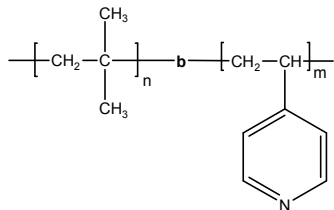


**Sample Name:** Poly(isobutylene-b-4-vinyl pyridine)

**Sample #:** P9247-IB4VP

**Structure:**



**Composition:**

$M_n \times 10^3$ Ib-b-4VP	$M_w/M_n$ (PDI)
7.0-b-24.0	1.25
$T_g$ for Ib block: -73°C	$T_g$ for 4VP block: 140°C

**Synthesis Procedure:**

Poly(isobutylene-b-methyl methacrylate) is prepared by cationic polymerization of isobutylene to obtain functionalized poly isobutylene. This end group converted to anionic species followed by living anionic polymerization of 4VP monomer.

**Characterization:**

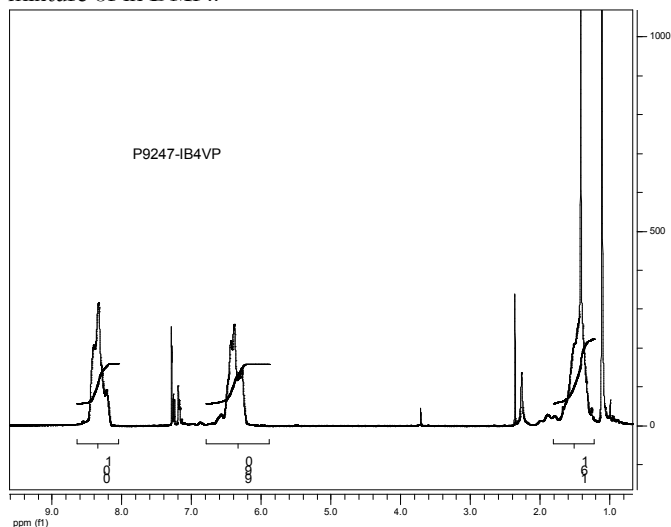
An aliquot of the poly(isobutylene) block was terminated before addition of 4-vinyl pyridine and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from  $^1\text{H-NMR}$  spectroscopy by comparing the peak area of the isobutylene protons at 1.1 ppm with the peak area of 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 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 ( $T_g$ ).

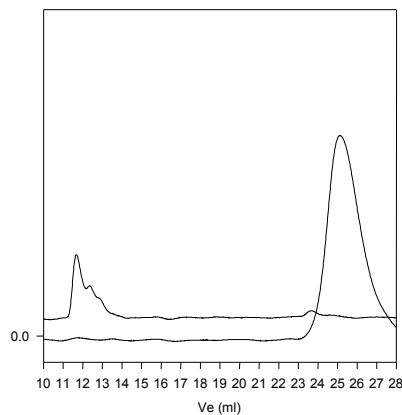
**Solubility:**

Poly(isobutylene-b-4-vinyl pyridine) is soluble in THF-DMF mixture or in DMF..



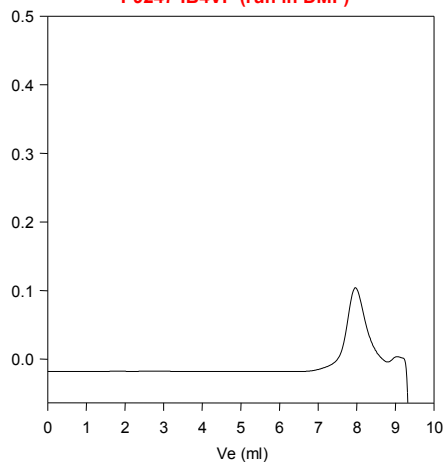
SEC profile of the block copolymer:

**P9247-IB4VP (in THF/DMF mixture)**



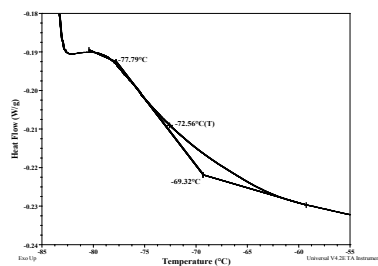
— Polyisobutylene,  $M_n=7000$ ,  $M_w=8500$ ,  $PI=1.2$   
PIB-b-4VP : 7000-b-24000 Mw/Mn 1.25  
— Block Copolymer eluted in THF/DMF mixture showing micellization.

**P9247-IB4VP (run in DMF)**



— Polyisobutylene,  $M_n=7000$ ,  $M_w=8500$ ,  $PI=1.2$   
— Block Copolymer eluted in DMF at 40 °C: Mw/Mn: 1.25  
Mn 7000-b-24000 (calculated from HNMR)

**Thermogram for isobutylene block:**



**Thermogram for 4VP block:**

