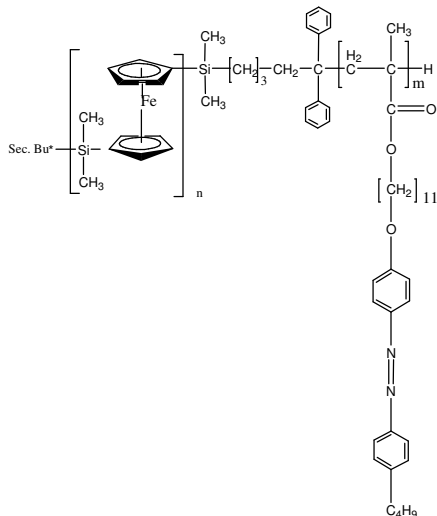


Sample Name:

Poly(ferrocenyldimethylsilane-b-11-(4-4-butylphenylazo)phenoxy)-undecyl methacrylate)

Sample #: P9472-FESAzoMA

Structure:



Composition:

Mn $\times 10^3$ FES-b-AZOMA	Mw/Mn (PDI)
2.5-b-6.5	1.4

Synthesis Procedure:

Poly(ferrocenyldimethylsilane-b-11-(4-4-butylphenylazo)phenoxy)-undecyl methacrylate) is prepared by anionic living polymerization by successive addition of ferrocenyldimethylsilane monomer (FES) followed by the addition of -11-(4-4-butylphenylazo)phenoxy)-undecyl methacrylate (AzoMA).

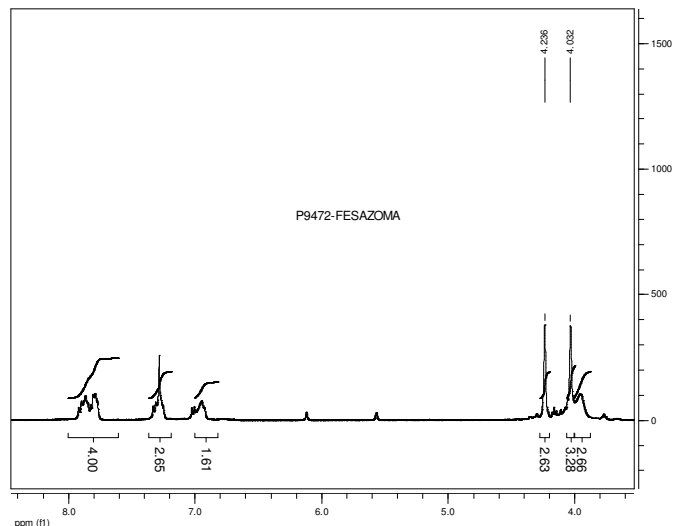
Characterization:

Polymer is analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from $^1\text{H-NMR}$ spectroscopy by comparing the peak area of the phenyl protons at 6.3-7.2 ppm with the peak area of Si(CH₃) at 0.2ppm or Ferrocene protons at 4.0 and 4.2ppm.

Solubility:

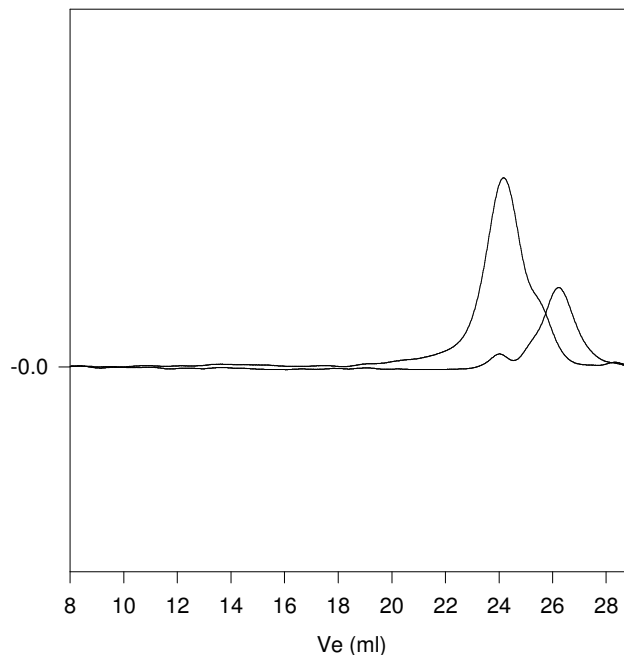
Polymer is soluble in THF, CHCl₃, toluene and precipitate out from ether and hexanes.

$^1\text{H NMR}$ spectrum of the polymer:



SEC elugram of the block copolymer:

P9472-FESAzoMA



SEC profile of the Block copolymer:

— Poly FES, $M_n=2,500$, $M_w=3,200$, $PI=1.25$

— Diblock Copolymer FES(2,500)-b-PAzoMA(6,500), $PI=1.4$

Thermal analysis of the P9472 FESAzoMA:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°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).

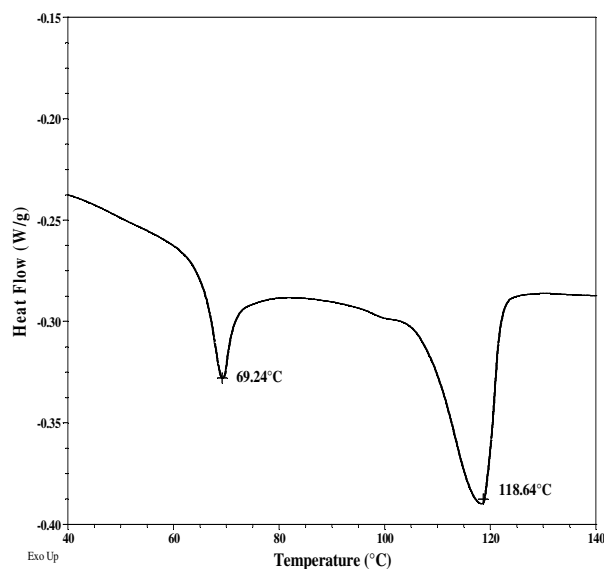
Melting and crystallization curve for the sample:

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 (°C)	T_c (°C)	T_g (°C)
FES (4.5k homo)	26.3		
AzoMA (6.5k homo)	53/93	48/92	-
AzoMA in FESAzoMA	69/119	65/111	-

Melting curve for AzOMA block:



Crystallization curve for AzoMA block:

