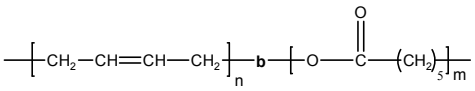
Sample Name: Poly(1,4-butadiene-b-ε-caprolactone)

Sample #: P10442-BdCL

Structure:

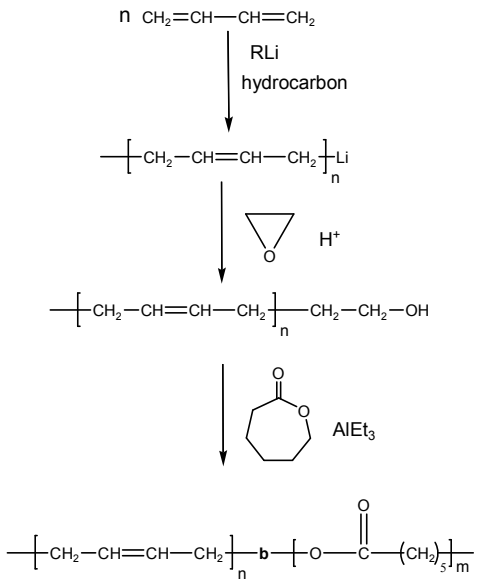


Composition:

Mn × 10^3 Bd-b-CL	Mw/Mn (PDI)
1.2-b-2.8	1.09

Synthesis Procedure:

Poly(1,4-butadiene-b-ε-caprolactone) is prepared by living anionic polymerization addition of butadiene followed coordination polymerization of ε-caprolactone. The reaction scheme is shown below:



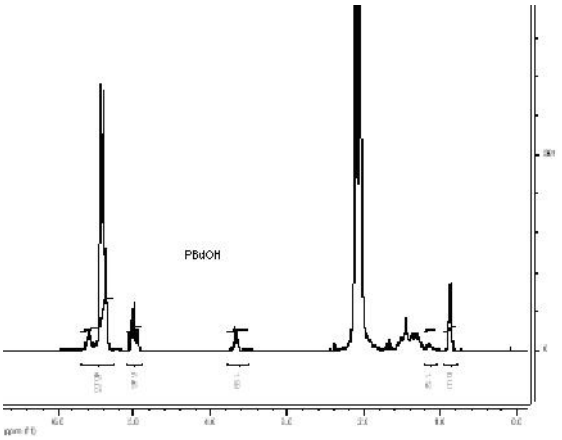
Characterization:

An aliquot of the anionic poly(butadiene) block was terminated before addition of ε-caprolactone 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}H-NMR spectroscopy by comparing the peak area of the vinylic butadiene protons at about 5.4 ppm with the e-caprolactone protons at about 4.1ppm. Block copolymer PDI is determined by SEC.

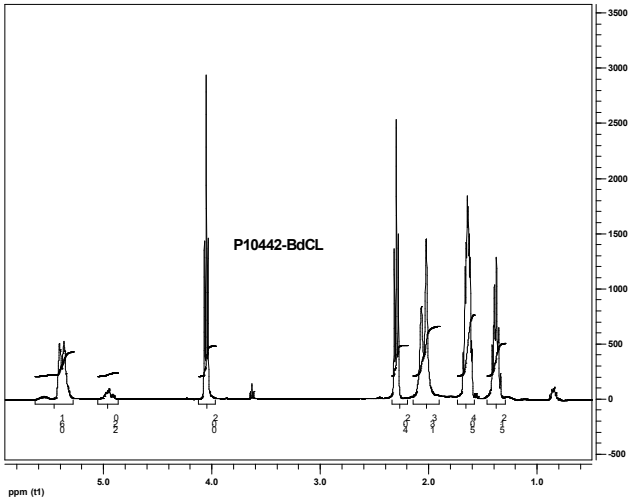
Solubility:

The polymer is soluble in tetrahydrofuran (THF) and chloroform ($CHCl_3$).

^{1}H NMR of the BdOH:



^{1}H NMR of the block polymer:



SEC of the block copolymer: