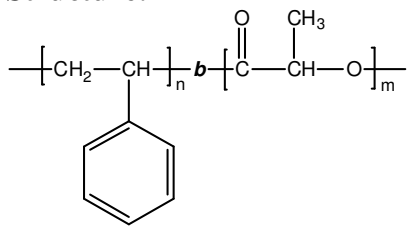


Sample Name: **Poly(styrene-b-lactide)**

Sample #: P40073-SLA (LA is DL form)

Structure:

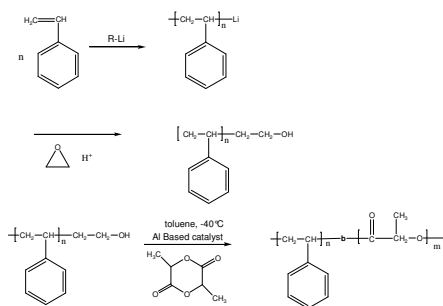


Composition:

Mn x 10 ³ S-b-LA	Mw/Mn (PDI)
19.0-b-2.5	1.03

Synthesis Procedure:

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



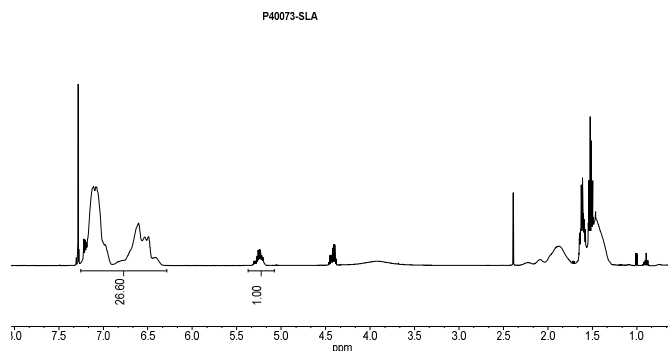
Characterization:

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 $^1\text{H-NMR}$ 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.

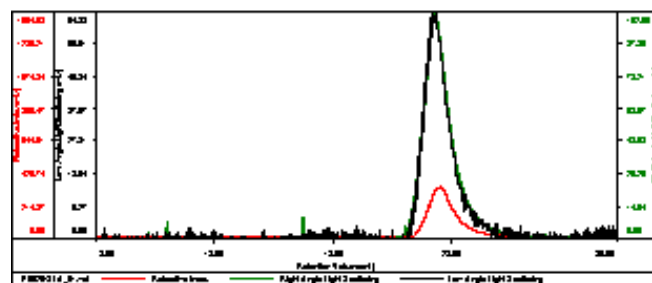
¹H NMR Spectrum of the block copolymer:



SEC elugram of the block copolymer:

Sample ID: P40073-SLA

Concentration (mg/mL)	11.3333
Sample divide (mL/g)	0.1999
Method File	Peak4-Aug262013.m
Column Bat	3x PL 11.0000
Solvent	THF

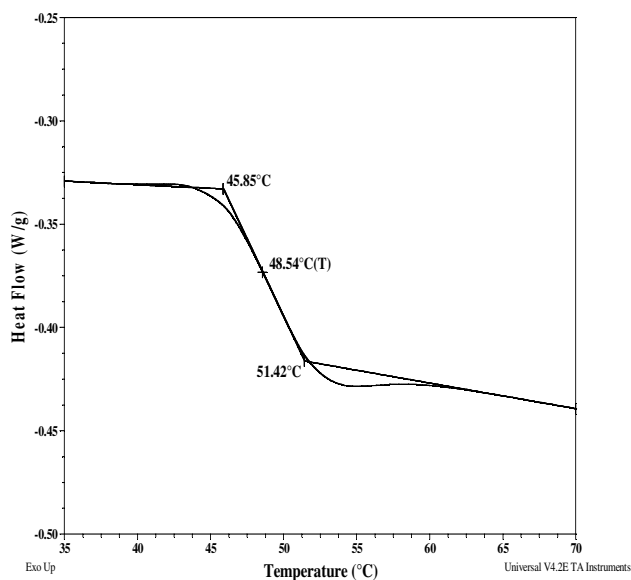


Sample	Min (Da)	Max (Da)	Min/Max	1/(σ/Ln)	Min (Da)
SLA_01.wet	21,355	22,061	1.033	0.1556	21,600

Thermal analysis of the sample# P40073-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:



Thermal analysis results at a glance

T_g for PLA block	T_g for PS block
49°C	98°C

Thermogram for PS block:

