Sample Name:
Poly(Isoprene $_{(1,2 \text{ AND } 3,4)}$ rich -b-styrene-b-2-vinyl pyridine)

Sample #: P18165-IPS2VP

Structure:
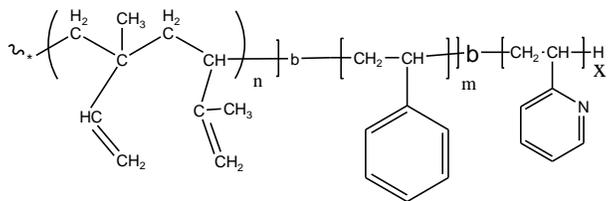
Composition:

Mn x 10³ IP-b-S-2VP	PDI
18.0-b-18.0-b-20.0	1.14

Synthesis Procedure:

By living anionic polymerization with sequence addition of isoprene (polymerization in polar solvent) than styrene, followed by addition of 2 vinyl pyridine (2VP). The scheme of the reaction is illustrated below:
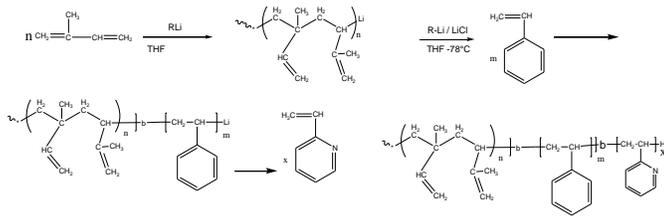

Characterization:
First Block: Size exclusion chromatography (SEC): Varian liquid chromatograph equipped with UV and refractive detector. SEC columns from Supelco were used with THF as the eluent. The columns were calibrated with monodisperse polystyrene. The molecular weights and the polydispersity index were calculated.

Second and Third Block: The chemical composition was extracted from proton NMR, which was recorded from Varian 500MHz instrument using CDCl₃ as solvent. The molecular weights of second and third block were calculated based on the molecular weight of other blocks and the chemical composition. The polydispersity index of block copolymer was obtained by SEC as described above.

Solubility:
Polymer is soluble in THF, toluene, and CHCl₃. The polymer readily precipitates from cold hexanes/ethanol mixture. .

¹H-NMR Spectrum of the polymer:
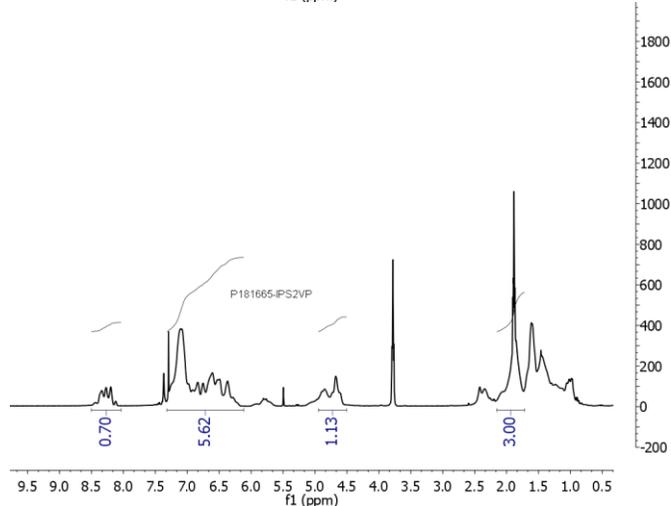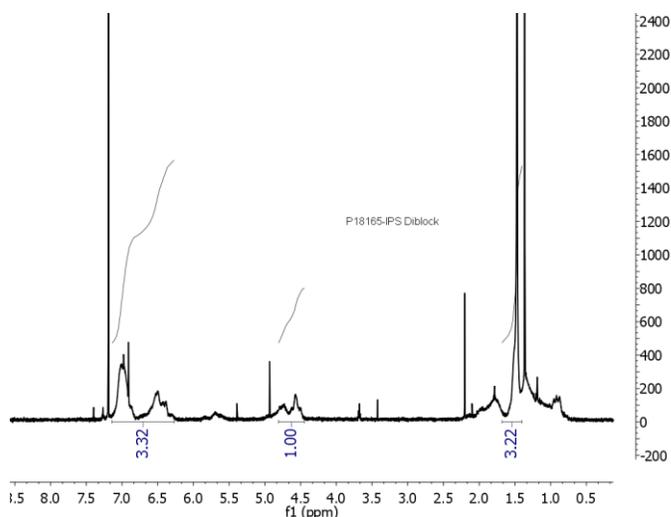
SEC for the polymer AT DIFFERENT STAGES OF POLYMERIZATION:

