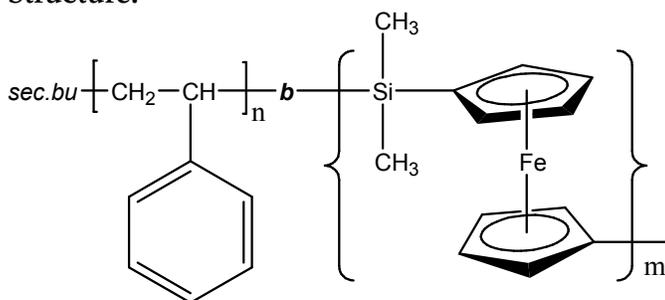


### Sample Name:

Poly(styrene-*b*-ferrocenyldimethylsilane)

Sample #: P9919-SFES

Structure:



### Composition:

$M_n \times 10^3$ S-b-FES	$M_w/M_n$ (PDI)
70.0-b-16.0	1.9
$T_g$ for PS block: 105 °C	$T_g$ for FES block: Not distinct

### Synthesis Procedure:

Poly(styrene-*b*-ferrocenyldimethylsilane) is prepared by anionic living polymerization by successive addition of styrene followed by the addition of ferrocenyldimethylsilane monomer.

### Characterization:

An aliquot of the polystyrene block was terminated before addition of hexamethyl cyclotrisiloxane and 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 styrene protons at 6.3-7.2 ppm with the peak area of  $\text{Si}(\text{CH}_3)$  at 0.2ppm.

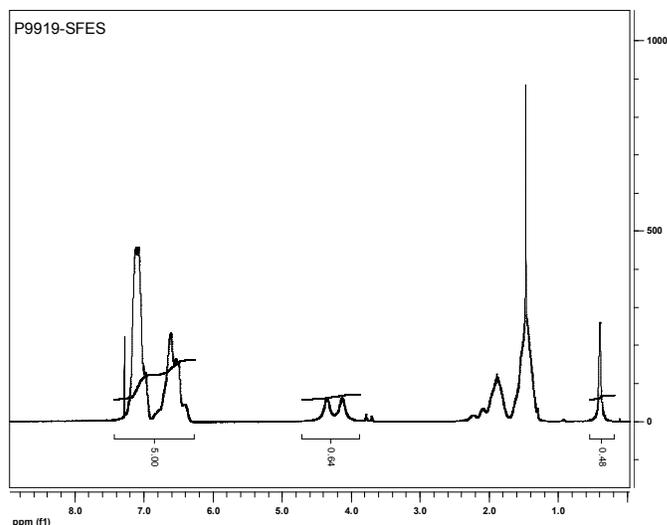
### Thermal analysis:

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 ( $T_g$ ).

### Solubility:

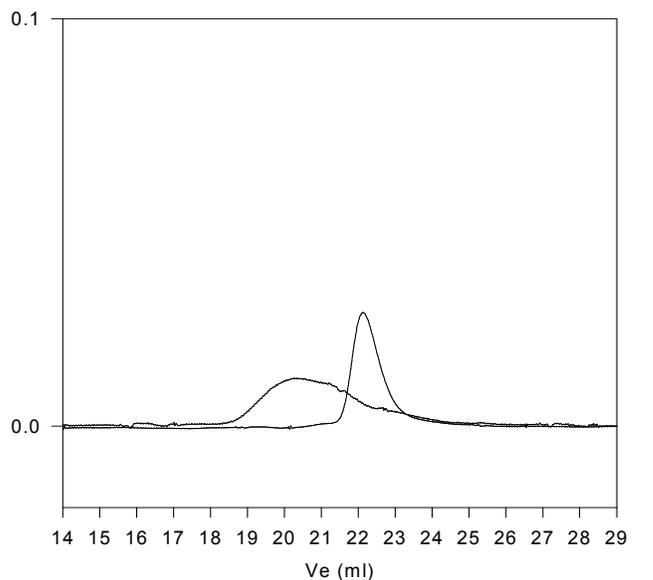
Polymer is soluble in THF,  $\text{CHCl}_3$ , Toluene and precipitate out from ether and hexanes.

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



### SEC profile of the block copolymer:

**P9919-SFES**



— Polystyrene,  $M_n=70,000$  Mw: 80,500 PI=1.15  
— Block Copolymer PS(70,000)-b-PFES(16,000), PI=1.9  
Composition from FTIR/HNMR

### DSC thermogram for PS block:

