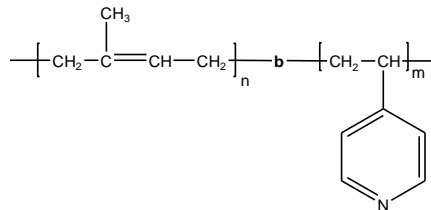


**Sample Name:** Poly(1,4-isoprene-b-4-vinyl pyridine)

**Sample #:** P3060-Ip4VP

**Structure:**

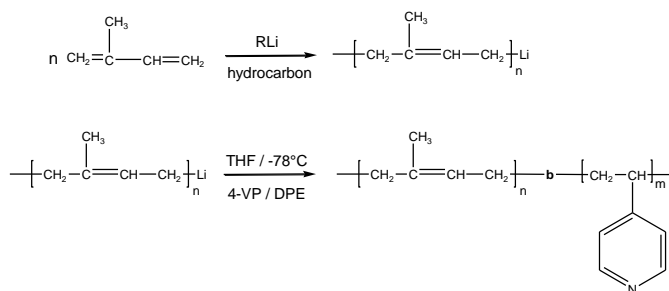


**Composition:**

$M_n \times 10^3$ Ip-b-4Vp	$M_w/M_n$ (PDI)
30.0-b-9.2	1.06
$T_g$ for Ip block: $-61^\circ\text{C}$	$T_g$ for 4VP block: $117^\circ\text{C}$

**Synthesis Procedure:**

Poly(1,4-isoprene-b-4-vinyl pyridine) is prepared by living anionic polymerization with sequence addition of isoprene followed by 4-vinyl pyridine. The reaction scheme is shown below:



**Characterization:**

An aliquot of the anionic poly(1,4-isoprene) block was terminated before addition of 4VP and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from  $^1\text{H}$ -NMR spectroscopy by comparing the peak area of the vinylic isoprene proton at about 5.1 ppm with 4-vinyl pyridine protons at 8.5 ppm. Block copolymer PDI is determined by SEC.

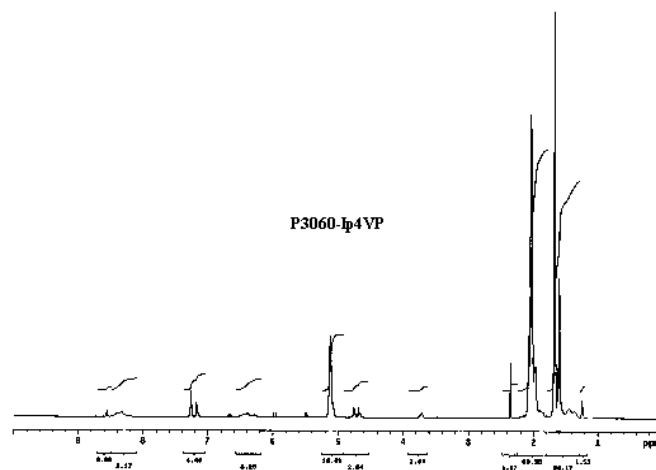
**Thermal Analysis:**

Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of  $15^\circ\text{C}/\text{min}$ . The inflection glass transition temperature ( $T_g$ ) of the sample has been considered.

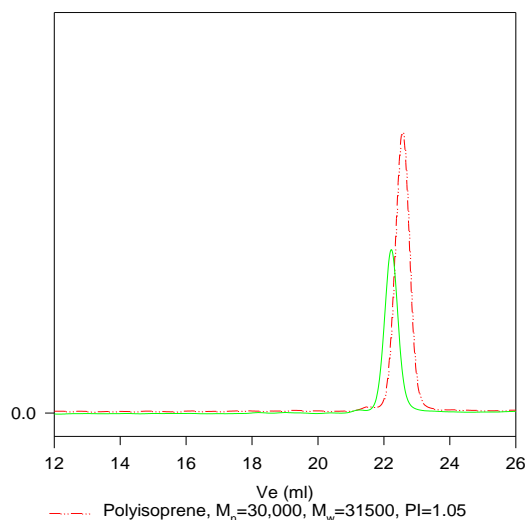
**Solubility:**

Poly(1,4-isoprene-b-4-vinyl pyridine) is soluble in THF, chloroform and toluene.

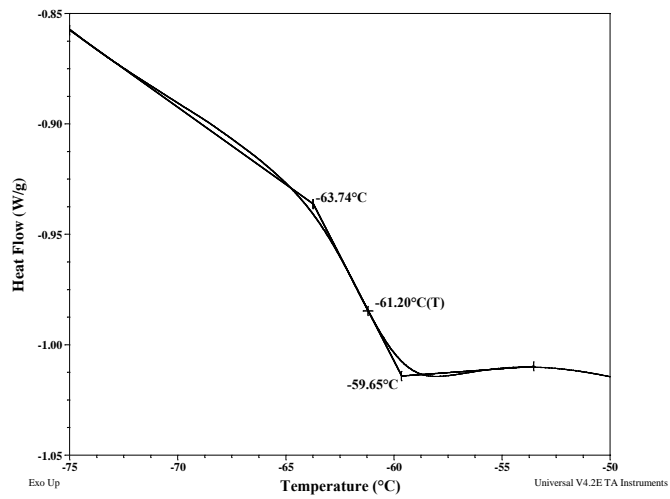
**$^1\text{H}$  NMR for the polymer:**



**SEC profile of the block copolymer**  
P3060-Ip4Vp



DSC thermogram for the Ip block:



DSC thermogram for the 4VP block:

