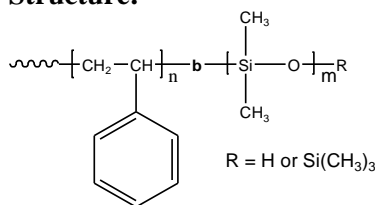


Sample Name: Poly(styrene-b-dimethyl siloxane)

Sample #: P42143A-SDMS (R=H)

Structure:



Composition:

Mn x 10 ³ S-b-DMS	Mw/Mn (PDI)
17.0-b-15.0	1.05

Tg for PS block: 84°C	Tg for DMS block: -121°C (Lit. value)
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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.

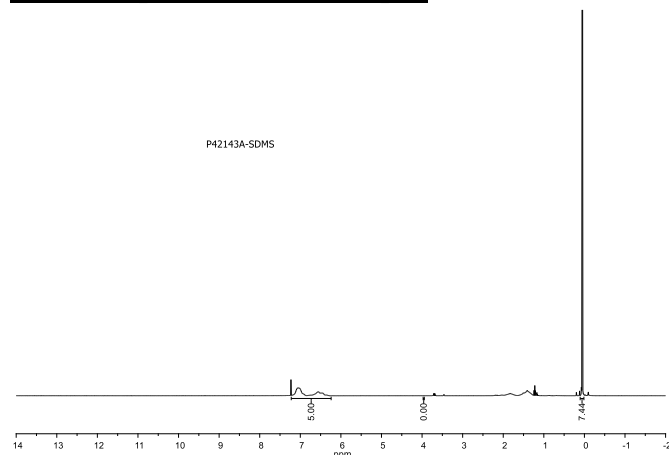
Thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 20°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:

Poly(styrene-b-dimethyl siloxane) is soluble in CHCl₃, toluene and THF.

¹H NMR spectrum of the sample:

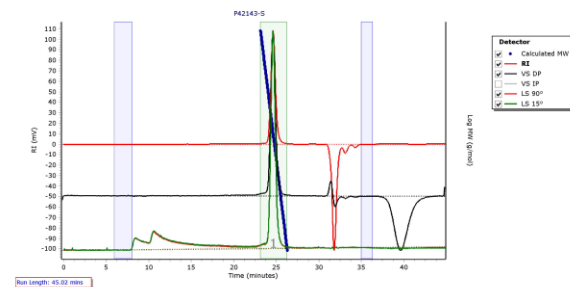


SEC profile of the first block:

Agilent GPC/SEC Software

P42143-S

Chromatogram Plot



Molecular Weight Averages

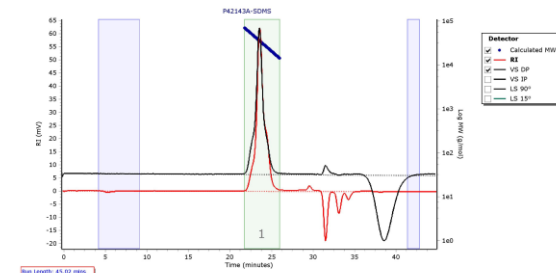
Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mv (g/mol)	PD
Peak 1	17315	17198	17204	17268	17330	17278	1.004

SEC profile of the block copolymer:

Agilent GPC/SEC Software

P42143A-SDMS

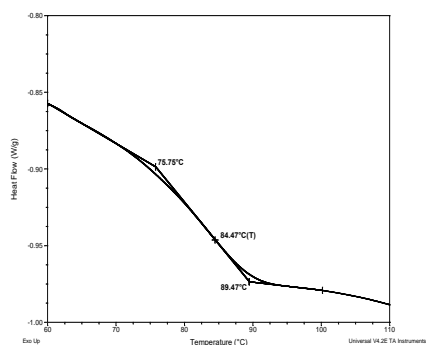
Chromatogram Plot



Molecular Weight Averages

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mv (g/mol)	PD
Peak 1	35233	32681	34450	35232	36005	35245	1.054

Thermogram for PS block:



References:

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