Sample ID: P18165-2-IPS

Concentration (mg/mL)	6.8153
Sample dn/dc (mL/g)	0.1550
Method File	PS80K-Aug30-2013-0000.vcm
Column Set	3x PL 1113-6300
System	System 1

P18165-2-IPS_01.vdt: — Refractive Index — Right Angle Light Scattering — Low Angle Light Scattering — Viscometer - DP
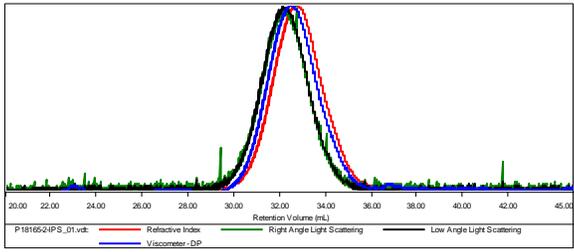
Sample	Mn	Mw	Mp	Mw/Mn	IV
P18165-2-IPS_01.vdt	35,815	47,611	43,455	1.329	0.3607

P18165-2-IPS_01.vdt: — Log Molecular Weight — Cumulative Weight Fraction — Normalized Mole Fraction
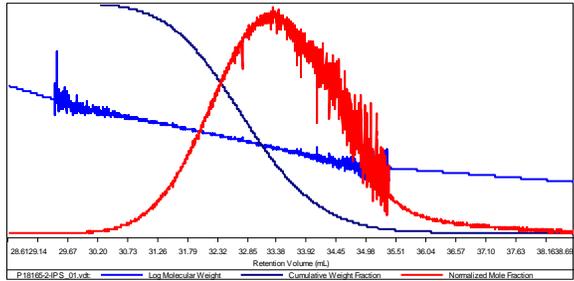
Sample ID: P18165-IPS2VP

Concentration (mg/mL)	15.9736
Sample dn/dc (mL/g)	0.1720
Method File	PS80K-Aug30-2013-0000.vcm
Column Set	3x PL 1113-6300
System	System 1

P18165-IPS2VP_crd_01.vdt: — Refractive Index — Right Angle Light Scattering — Low Angle Light Scattering — Viscometer - DP
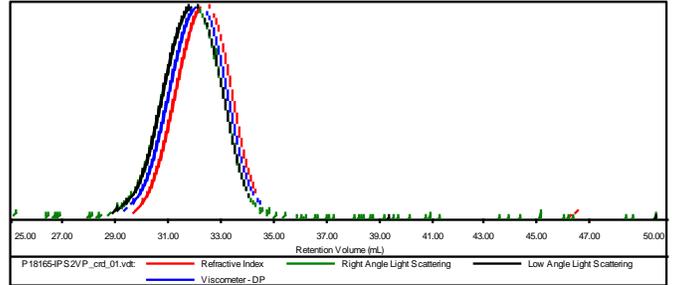
Sample	Mn	Mw	Mp	Mw/Mn	IV
P18165-IPS2VP_crd_01.vdt	55,938	63,884	56,751	1.142	0.4600

P18165-IPS2VP_crd_01.vdt: — Log Molecular Weight — Cumulative Weight Fraction — Normalized Mole Fraction