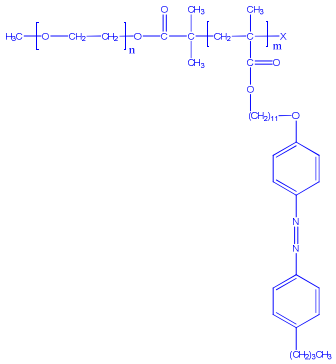
Sample Name: **Poly(ethylene oxide-b-AZoMA)**
(AZoMA=11-[4-(4-butylphenylazo)phenoxy]-undecyl methacrylate)
Sample #: **P5698G-EOAzoMA**

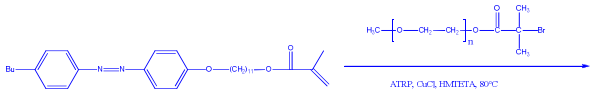
Structure:

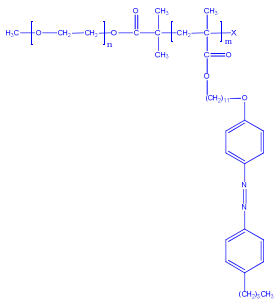


Composition:

Mn x 10^3 PEO-b-PAzoMA	PDI
12.0-b- 28.0	1.8

Synthesis Procedure:
Poly(ethylene oxide-b-AZoMA) is prepared by ATRP using bromo-terminated poly(ethylene glycol) as the macro-initiator. The scheme of the reaction is illustrated below:

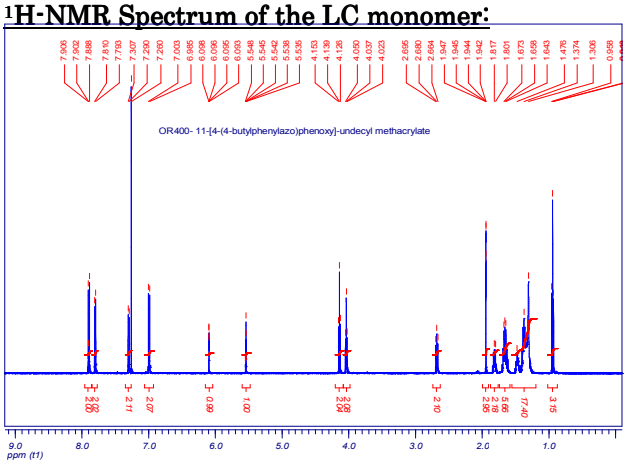




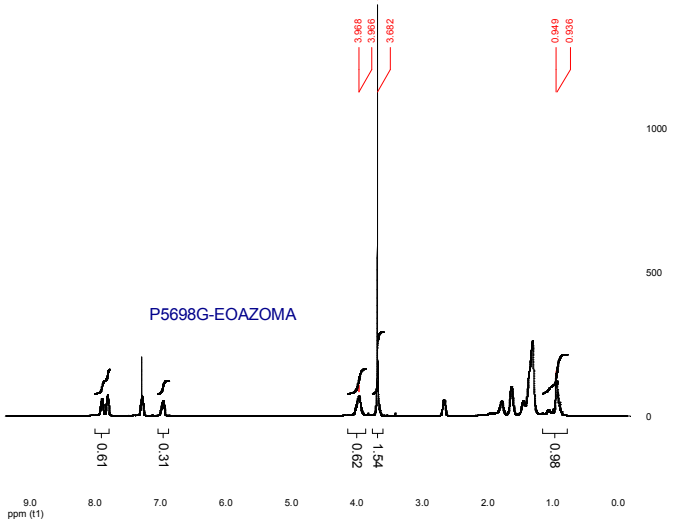
Characterization:
PEG-Br and final block copolymer were analyzed by size exclusion chromatography (SEC) to obtain the molecular weight of PEG and polydispersity index (PDI) for both PEG and block copolymer. The final block copolymer composition was calculated from ^{1}H-NMR spectroscopy by comparing the peak area of the ethylene oxide protons at about about 3.6 ppm with the benzene ring protons at about 6-8 ppm.

Solubility:
Poly(ethylene oxide-b-AZoMA) is soluble in THF, acetone, and chloroform and it precipitates out in hexane or methanol.

^{1}H-NMR Spectrum of the LC monomer:

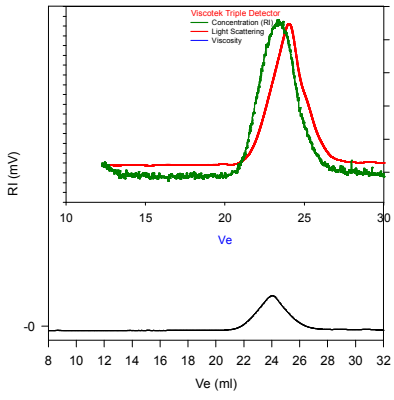


^{1}H-NMR Spectrum of the block copolymer:



SEC of the block copolymer:

P5698G-EOAZOMA



Size Exclusion Chromatography of Polymer:
PEO-b-AZOMA : M_n =12000-b-28,000 M_w/M_n = 1.8
Solution Viscosity in THF at 35 oC: 0.128dl/g
dn/dcin THF at 35 oC: 0.106 ml/g
Rgw: 9.41nm

Thermal analysis for sample# P5698G-EOAzoMA

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10^{o}C/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).

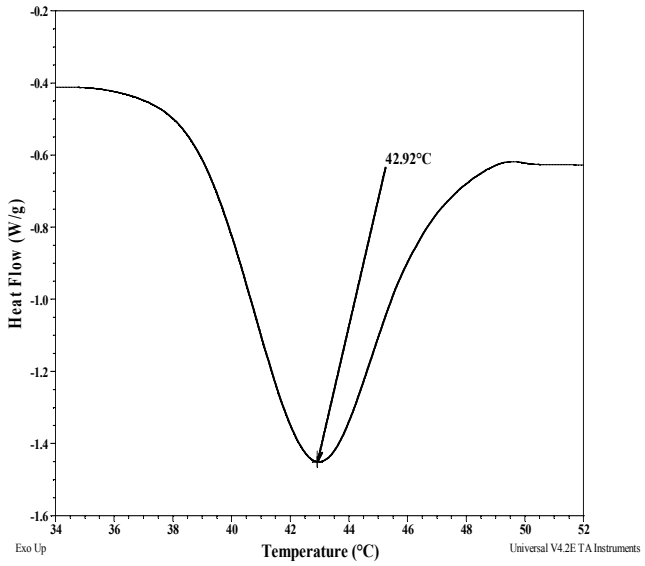
Melting and crystallization curve for the sample

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.

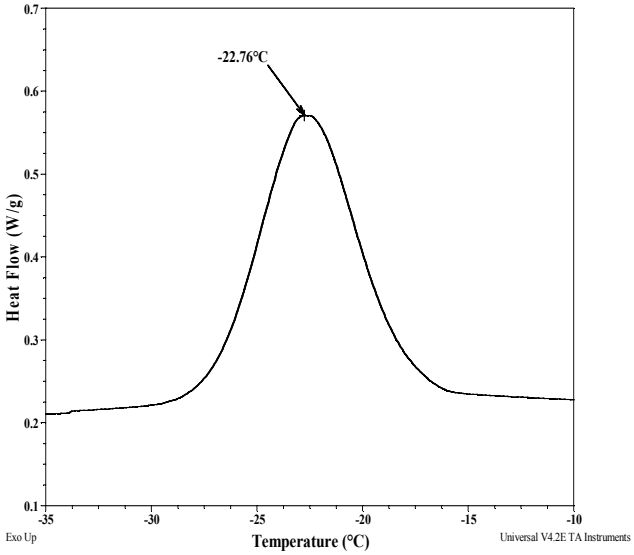
Thermal analysis results at a glance

Sample	T_m (^{o}C)	T_c (^{o}C)	T_g (^{o}C)
EO	43	-23	Not distinct
AZoMA	118	107	-

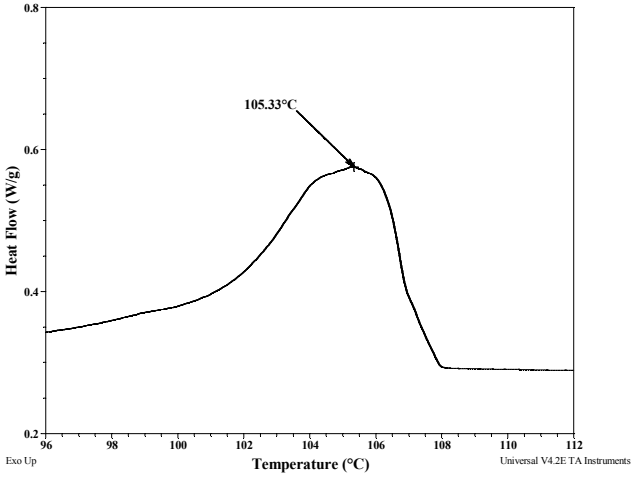
Melting curve for PEO block:



Crystallization curve for PEO block:



Melting curve for BPAPOUMA block:



Crystallization curve for BPAPOUMA block: