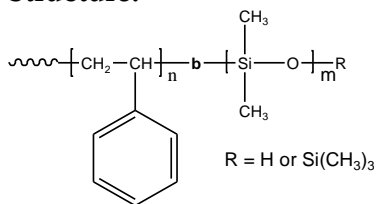


Poly(styrene-*b*-dimethyl siloxane)

Sample #: P18267C-SDMS (R=(Si(CH3)3)

Structure:


$$R = \text{H or Si(CH}_3)_3$$

Composition:

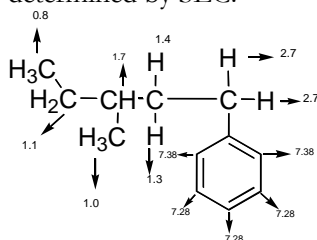
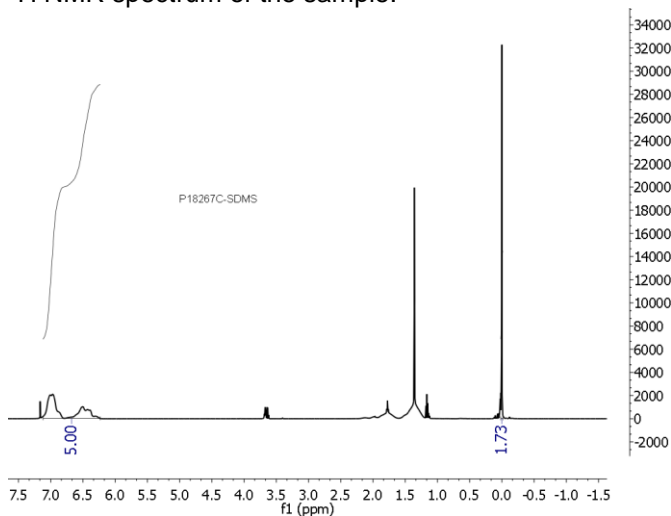
Mn $\times 10^3$ S-b-DMS	Mw/Mn (PDI)
36.0-b-7.5	1.09
T _g for PS block: 83°C	DMS block: T _g -121°C (Lit.)

Synthesis Procedure:

Poly(styrene-*b*-dimethyl siloxane) is prepared by living anionic polymerization with sequence addition of styrene followed by hexamethyl cyclotrisiloxane. For the details please see the references.

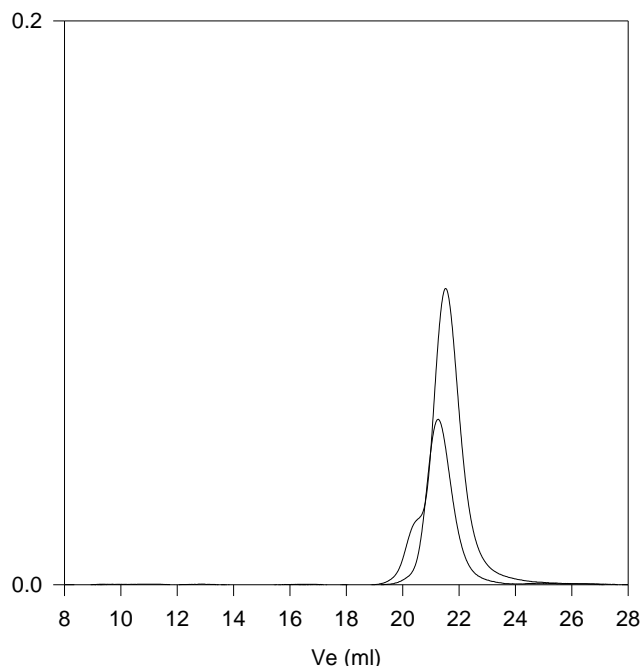
Characterization:

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 ^1H -NMR spectroscopy by comparing the peak area of the styrene protons at 6.3-7.2 ppm with the peak area of siloxane protons near 0.13 ppm. Block copolymer PDI is determined by SEC.

¹H NMR spectrum of the sample:

SEC profile of the block copolymer

P18267C-SDMS

Size exclusion chromatography of poly(styrene-*b*-dimethylsiloxane)

—— Polystyrene, $M_n=36,000$, $M_w=40,000$, $M_w/M_n=1.12$

—— Poly(styrene-*b*-dimethylsiloxane)

M_n : PS(36,000)-b-PDMS(7,500) $M_w/M_n=1.09$

DSC thermogram for PS block:

