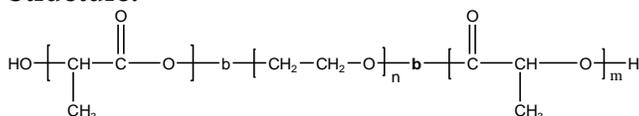


Sample Name:

Poly(lactide -b- ethylene oxide -b- lactide) (DL form)

Sample #: P8473-LAEOLA (DL form)

Structure:

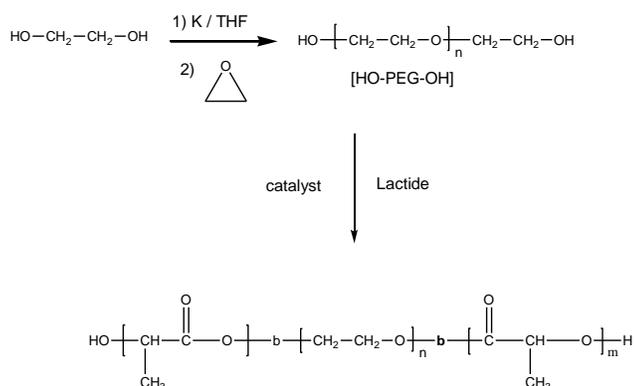


Composition:

Mn x 10 ³	PDI
1.6-b-8.0-b-1.6	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 a Tin catalyst. The scheme of the reaction is illustrated below:



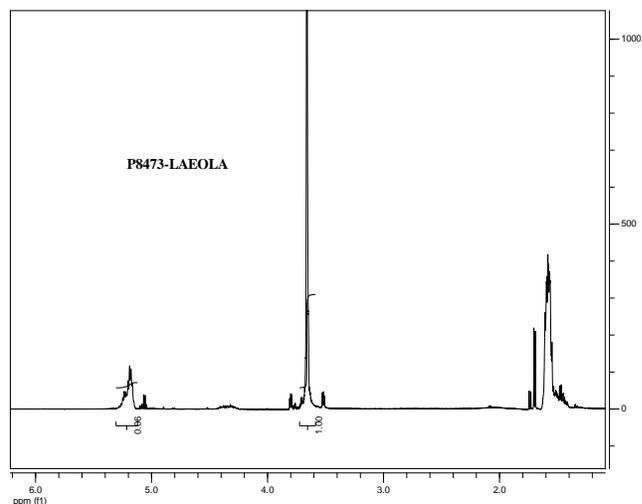
Characterization:

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 ¹H-NMR spectroscopy by comparing the integration of the lactide peaks (5.2ppm) with that of the ethylene oxide peaks (3.6ppm).

Solubility:

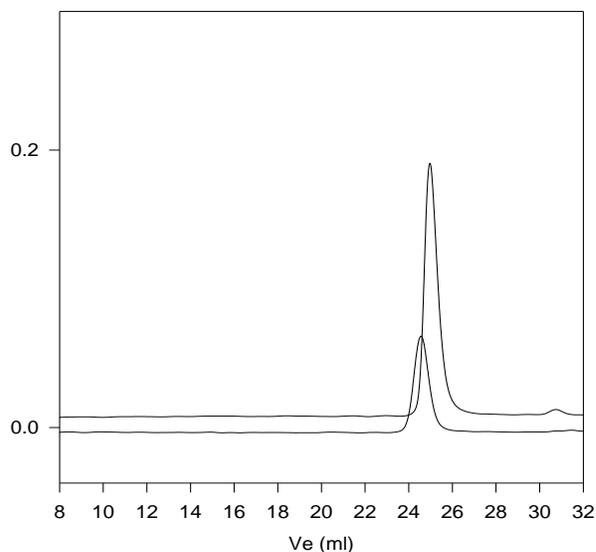
The polymer is soluble in THF, chloroform, DMF and toluene, but not soluble in hexane.

NMR of Sample:



SEC of Sample:

P8473- LAEOLA (DL form)



Size exclusion chromatography:

- Poly(ethylene glycol) diol, M_n=8000, M_w=8400, PI=1.05
 - Block Copolymer PLA(1600)-PEO(8000)-b-PLA(1600), PI=1.06
- Composition from ¹H NMR
Dp: LA(22)-EO(182)-b-LA(22)

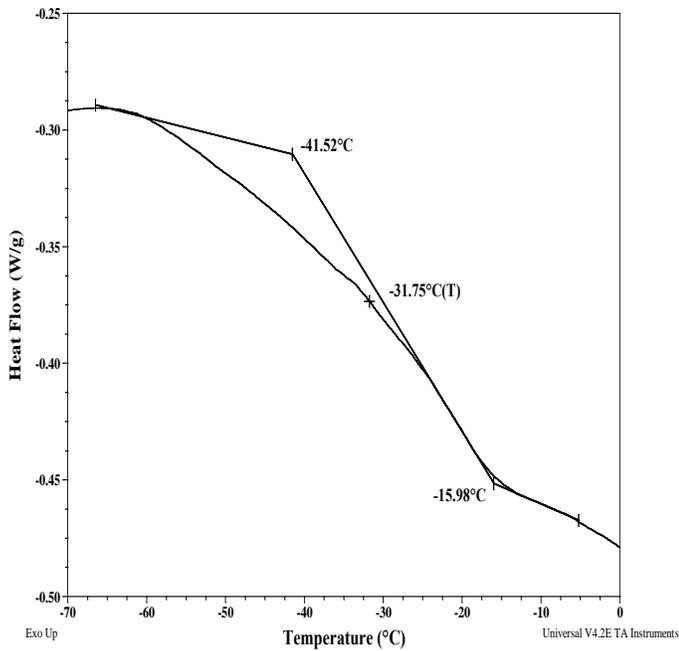
Thermal analysis of the sample# P8473-LAEOLA

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).

Thermal analysis results at a glance

For PLA block (DL)		
T_g : Not distinct	T_m : -	T_c : -
For PEO block		
T_g : -32°C	T_m : 53°C	T_c : 30°C

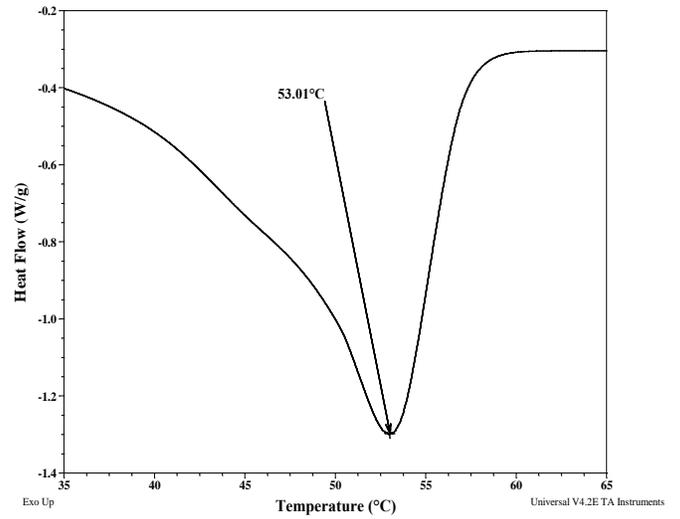
For PEO block



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 PEO block



Crystallization curve For PEO block

