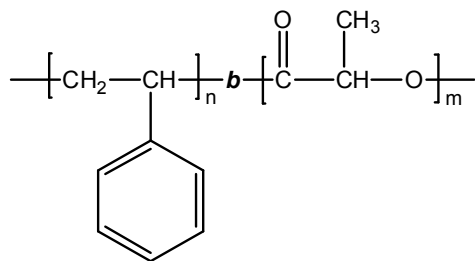


**Sample Name:** Poly(styrene-b--lactide)

**Sample #:** P6514-SLA (LA is L form)

**Structure:**

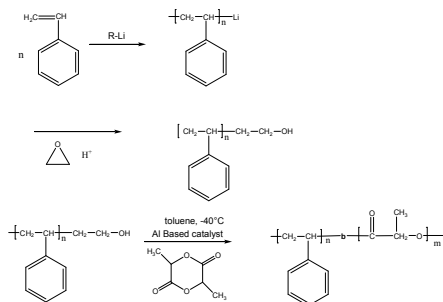


**Composition:**

Mn x 10 <sup>3</sup> S-b-LA	Mw/Mn (PDI)
21.0-b-19.0	1.11

**Synthesis Procedure:**

Poly(styrene-b-lactide) is prepared by living anionic polymerization in sequential addition of styrene followed by lactide monomer or by taking the OH end functionalized polystyrene and using co-ordination polymerization process. The scheme of the reaction is illustrated below:



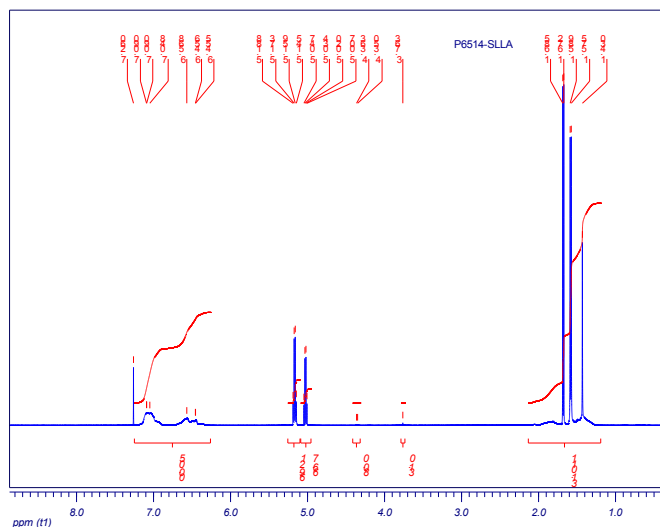
**Characterization:**

The block polymer was analyzed by size exclusion chromatography (SEC) to estimate the molecular weight and polydispersity index (PDI). Further, the copolymer composition was calculated from <sup>1</sup>H-NMR spectroscopy by comparing the peak area of the polystyrene protons at about 6.3-7.2 ppm with the lactide protons at 5.2 ppm. Copolymer PDI was determined by SEC.

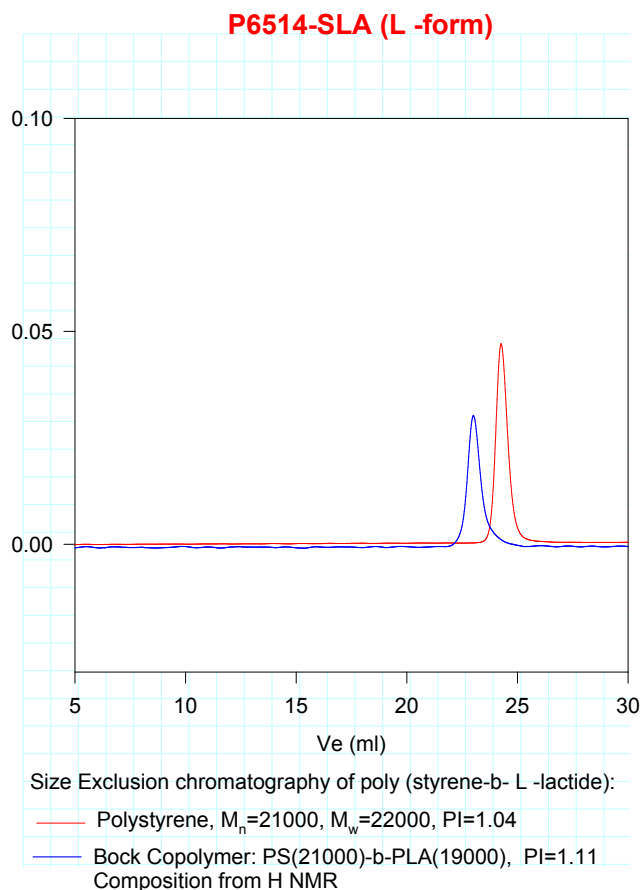
**Solubility:**

Poly(styrene-b-lactide) is soluble in chloroform, THF, and toluene.

**<sup>1</sup>H-NMR Spectrum of the block copolymer:**



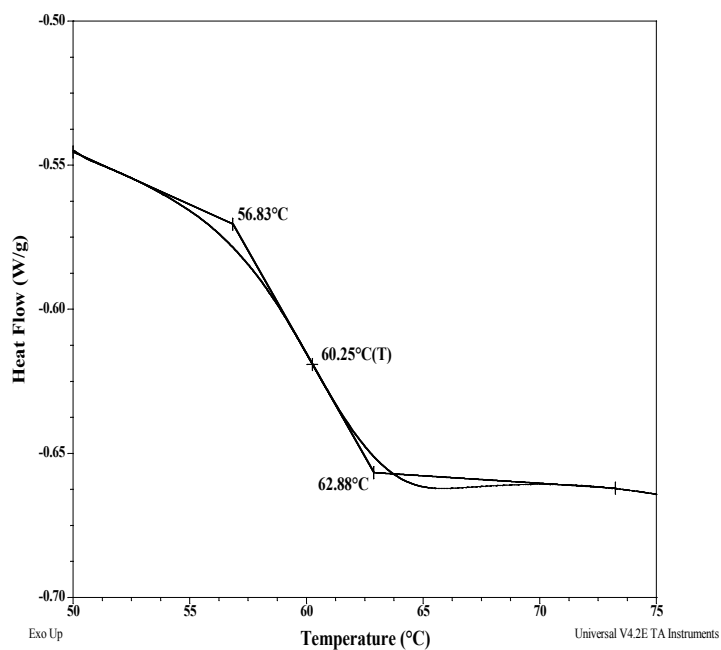
**SEC of Sample of the block copolymer:**



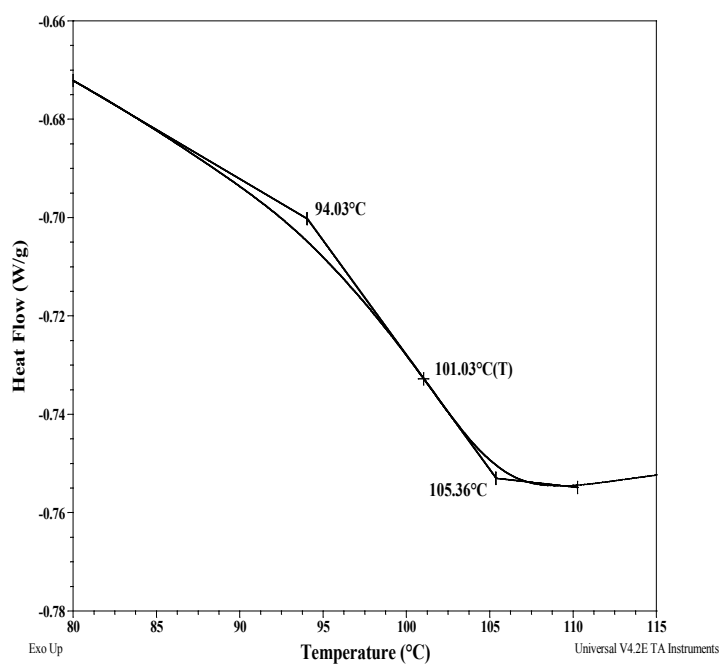
## Thermal analysis of the sample# P6514-SLA

Thermal analysis of the block polymer 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:



### For PS block



## Thermal analysis results at a glance

For PLA block		
$T_g$ : 60°C	$T_m$ : 169°C	$T_c$ : Not observed
For PS block		
	$T_g$ : 101°C	

### Melting curve for the sample

The melting temperature ( $T_m$ ) was taken as the maximum of the endothermic peak during heating of the sample from 20°C to 200°C at heating rate of 10°C/min.

### Melting curve for PLA block

