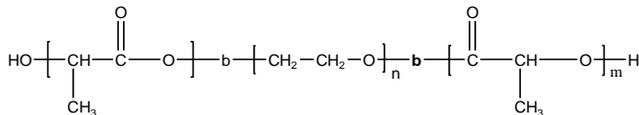


Sample Name:

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

Sample #: P8481-LAEOLA (DL form)

Structure:

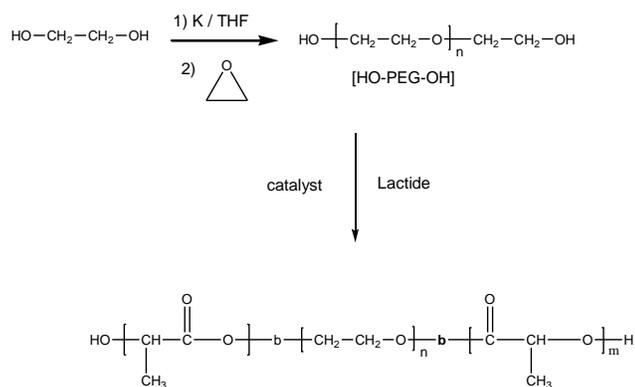


Composition:

$M_n \times 10^3$	PDI
4.5-b-8.0-b-4.5	1.09

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:



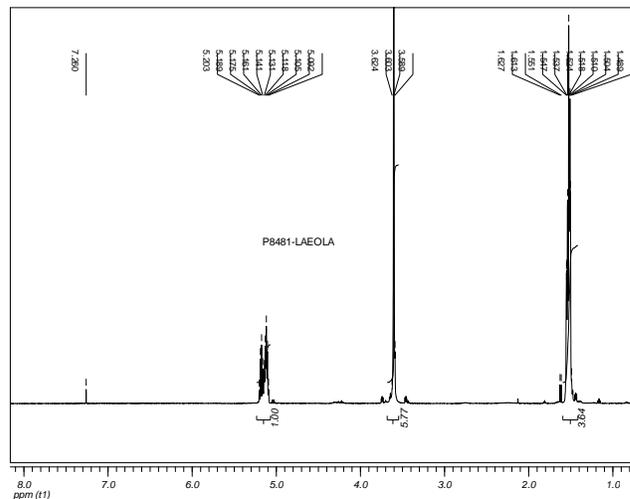
Characterization:

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 $^1\text{H-NMR}$ spectroscopy by comparing the integration of the lactide peaks (5.2ppm) with that of the ethylene oxide peaks (3.6ppm).

Solubility:

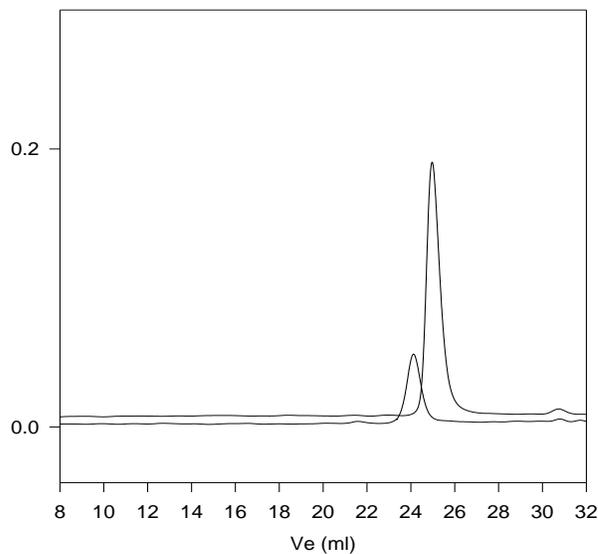
The polymer is soluble in THF, chloroform, DMF and toluene, but not soluble in hexane.

NMR of Sample:



SEC of Sample:

P8481- LAEOLA (DL form)



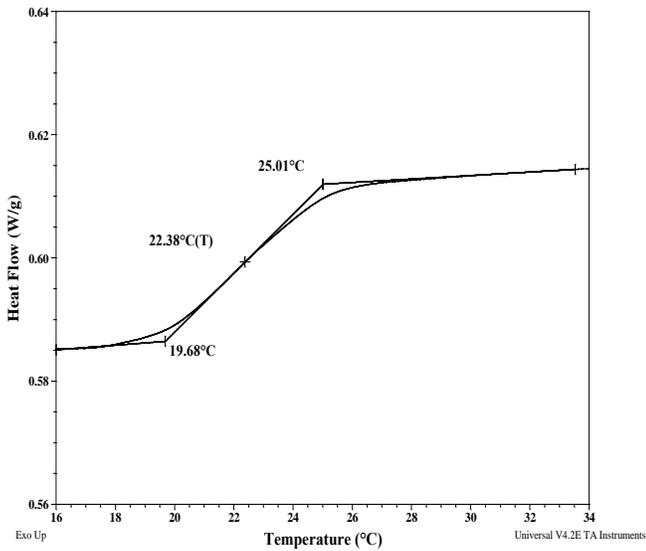
Size exclusion chromatography:

- Poly(ethylene glycol) diol, $M_n=8000$, $M_w=8400$, $PI=1.05$
 - Block Copolymer PLA(4500)-PEO(8000)-b-PLA(4500), $PI=1.09$
- Composition from ^1H NMR
Dp: LA(62)-EO(182)-b-LA(62)

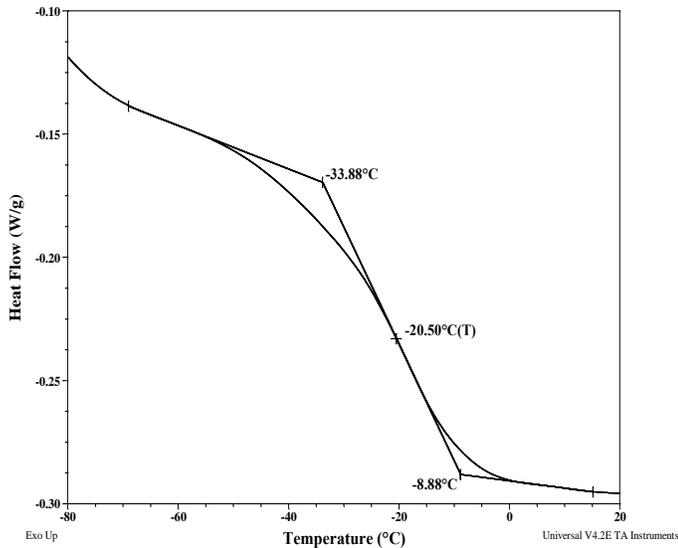
Thermal analysis of the sample# P8481-LAEOLA

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).

Thermogram for PLA block:



For PEO block



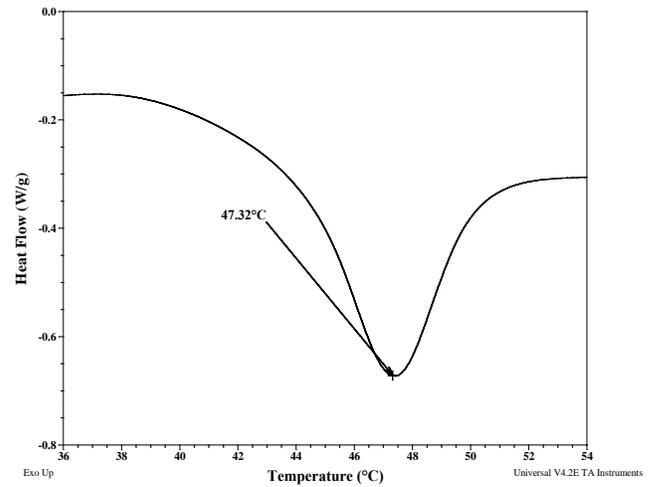
Thermal analysis results at a glance

For PLA block (DL)		
T_g : 22°C	T_m : -	T_c : -
For PEO block		
T_g : -21°C	T_m : 47°C	T_c : Not observed

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

