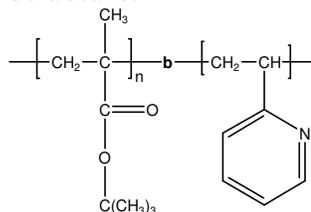


Sample Name: Poly(t-butyl methacrylate-b-2-vinyl pyridine)

Sample #: P6232-tBuMA2VP

Structure:



Composition:

Mn x 10 ³ tBuMA-2VP	PDI
1.9-b-1.9	1.18
T _g for tBuMA block	Not distinct
T _g for 2VP block	78 °C

Synthesis Procedure:

Poly(t-butyl methacrylate-b-2-vinyl pyridine) is synthesized by living anionic polymerization with sequence addition of t-butyl methacrylate followed by 2-vinyl pyridine in THF using an RLi/LiCl adduct.

Characterization:

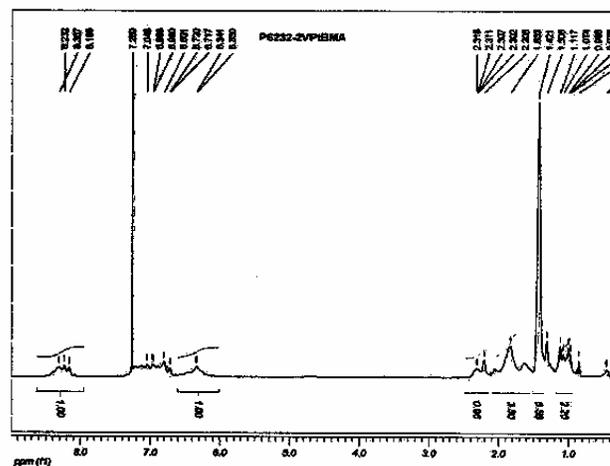
An aliquot of the anionic poly(t-butyl acrylate) block was terminated before addition of 2-vinyl pyridine and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ¹H-NMR spectroscopy by comparing the peak area of the t-butyl acrylate protons at about 1.43 ppm with the peak area of the vinyl pyridine protons at about 8.2 ppm. Copolymer PDI is determined by SEC.

Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T_g) has been considered.

Solubility:

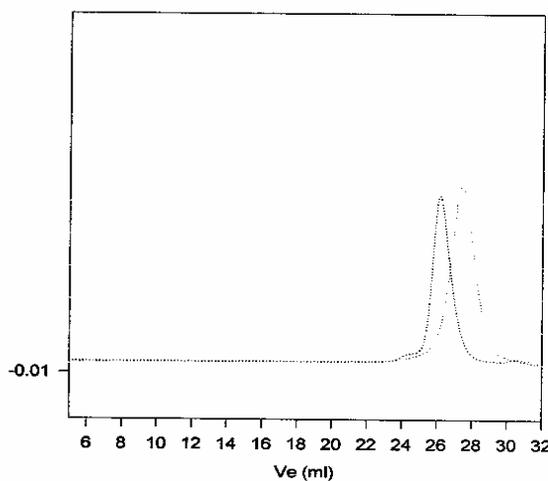
Poly(tert butyl methacrylate-b-4 vinyl pyridine) is soluble in CHCl₃, DMF, and may also solubilize in ethanol or methanol depending on the composition.

¹H-NMR Spectrum of the block copolymer:



SEC of the tBuMA block:

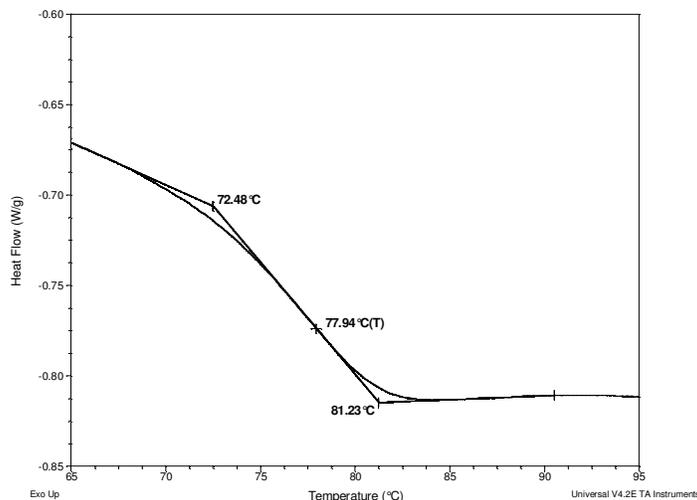
P6232-2VPtBMA



Size exclusion chromatography of poly(2-vinylpyridine-b-t-butyl methacrylate):

- Poly(2-vinyl pyridine), M_n=1900, M_w=2500, PI=1.30
- Block Copolymer P2VP(1900)-b-PtBMA(1900), PI=1.18

Thermogram for the polymer



Reference:

S. K. Varshney, X. F. Zhong and A. Eisenberg
Macromolecules, 1993, 26, 701-706.