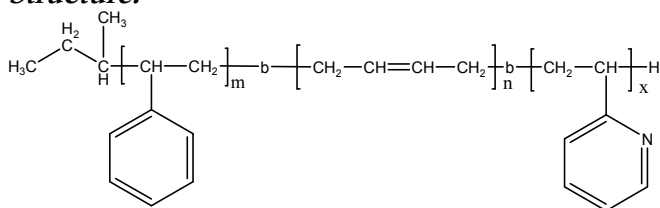


**Sample Name:**

Poly(styrene-b-butadiene (rich in 1,4 addition)-b-2-vinylpyridine )

Sample #: P3075-SBd2VP

**Structure:****Composition:**

Mn x 10 <sup>3</sup>	PDI
S-b-Bd-b-2VP	
45.9-b-55.1-b-12.0	1.06
T <sub>g</sub> for PS block: 100°C	T <sub>g</sub> for BD block: -54°C

**Synthesis Procedure:**

The polymer is synthesized by living anionic polymerization with sequence addition of styrene, butadiene (Bd), in cyclohexane and then 2VP along with THF.

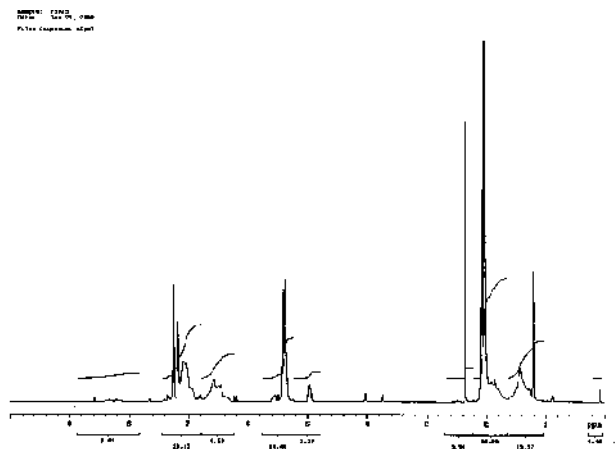
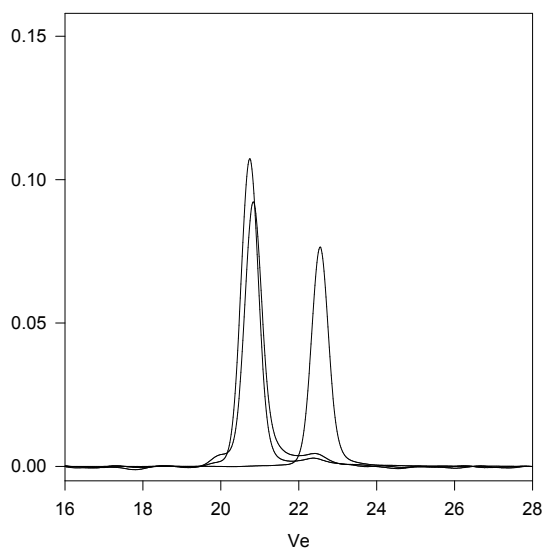
**Characterization:**

Block copolymer was characterized by Size exclusion chromatography (SEC). A Varian liquid chromatograph equipped with UV and refractive detector was used along with Supelco SEC columns. THF was used as an eluent. The columns were calibrated with monodisperse polystyrene. The molecular weights and the polydispersity index were calculated. The chemical composition was extracted from proton NMR, which was recorded from Varian 500MHz instrument using CDCl<sub>3</sub> as solvent. The molecular weights of 2<sup>nd</sup> and 3<sup>rd</sup> 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.

**Thermal analysis:** Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T<sub>g</sub>).

**Solubility:**

Polymer is soluble in THF, toluene, and CHCl<sub>3</sub>. The polymer readily precipitates from hexanes, ether and water.

**<sup>1</sup>H-NMR Spectrum of the product****SEC of the polymer:****P3075-SBd2VP**

Size Exclusion Chromatography :

—— P3075, the first PS block, M<sub>n</sub>=45900, M<sub>w</sub>/M<sub>n</sub>=1.05

—— P3075-SBD, the diblock PS(45800)-b-PBd(55100), M<sub>w</sub>/M<sub>n</sub>=1.10

—— P3075, the triblock PS(45900)-b-PBd(55100)-b-P2VP(12000) M<sub>w</sub>/M<sub>n</sub>=1.06 (composition from H NMR)