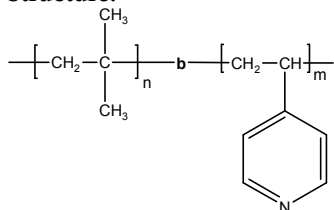


Sample Name: Poly(isobutylene-b-4-vinyl pyridine)

Sample #: P9246-IB4VP

Structure:



Composition:

| $M_n \times 10^3$ Ib-b-4VP | M_w/M_n (PDI) |
|---|--|
| 7.0-b-23.0 | 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:

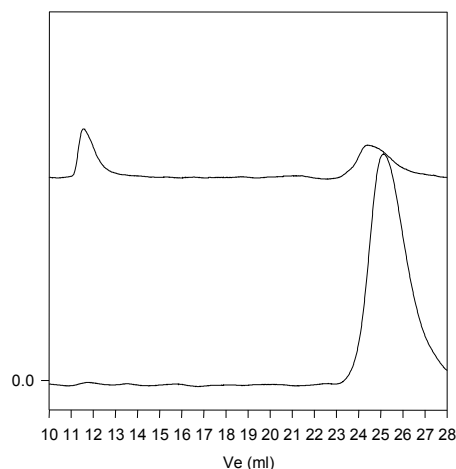
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of $10^\circ\text{C}/\text{min}$. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:

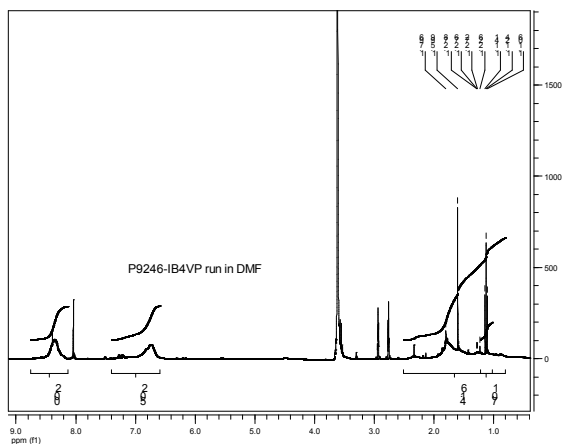
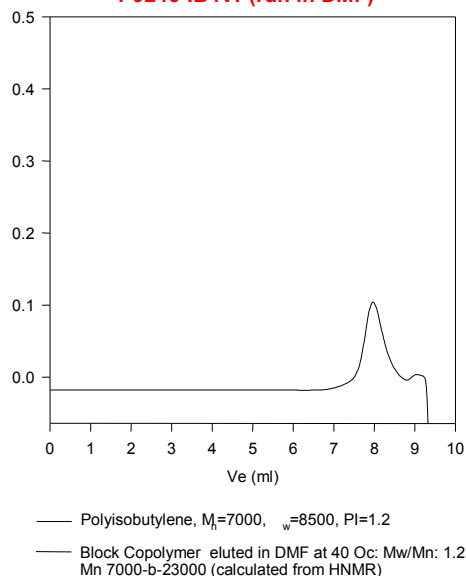
Poly(isobutylene-b-4-vinyl pyridine) is soluble in THF-DMF mixture or in DMF.

SEC profile of the block copolymer:

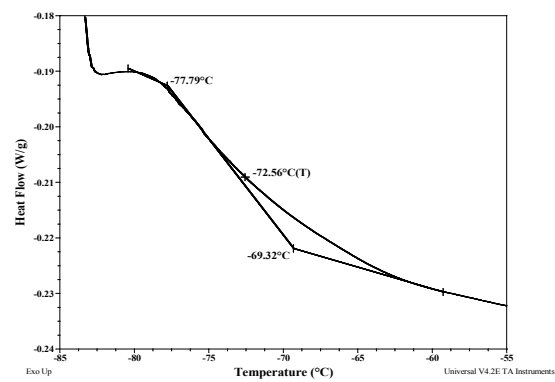
P9246-IB4VP (in THF/DMF mixture)



P9246-IB4VP(run in DMF)



Thermogram for isobutylene block:



Thermogram for 4VP block:

