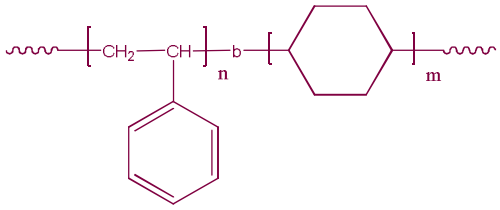
Sample Name: Poly(styrene-b-cyclohexane)
(Polycyclohexane rich in 1, 4-addition)
Sample #: P6500-SCy
para-rich microstructure for polycyclohexane block:



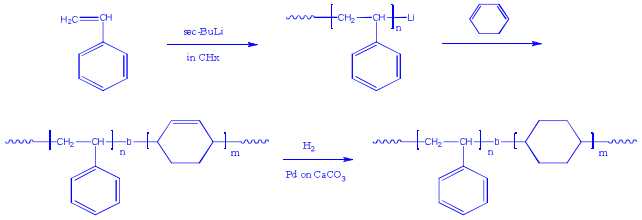
Composition:

Mn × 10^3 S-b-Cy	Mw/Mn (PDI)
4.3-0.9	1.15

With 70% of hydrogenation degree

Synthesis Procedure:

Poly(styrene-b-cyclohexane) is prepared by hydrogenation of poly(styrene-b-1,4-cyclohexadiene), which was synthesized via polymerization in non-polar solvent with sequence addition of styrene followed by 1,3-cyclohexadiene. The scheme of the reaction is illustrated below:



Characterization:

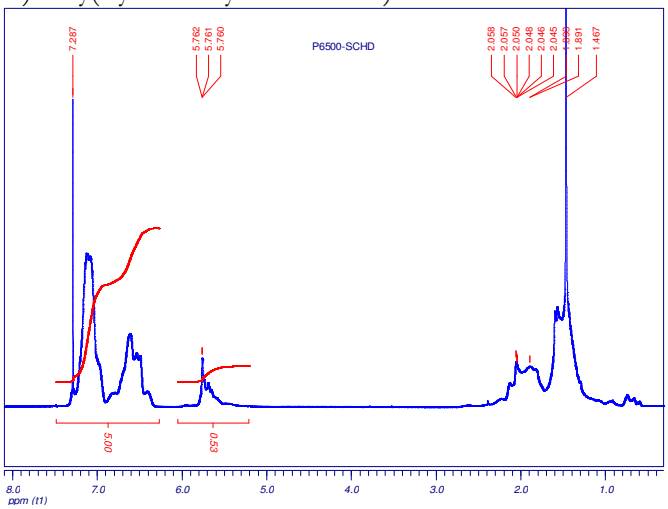
An aliquot of the anionic polystyrene block was terminated before addition of cyclohexadiene and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The block copolymer composition was then calculated from ^{1}H-NMR spectroscopy by comparing the peak area of the vinylic diene proton at 5.7 ppm with the aromatic protons of polystyrene at 6.3-7.2 ppm. Copolymer PDI is determined by SEC. The hydrogenation of cyclohexaene was confirmed by NMR with disappearance of peak at 5.7ppm.

Solubility:

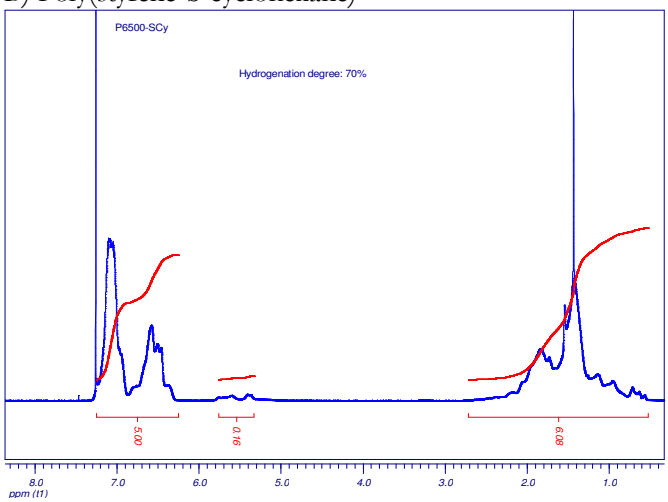
Poly(styrene-b-cyclohexane) is soluble in THF, toluene, and $CHCl_3$. This polymer readily precipitates from methanol, ethanol, and water.

^{1}H-NMR Spectrum of the block copolymer:

A) Poly(styrene-b-cyclohexadiene)



B) Poly(styrene-b-cyclohexane)



SEC of Sample of the block copolymer: