <sup>3</sup>	Mw/Mn (PDI)
21.0	1.6
T <sub>g</sub> for the random polymer (°C)	107

**Synthesis Procedure:**

Poly(methylmethacrylate-co-6-(4'-cyanobiphenyl-4-yloxy) random copolymer is prepared by GTP-polymerization of MMA and 6-(4'-cyanobiphenyl-4-yloxy)hexylmethacrylate) mixture in THF. 6-(4'-cyanobiphenyl-4-yloxy)hexylmethacrylate) monomer is synthesized by the following routes:

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

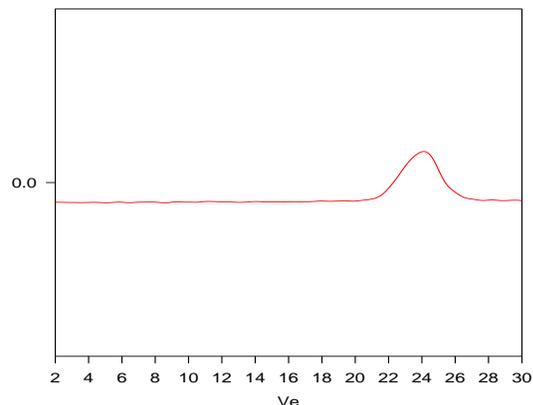
Polymer was analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from <sup>1</sup>H-NMR by comparing the peak area of the MMA protons near 3.6 ppm with the 4CNBPMA protons at about 7.5 ppm.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

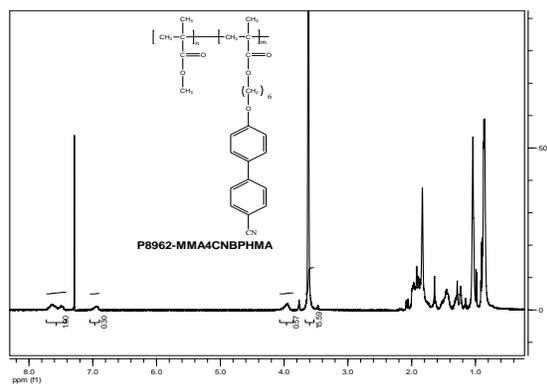
**SEC of the Polymer:**

**P8963-MMA4CNBPMAran**



Size Exclusion Chromatography of Poly(MMA-co-4CNBPMA):

M<sub>n</sub> = 21500, M<sub>w</sub> = 34500, M<sub>w</sub>/M<sub>n</sub> = 1.6

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