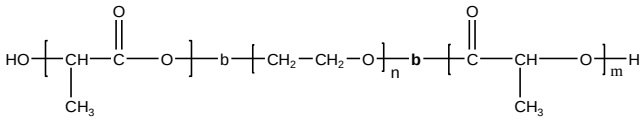
Sample Name:
Poly(lactide -b- ethylene oxide -b- lactide) (L form)

Sample #: P7191-LAEOLA (L form)

Structure:

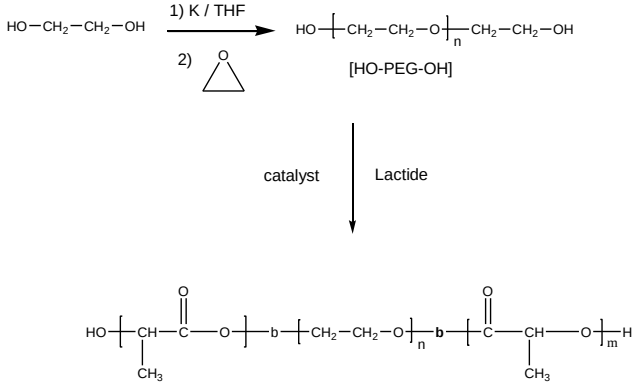


Composition:

Mn x 10^3	PDI
2.0-2.0-2.0	1.06

Synthesis Procedure:

Poly(lactide -b- ethylene oxide -b- lactide) was prepared by of living anionic polymerization of ethylene oxide (EO) followed by living coordination polymerization of D,L-lactide(LA) using tin catalyst. The scheme of the reaction is illustrated below:



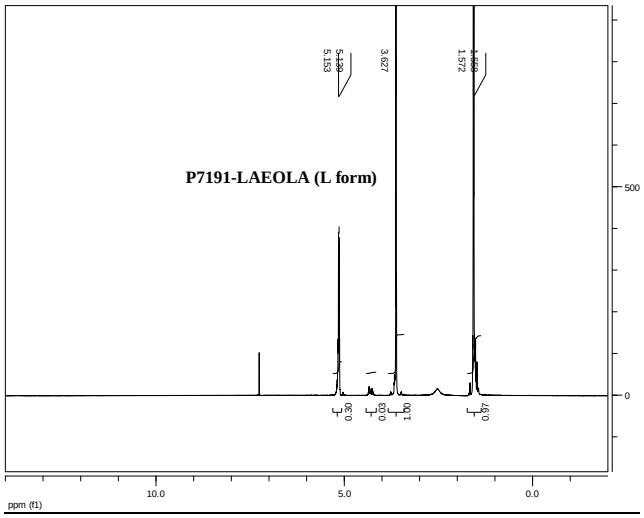
Characterization:

The molecular weight and polydispersity index of the poly(ethylene oxide) block was determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector. The composition of the lactide ABA triblock copolymer was determined using ^{1}H-NMR spectroscopy by comparing the integration of the lactide peaks (5.2ppm) with that of the ethylene oxide peaks (3.6ppm).

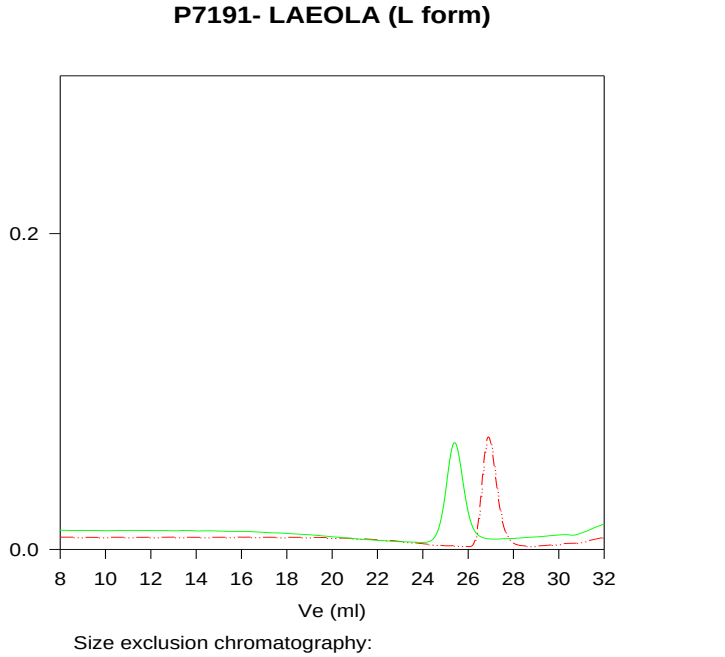
Solubility:

The polymer is soluble in THF, chloroform, DMF and toluene, but not soluble in hexane.

NMR of Sample:



SEC of Sample:



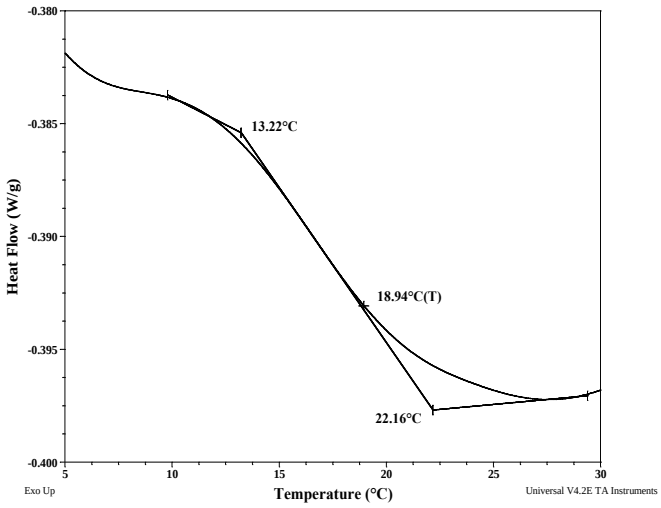
Thermal analysis of the sample# P7191-LAEOLA

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 20°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).

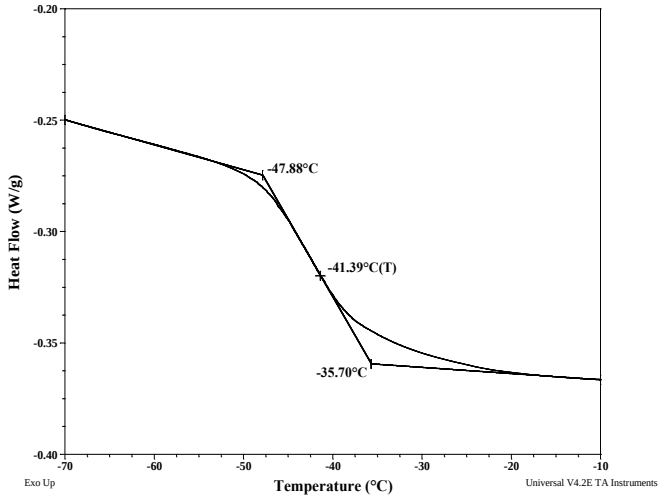
Thermal analysis results at a glance

For PLA block (L-form)		
T_g: 19°C	T_m: 129°C	T_c: Not found
For PEO block		
T_g: -41°C	T_m: 43°C	T_c: 23°C

Thermograms for PLA block



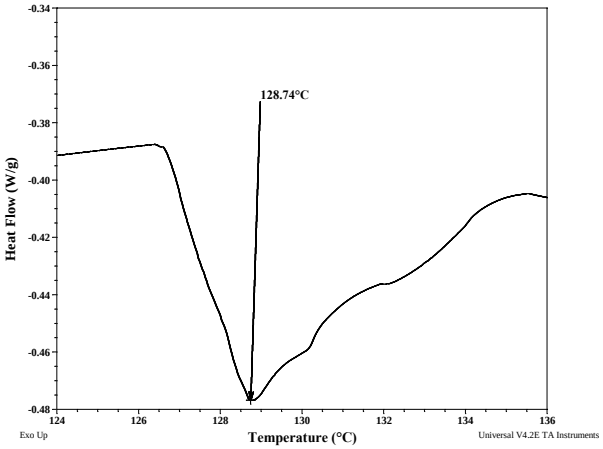
Thermograms for PEO block:



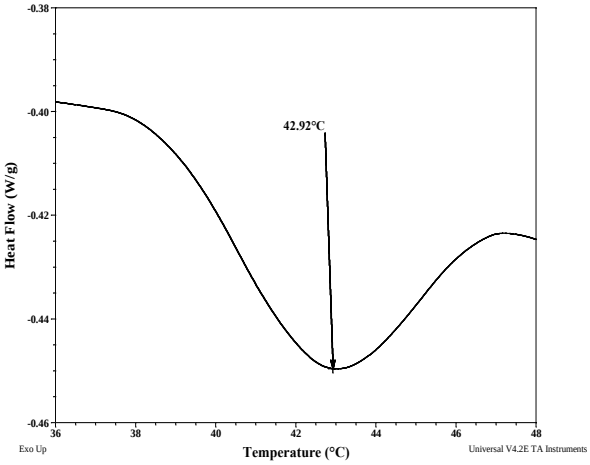
Melting and crystallization curve for the sample

The melting temperature (T_m) was taken as the maximum of the endothermic peak where as the crystallization temperature (T_c) was considered as the minimum of the exothermic peak.

Melting curve for PLA block



Melting curve for PEO block



Crystallization curve For PEO block