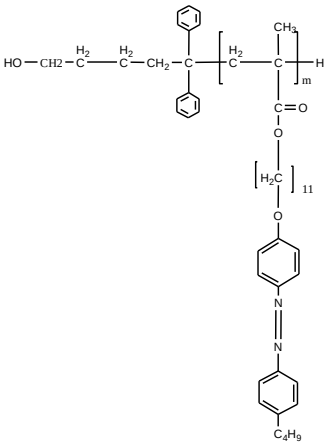
Sample Name: **Hydroxy Terminated Poly(AzoMA)**

(AZoMA=11-[4-(4-butylphenylazo)phenoxy]-undecyl methacrylate)

Sample #: P9562-AZOMAOH

Structure:

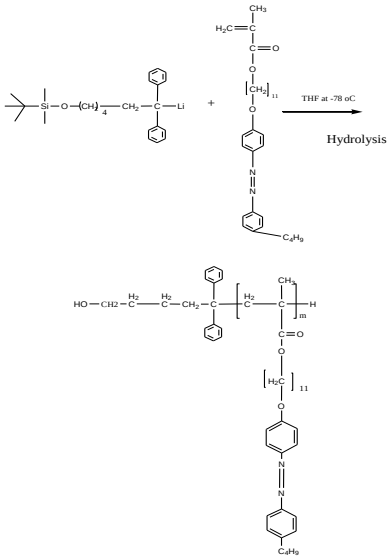


Composition:

Mn × 10^3	PDI
13.0	1.2

Synthesis Procedure:

Hydroxyl terminated poly(***11-[4-(4-butylphenylazo) phenoxy]-undecyl methacrylate***) was prepared by living anionic polymerization using a hydroxyl protected initiator. The scheme of the reaction is illustrated below:



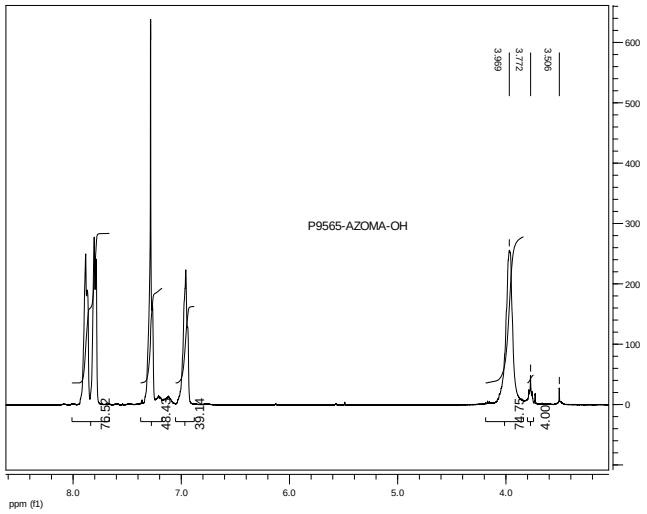
Characterization:

The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple detectors from Viscotek Co.

Solubility:

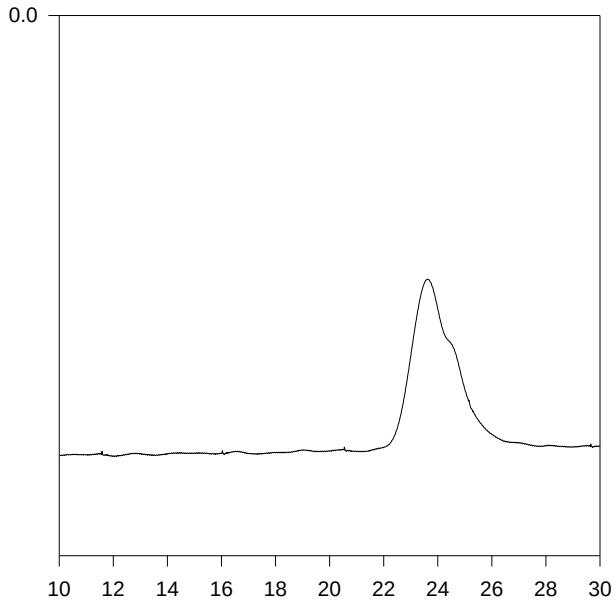
Polymer is soluble in DMF, THF, toluene and $CHCl_3$. It precipitates from methanol, ethanol, water and hexanes

H NMR of the sample:



SEC of Sample:

P9562-AZOMAOH



Size Exclusion Chromatogram of polymer:

—— M_n=13,000, M_w=15600, M_w/M_n=1.2

(OH functionality by titration: >98%)

Thermal analysis of the P9562- AzoMAOH

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).

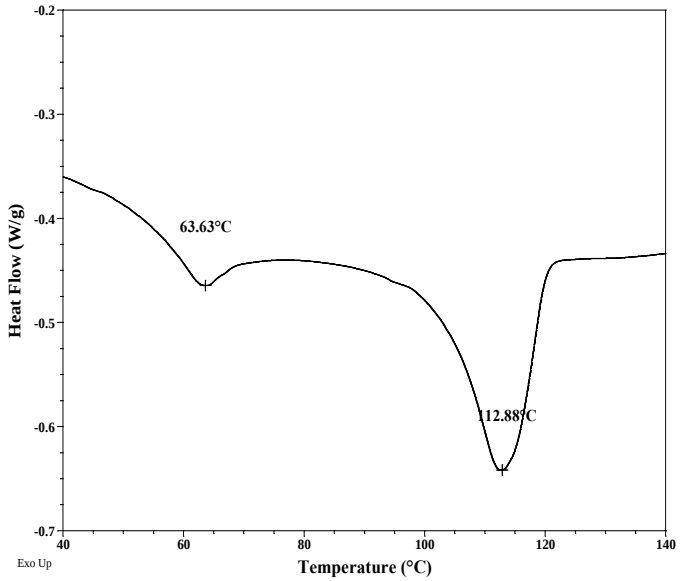
Melting and crystallization curve for the sample

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:

T_{m1} (^{o}C)	T_{c1} (^{o}C)	T_{m2} (^{o}C)	T_{c2} (^{o}C)
64	61	113	107

Melting curves for the sample:



Crystallization curves for the polymer: