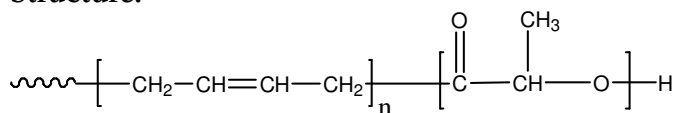


Sample Name: Poly(Butadiene, 1,4 rich addition -b-Lactide)

Sample #:
P8989-BdLA (D form)

Structure:

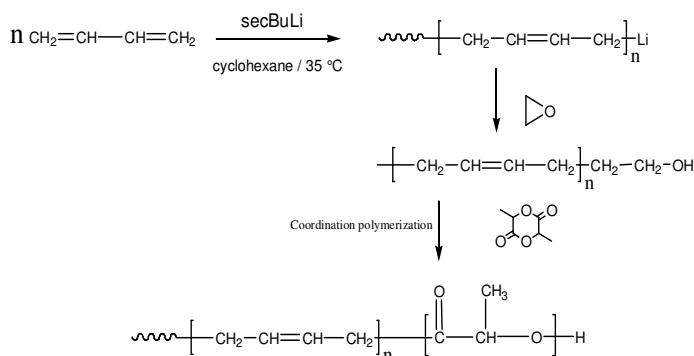


Composition:

Mn x 10 ³ Bd-b-LA	Mw/Mn (PDI)
12.5-b-15.5	1.2

Synthesis Procedure:

Poly(1,4-butadiene-b-lactide) is prepared by living anionic polymerization addition of butadiene followed by coordination polymerization of Lactide (*D-form*). The reaction scheme is shown below:



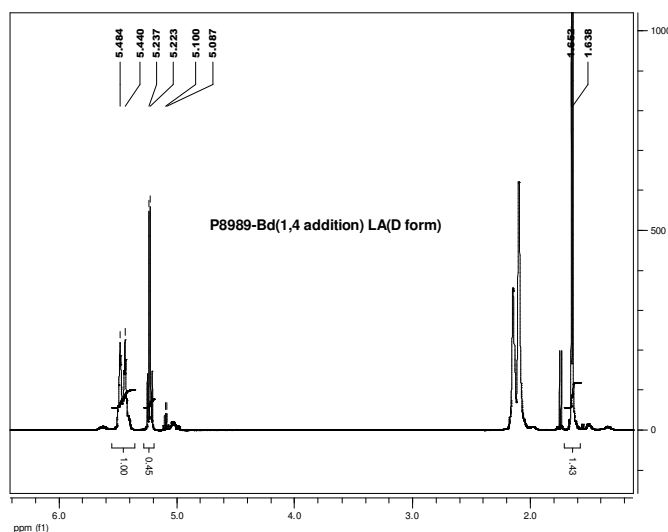
Characterization:

Block copolymer composition was calculated from ¹H-NMR spectroscopy by comparing the peak area of the vinylic butadiene protons at about 5.4 ppm with the lactide protons at about 5.1 ppm. Block copolymer PDI is determined by SEC.

Solubility:

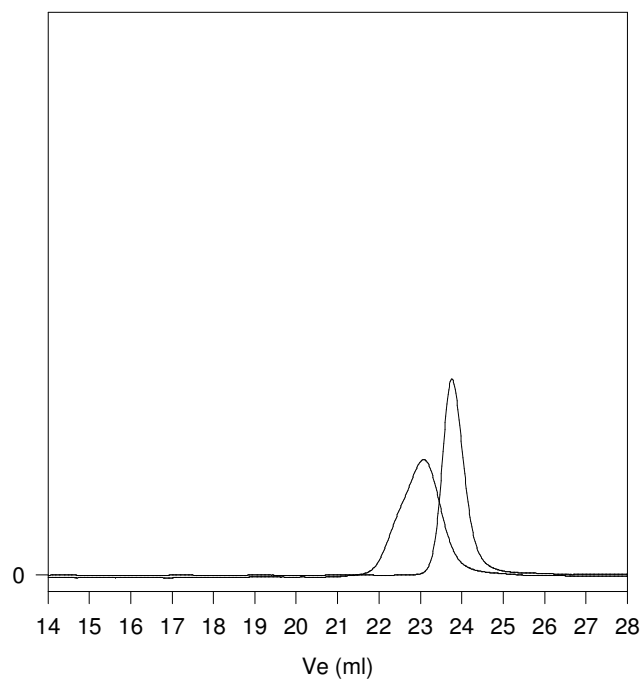
The polymer is soluble in tetrahydrofuran (THF) and chloroform (CHCl₃).

¹H NMR spectrum of the sample:



SEC profile of the block copolymer:

P8989-Bd(1,4 addition) LA (D form)



— SEC profile of Poly(Butadiene_{1,4 addition}-b-Lactide):

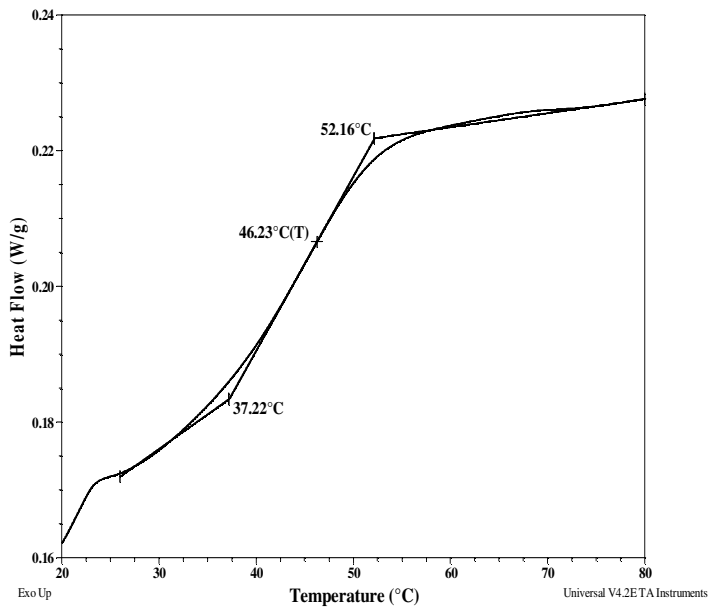
— Polybutadiene, M_n=12500, M_w=13200, PI=1.05

— Block Copolymer PBd(12500)-b-PLA(15500), PI=1.2

Thermal analysis of the sample P8989-BdLA

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/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).

Thermogram for PLA block



Thermal analysis results at a glance

For Bd block (1,4 addition)		
T_g : Not found	T_m : -	T_c : -
For LA block		
T_g : 46°C	T_m : 165°C	T_c : -

Melting curve for the sample

The melting temperature (T_m) was taken as the maximum of the endothermic peak.

Melting curve for PLA block:

