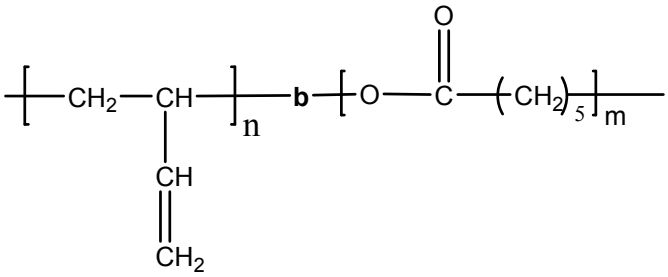
Sample Name: Poly(1,2-butadiene-b-ε-caprolactone)

Sample #: P10445-BdCL

Structure:



Composition:

Mn × 10^3 Bd-b-CL	Mw/Mn (PDI)
1.0-b-2.5	1.09
PBd microstructure 1,2 addition: 65%	

Synthesis Procedure:

Poly(1,2-butadiene-b-ε-caprolactone) is prepared by living anionic polymerization addition of butadiene followed coordination polymerization of ε-caprolactone.

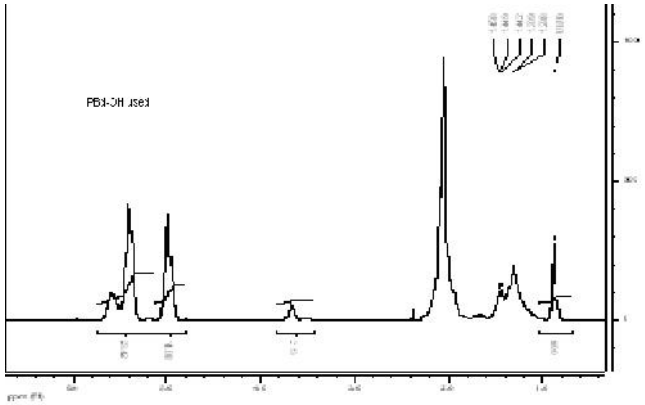
Characterization:

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.

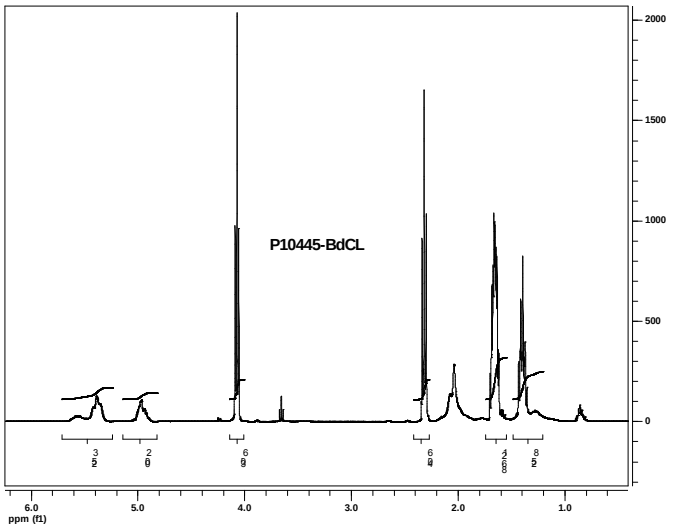
Solubility:

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

^{1}H NMR of the BdOH terminated

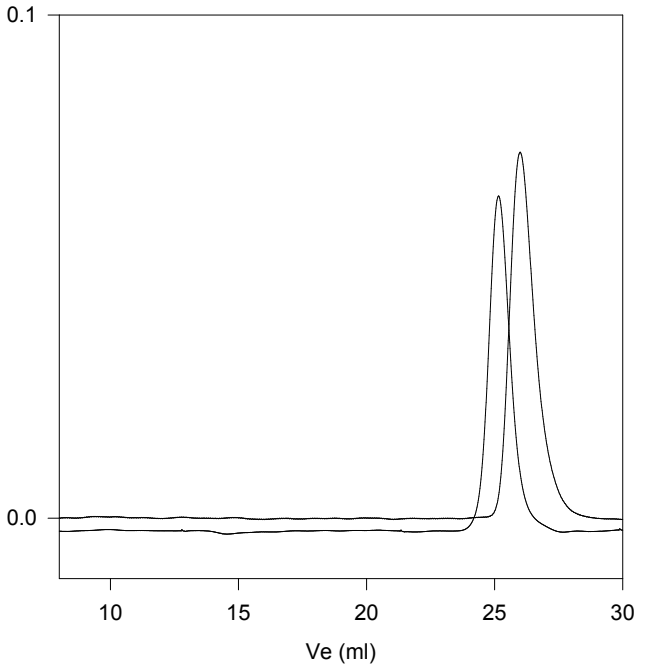


^{1}H NMR of the diblock copolymer:



SEC of the block copolymer:

P10445-BdCL



SEC profile of Poly(Butadine $_{1,4\ addition}$-b-ε–caprolactone):

Polybutadiene, M_n=1000, M_w=1100, PI=1.10

Block Copolymer PBd(1000)-b-PεCL(2500), PI=1.09