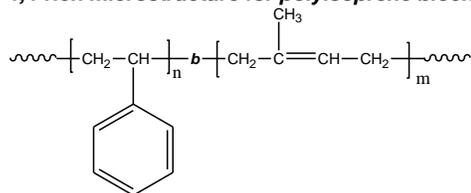


Sample Name: Poly(styrene-b-isoprene)
(Polyisoprene rich in 1,4-addition)

Sample #: P4521A-Slp

1,4-rich microstructure for polyisoprene block:



Composition:

Mn x 10 ³ S-b-Ip	Mw/Mn (PDI)
225.0-b-72.0	1.25

Synthesis Procedure:

Poly(styrene-b-isoprene) is prepared by living anionic polymerization in non-polar solvent with sequence addition of styrene followed by isoprene or isoprene first followed by styrene. In this batch isoprene was polymerized first followed by addition of styrene.

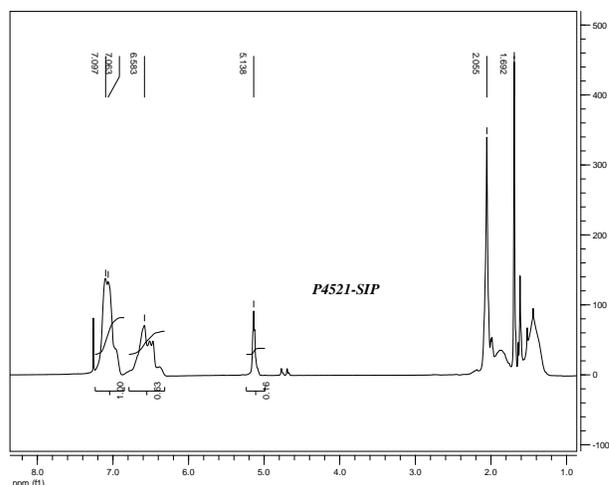
Characterization:

An aliquot of the anionic polystyrene block was terminated before addition of isoprene and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The block copolymer composition was then calculated from ¹H-NMR spectroscopy by comparing the peak area of the vinylic isoprene proton at 5.1 ppm with the aromatic protons of polystyrene at 6.3-7.2 ppm. Copolymer PDI is determined by SEC.

Solubility:

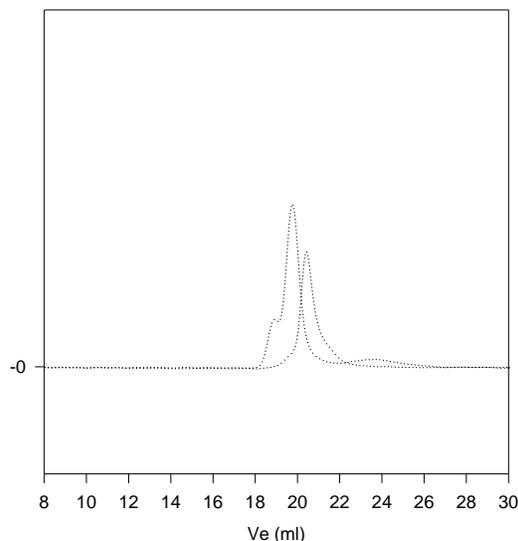
Poly(styrene-b-isoprene) is soluble in THF, toluene, dioxane and CHCl₃. This polymer readily precipitates from methanol, ethanol, and water.

¹H-NMR Spectrum of the block copolymer:



SEC of Sample of the block copolymer:

P4521A-Slp



Size exclusion chromatography of poly(isoprene-b-styrene) diblock copolymer

- Polystyrene, M_n=225000 M_w=241,000 PI=1.07
- Block Copolymer PS(225,000)-b-PS(72,000), PI=1.25
Composition from H NMR and by light scattering
dn/dc in THF 0.150 ml/g (Data from Viscotek triple detectors)