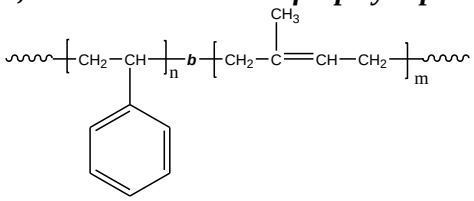
Sample Name: **Poly (styrene-b-isoprene)**
(Polyisoprene rich in 1,4-addition)

Sample #: **P40706-SIp**

1,4-rich microstructure for polyisoprene block:



Composition:

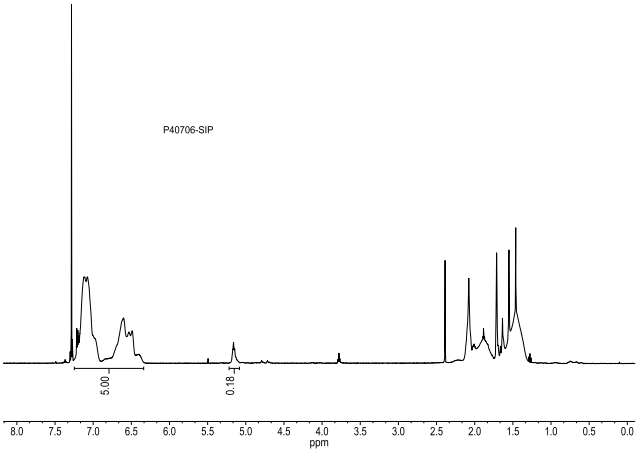
Mn x 10^3 S-b-Ip	Mw/Mn (PDI)
9.5-b-1.0	1.19

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 ^{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.

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

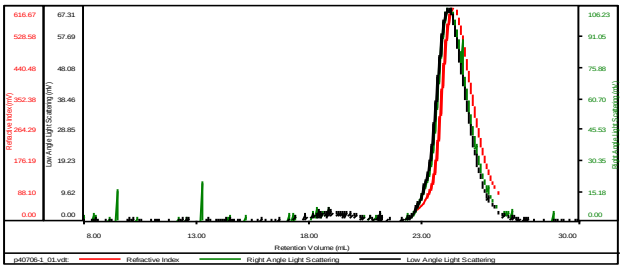
^{1}H-NMR Spectrum of the block copolymer:



SEC of Sample of the Styrene block:

P40706-S

Concentration (mg/mL)	39.9251
Sample dn/dc (mL/g)	0.1850
Method File	PS80K-august2017-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF

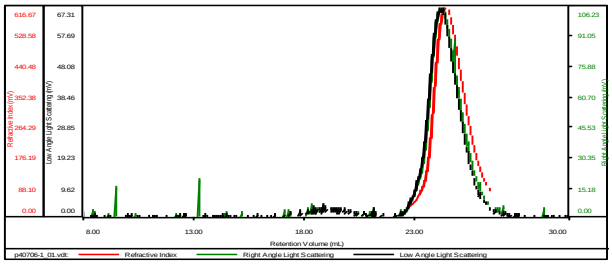


Sample	Mn (Da)	Mw (Da)	Mw/Mn	IV (dL/g)	Mp (Da)
p40706-1_01.vdt	9,731	11,576	1.190	0.0316	12,169

SEC of Sample of the block copolymer:

P40706-SIP

Concentration (mg/mL)	43.4479
Sample dn/dc (mL/g)	0.1700
Method File	PS80K-august2017-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	Mn (Da)	Mw (Da)	Mw/Mn	IV (dL/g)	Mp (Da)
p40706-1_01.vdt	10,614	12,637	1.191	0.0290	13,303