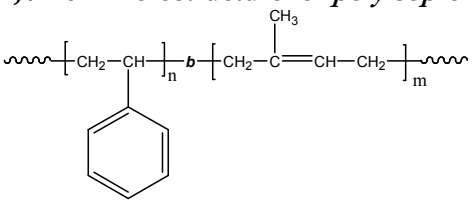
Sample Name: Poly(styrene-b-isoprene)
(Polyisoprene rich in 1,4-addition)
Sample #: P5602-SIP
1,4-rich microstructure for polyisoprene block:



Composition:

Mn x 10^3 S-b-Ip	Mw/Mn (PDI)
2.5-b-2.6	1.08
T_g for Ip block: -63°C	T_g for PS block: 51°C

Synthesis Procedure:
Poly(styrene-b-isoprene) is prepared by living anionic polymerization in non-polar solvent with sequence addition of styrene followed by isoprene.

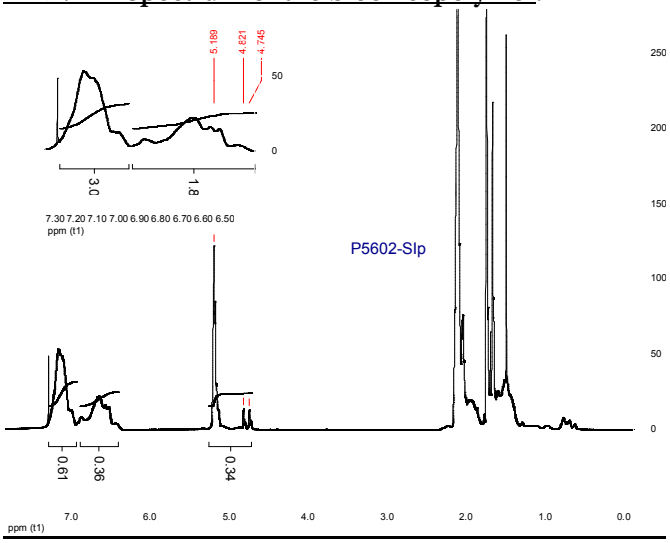
Characterization:

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 ^{1}H-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.

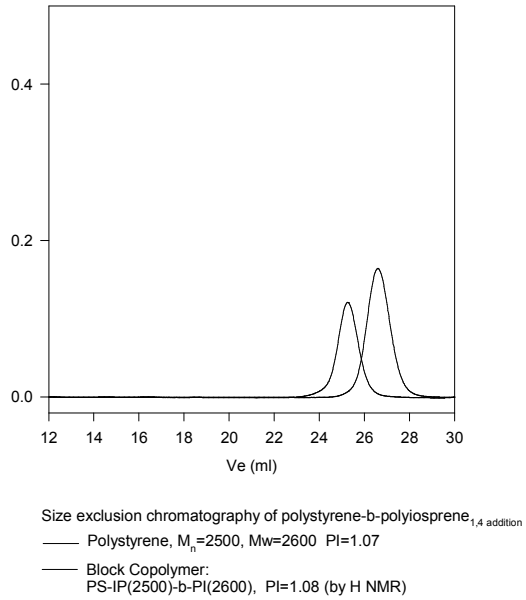
Thermal analysis:
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min.The inflection glass transition temperature (T_g) has been considered.

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

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

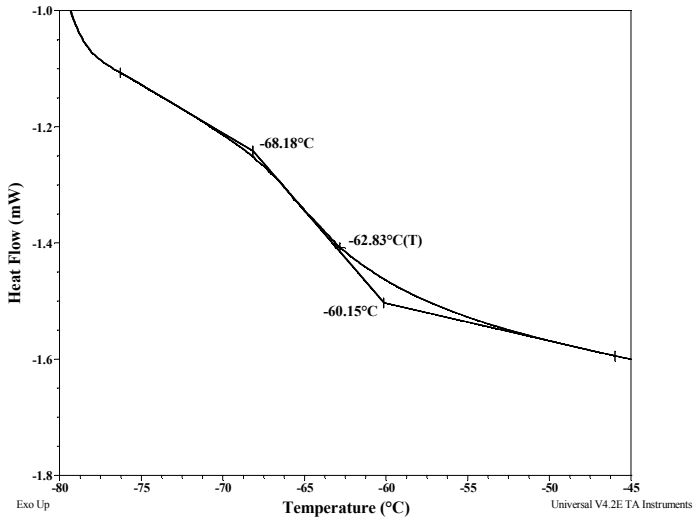
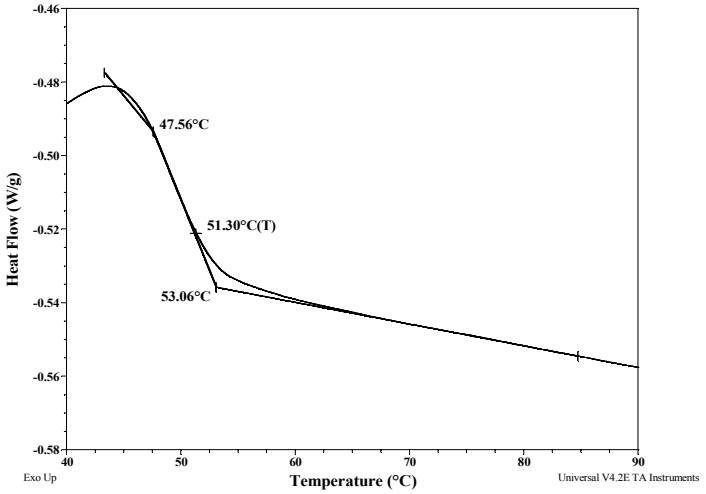


SEC of Sample of the block copolymer:



Size exclusion chromatography of polystyrene-b-polyiosprene$_{1,4\ addition}$
—— Polystyrene, M_n=2500, Mw=2600 PI=1.07
—— Block Copolymer:
PS-IP(2500)-b-PI(2600), PI=1.08 (by H NMR)

DSC thermogram for Ip block:



DSC thermogram for PS block: