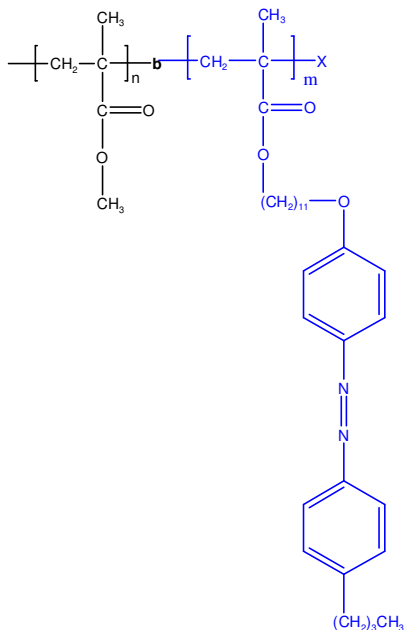


Sample Name: **Poly(Methylmethacrylate-b-AzoMA)**
AzoMA=11-[4-(4-butylphenylazo)phenoxy]-undecyl methacrylate)

Sample #: **P5661-MMAAzoMA**

Structure:

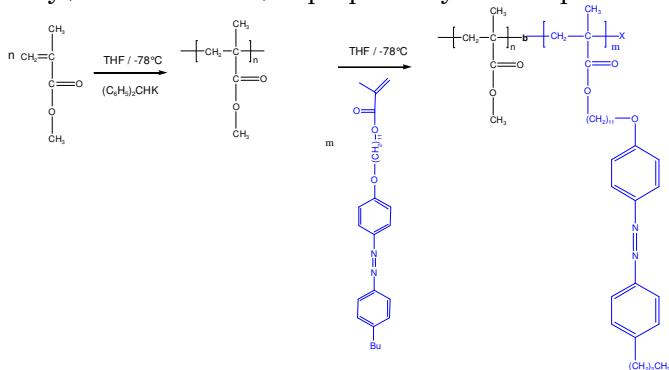


Composition:

Mn x 10 ³ PMMA-b-PAzoMA	PDI
7.0-b-2.5	1.15

Synthesis Procedure:

Poly(MMA-b-AzoMA) is prepared by anionic process:



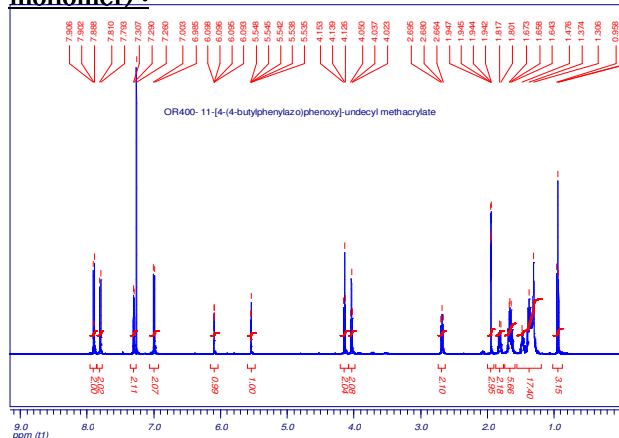
Characterization:

Block copolymer were analyzed by size exclusion chromatography (SEC) to obtain the molecular weight. The final block copolymer composition was calculated from ¹H-NMR spectroscopy.

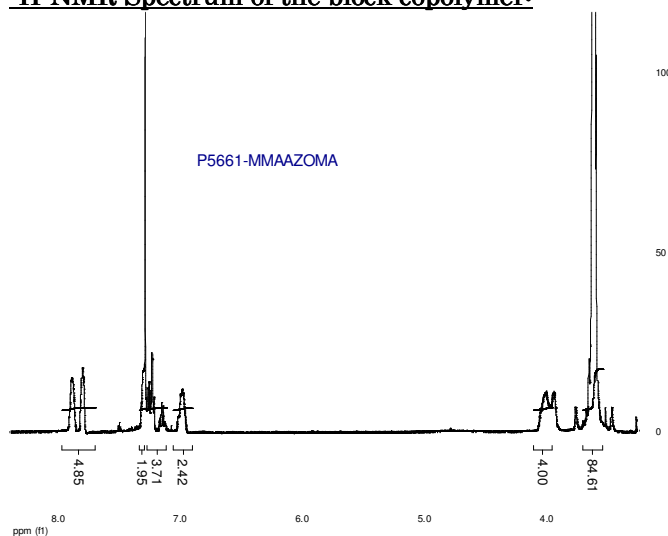
Solubility:

Poly(MMA-b-AzoMA) is soluble in THF, acetone, and chloroform and it precipitates out in hexane or cold methanol.

¹H-NMR Spectrum of the Azo-MA (Liquid crystalline monomer) :

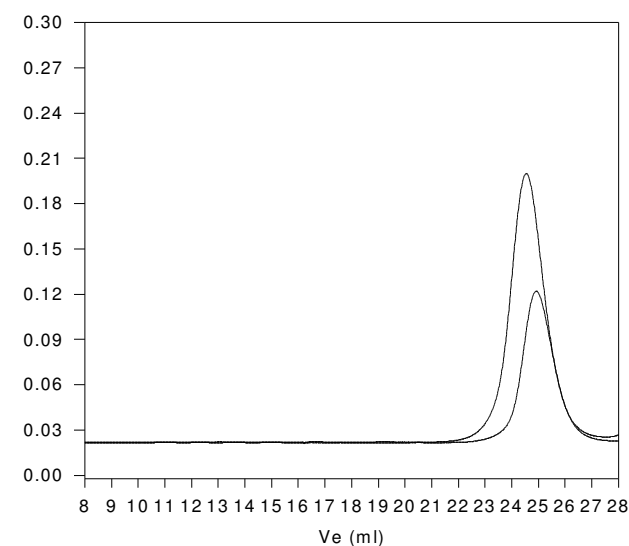


¹H-NMR Spectrum of the block copolymer:



SEC of the block copolymer:

P5661-MMAAZOMA



— Poly methyl methacrylate, $M_n=7000$, $M_w=7500$, $PI=1.06$
— Block Copolymer PMMA(7000)-b-AzoMA(2500), $PI=1.15$

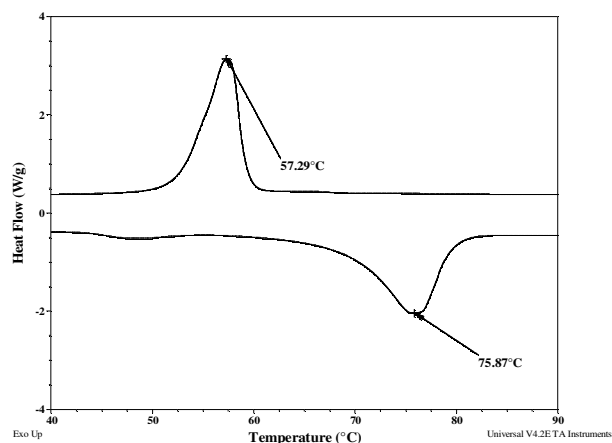
Thermal analysis for sample#P5661-MMAzoMA

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of $10^\circ\text{C}/\text{min}$. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Melting and crystallization curve for the sample

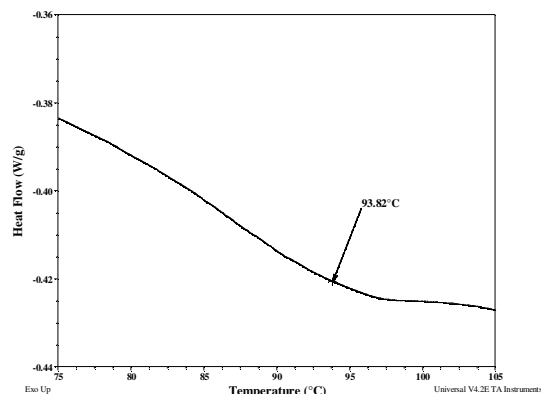
The melting temperature (T_m) was taken as the maximum of the endothermic peak where as the crystallization temperature (T_c) was considered as the minimum of the exothermic peak.

Thermograms for AzoMA monomer:

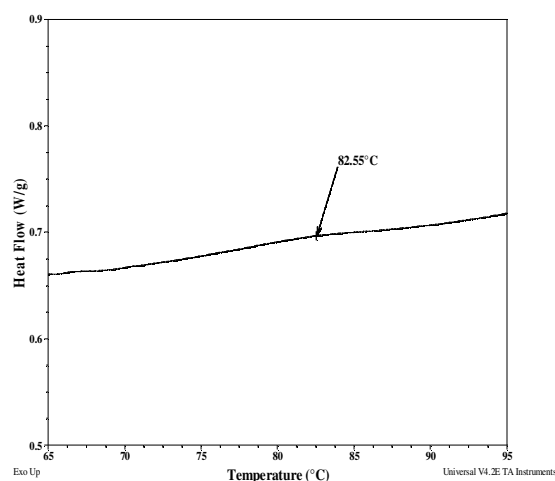


Sample	T_m ($^\circ\text{C}$)	T_c ($^\circ\text{C}$)	T_g ($^\circ\text{C}$)
AzoMA monomer	76	57	
PAzoMA:	83	94	-
MMA block:	-	-	114

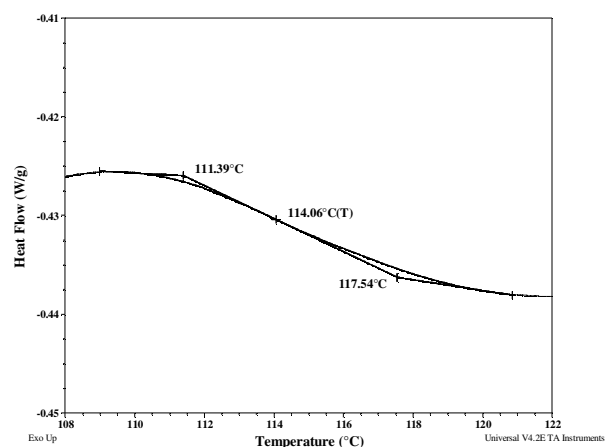
Melting curve for AzoMA block:



Crystallization peak for AzoMA block:



Thermogram for MMA block:



Thermal analysis results at a glance