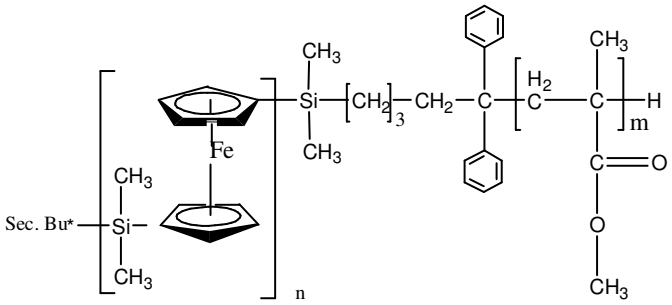
Sample Name:
Poly(ferrocenyldimethylsilane-b-methylmethacrylate)

Sample #: P9443-FESMMA
Structure:



Composition:

$Mn \times 10^3$ FES-b-MMA	Mw/Mn (PDI)
4.0-b-30.0	1.9
T_m for FES block: Not found	T_g for MMA block: 125°C

Synthesis Procedure:

Poly(ferrocenyldimethylsilane-b-methyl methacrylate) is prepared by anionic living polymerization by successive addition of ferrocenyldimethylsilane monomer (FES) followed by the addition of MMA monomer.

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}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.

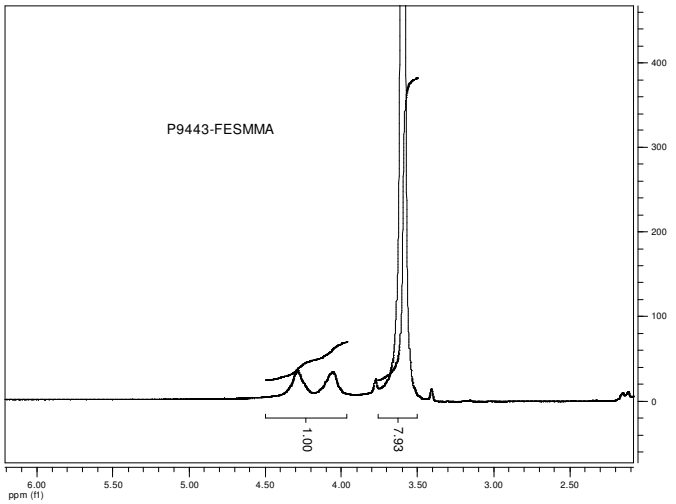
Thermal analysis

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). 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.

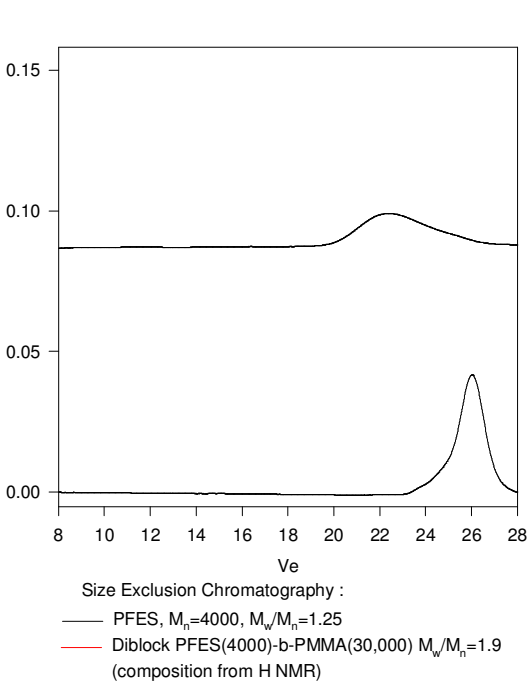
Solubility:

Polymer is soluble in THF, $CHCl_3$, toluene and precipitate out from ether and hexanes.

^{1}H NMR spectrum of the sample



SEC profile of the block copolymer



DSC thermogram for MMA block: