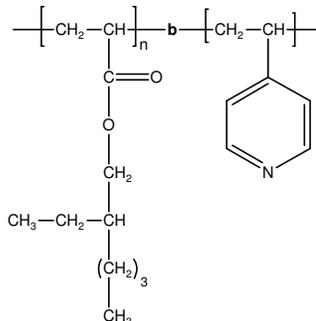


Sample Name: Poly(2-ethyl hexyl acrylate-b-4-vinyl pyridine)

Sample #: P1888-2EtHA4VP

Structure:

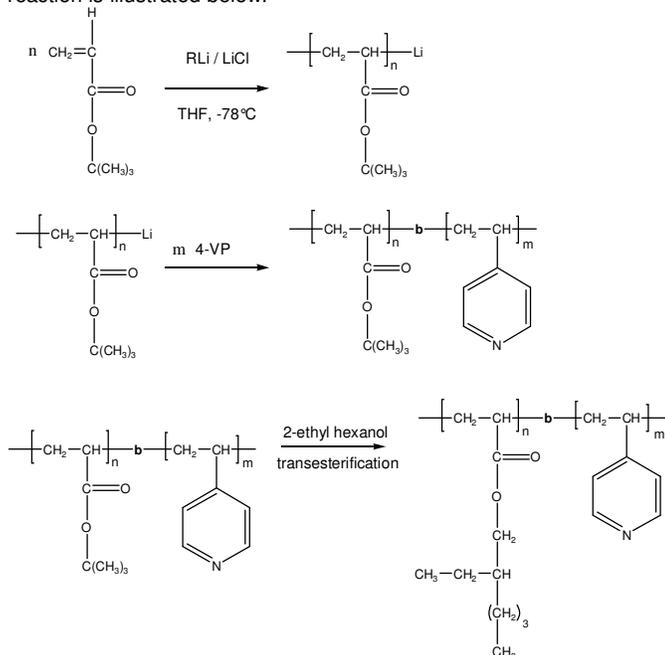


Composition:

Mn x 10 ³ P2EtHA-b-4VP (k)	PDI
15.0-b-0.8	1.20

Synthesis Procedure:

Poly(2-ethyl hexyl acrylate-b-4-vinyl pyridine) is prepared by living anionic polymerization with sequence addition of t-butyl acrylate followed by 4-vinyl pyridine in THF using an RLi/LiCl adduct. Poly tert butyl acrylate block than transesterification to poly 2 ethyl hexyl acrylate in the presence of 2 ethyl hexanol. The scheme of the reaction is illustrated below:



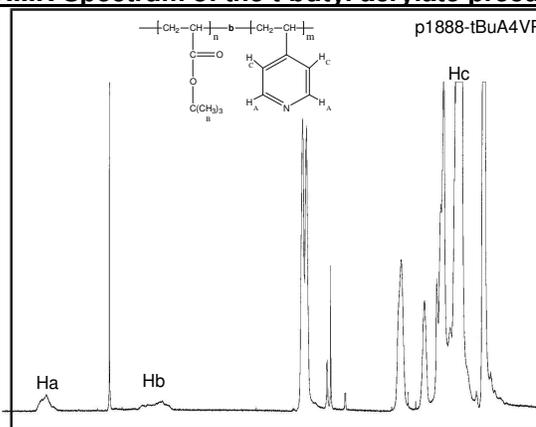
Characterization:

An aliquot of the anionic poly(t-butyl acrylate) 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 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 8.5 ppm. Copolymer PDI is determined by SEC. Composition was also determined by titrating poly vinyl pyridine with HClO₄ in acetic acid using crystal violet indicator.

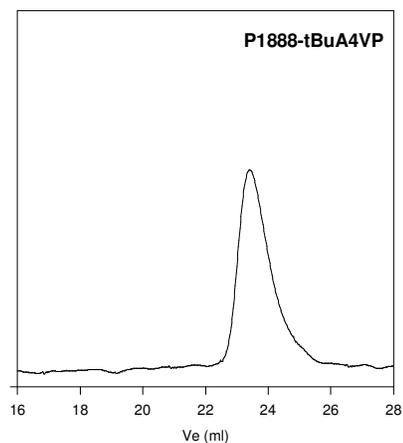
Solubility:

Poly(2-ethylhexylacrylate-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 t-butyl acrylate precursor:



SEC Analysis:



Size exclusion chromatograph of Poly(t-butyl acrylate) in THF
M_n=10300, M_w=12200, PI=1.18

Composition of block copolymer by titration: Mn 10300(tBuA)-800(4VP)

Reference:

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