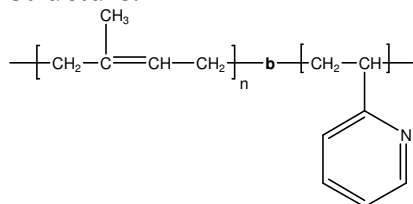


**Sample Name:** Poly(1,4-isoprene-b-2-vinyl pyridine)

**Sample #:** 1183 Ip2VP

**Structure:**

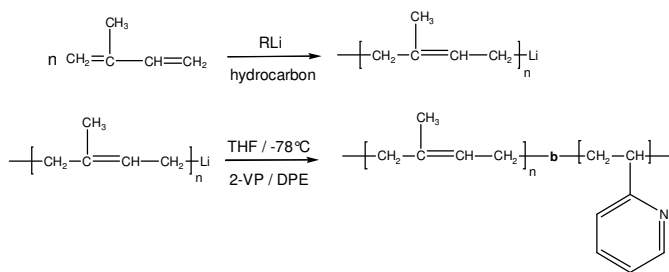


**Composition:**

$M_n \times 10^3$ Ip-b-2VP	$M_w/M_n$ (PDI)
220.0-b-21.5	1.05

**Synthesis Procedure:**

Poly(1,4-isoprene-b-2-vinyl pyridine) is prepared by living anionic polymerization with sequence addition of isoprene followed by 2-vinyl pyridine. The reaction scheme is shown below:



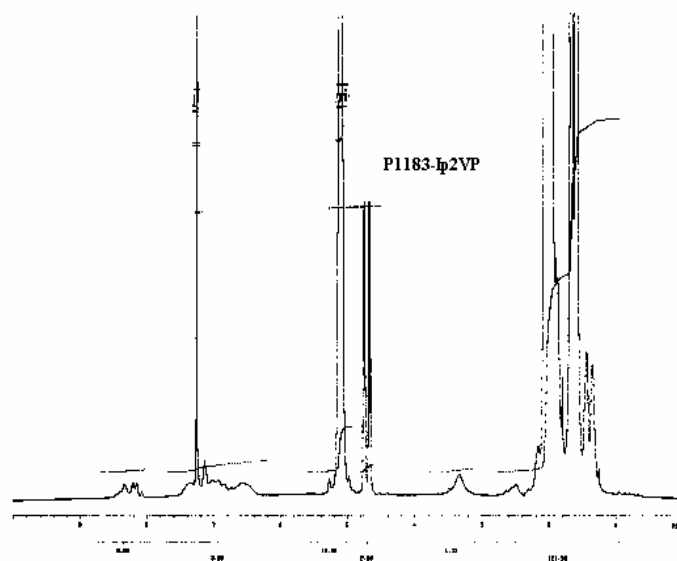
**Characterization:**

An aliquot of the anionic poly(1,4-isoprene) block was terminated before addition of methyl methacrylate 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 2-vinyl pyridine proton at 8.2 ppm. Block copolymer PDI is determined by SEC.

**Solubility:**

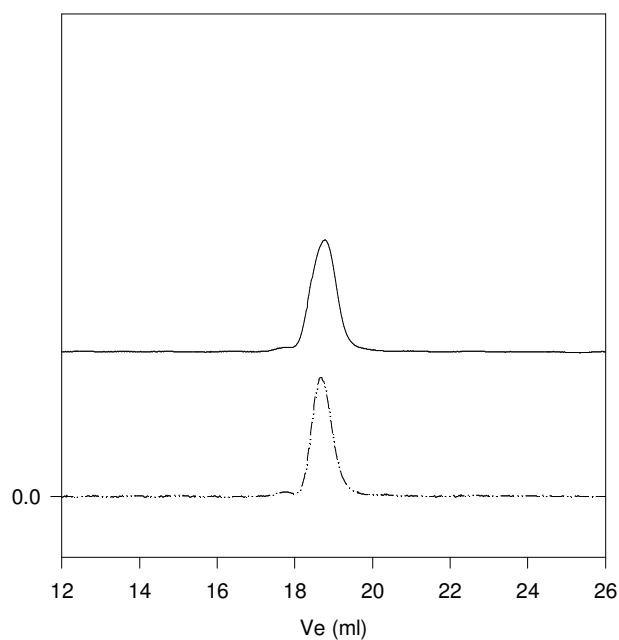
Poly(1,4-isoprene-b-2-vinyl pyridine) is soluble in THF, chloroform and toluene.

$^1\text{H}$  NMR spectrum of the sample:



**SEC profile of the block copolymer**

**P1183-IP2VP**



— Polyisoprene,  $M_n=220000$ ,  $M_w=231000$ ,  $PI=1.05$   
 — Block Copolymer PIp(220000)-b-P2VP(21500),  $PI=1.05$

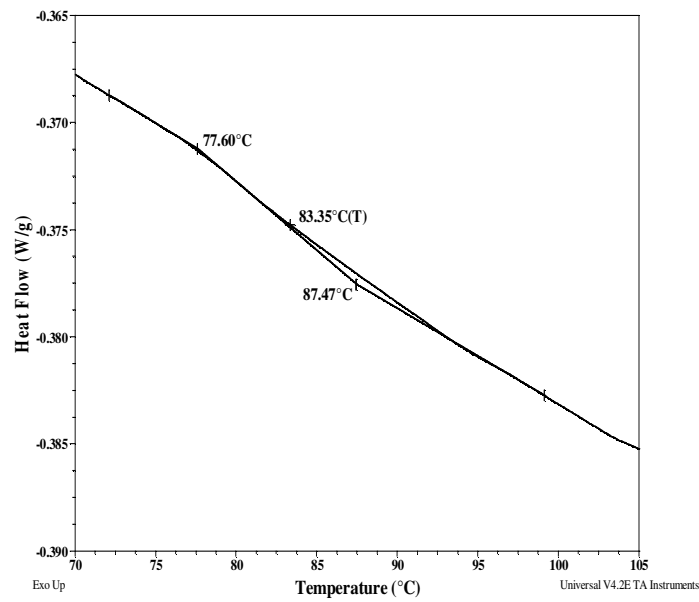
Thermal analysis of the sample# P1183-Ip2VP

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 ( $T_g$ ).

Thermal analysis results at a glance

Sample	$T_g$ (°C)
Ip block	-61
2VP block	83

Thermogram for 2VP block:



Thermogram for Ip block:

