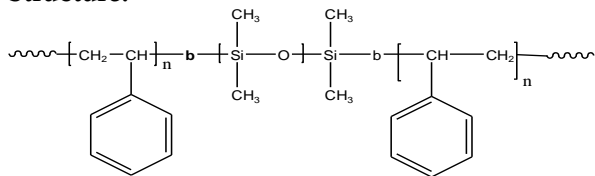


Sample Name:**Poly(styrene-b-dimethyl siloxane-b-styrene)****Sample #:** P10789-SDMSS**Structure:****Composition:**

$M_n \times 10^3$ S-b-DMS-b-S	Mw/Mn (PDI)
22.0-b-104.0-b-22.0	1.3
Coupling %	>86%
Presence of Homopolystyrene fraction	About 10-12%

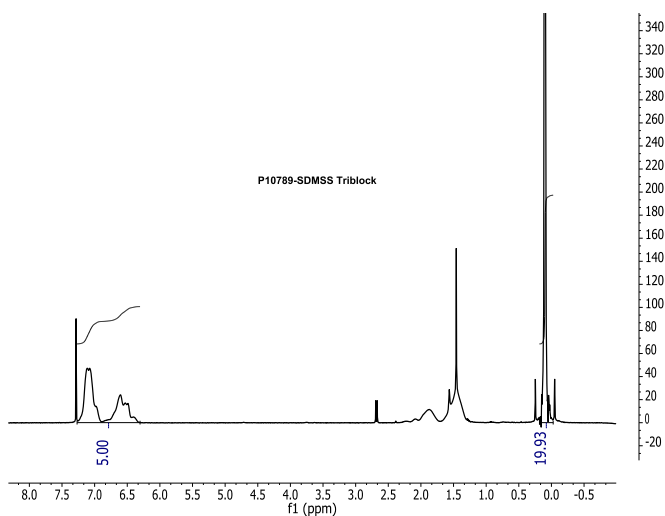
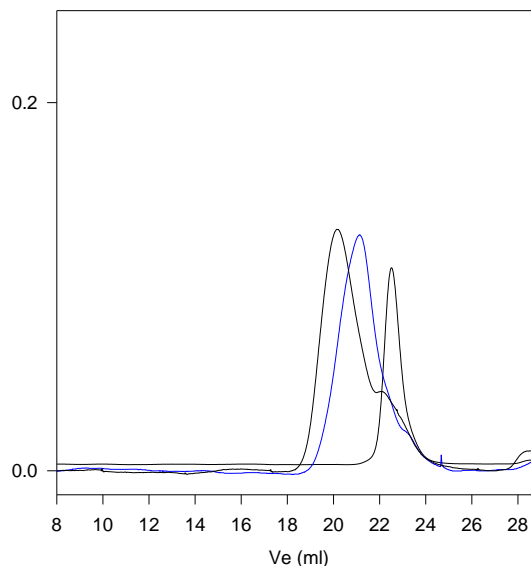
Synthesis Procedure:

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

Characterization: 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 siloxane protons near 0.13 ppm. Block copolymer PDI is determined by SEC.

Thermal Analysis:

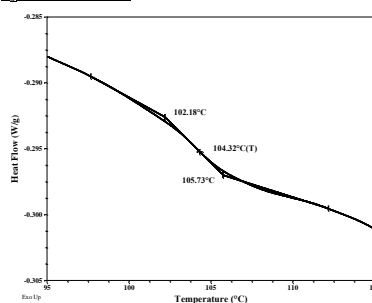
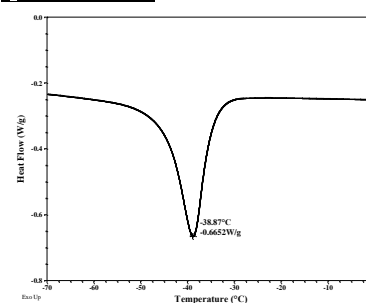
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min . The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

 ^1H NMR spectrum of the sample:**SEC profile of the block copolymer****P10789-SDMSS**

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

— Polystyrene, $M_n=22,000$ Mw: 23,300 $M_w/M_n=1.09$ — Poly(styrene-b-dimethylsiloxane)
 M_n : PS(22,000)-b-PDMS(52,000)=1.26

After linking reaction:

PS-b-DMS-b-PS M_n 22,000-b-104,000-b-22,000 Mw/Mn = 1.3**DSC thermogram for PS block:** T_g of Polystyrene block: T_m of Polydimethylsiloxane:**References:**

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- S. K. Varshney, C. L. Beatty "Synthesis and Characterization of Polymethylmethacrylate and Polydimethylsiloxane Block Copolymers Polymerizes with an Organometallic Initiator" *Org. Coat. Appl. Polym. Sci.*, 1981, 45, 151-157.
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