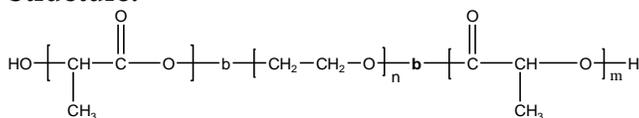


Sample Name:

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

Sample #: P8480-LAEOLA (DL form)

Structure:

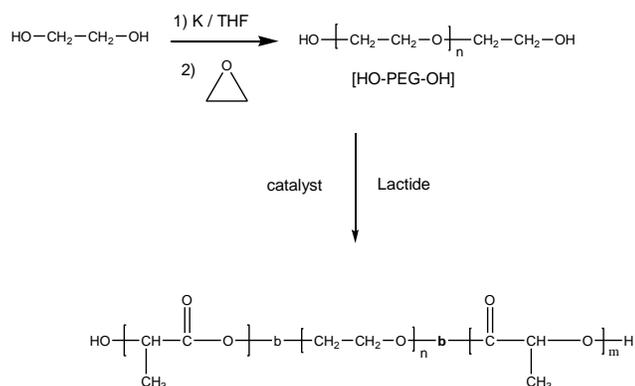


Composition:

Mn x 10 ³	PDI
4.5-b-8.0-b-4.5	1.08

Synthesis Procedure:

Poly(lactide-b-ethylene oxide-b-lactide) was prepared by 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:



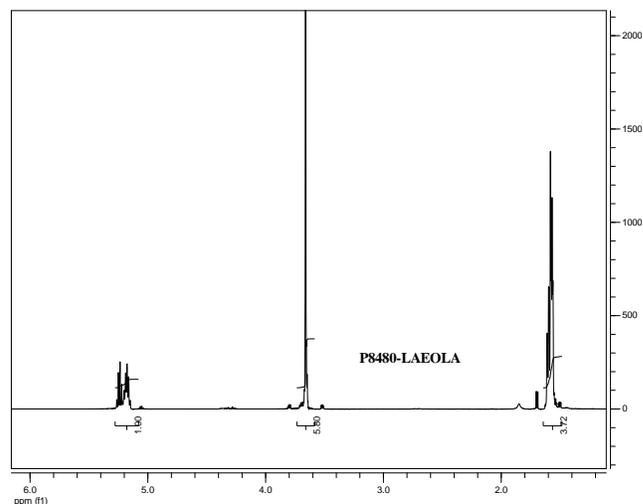
Characterization:

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

Solubility:

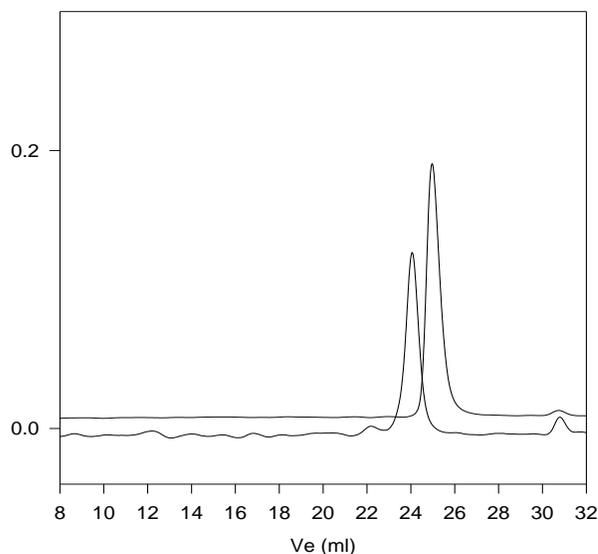
The polymer is soluble in THF, chloroform, DMF and toluene, but not soluble in hexane.

NMR of Sample:



SEC of Sample:

P8480- LAEOLA (DL form)



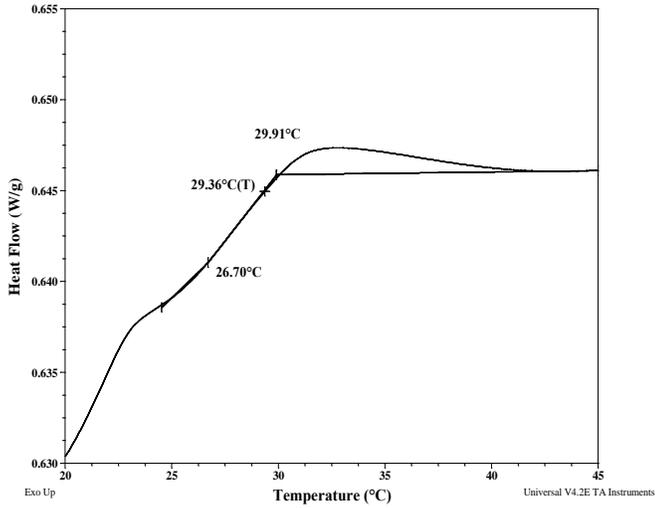
Size exclusion chromatography:

- Poly(ethylene glycol) diol, M_n=8000, M_w=8400, PI=1.05
 - Block Copolymer PLA(4500)-PEO(8000)-b-PLA(4500), PI=1.08
- Composition from ¹H NMR
Dp: LA(62)-EO(182)-b-LA(62)

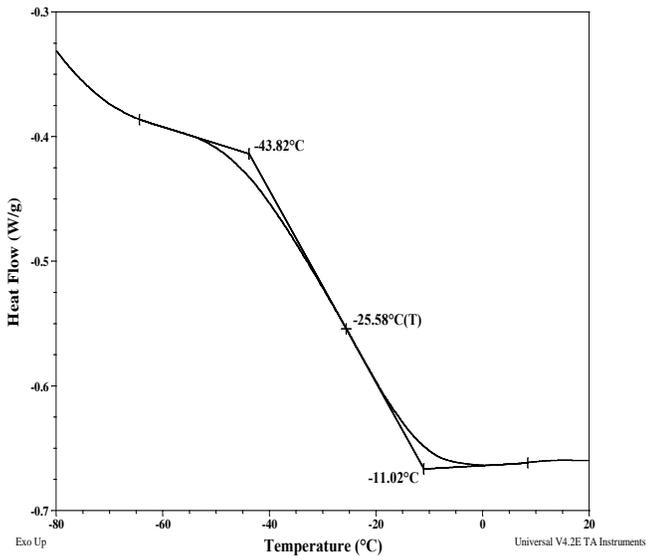
Thermal analysis of the sample# P8480-LAEOLA

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).

Thermogram for PLA block:



For PEO block



Thermal analysis results at a glance

For PLA block (DL)		
T_g : 29°C	T_m : -	T_c : -
For PEO block		
T_g : -26°C	T_m : 50°C	T_c : -

Melting curve for the sample

The melting temperature (T_m) was taken as the maximum of the endothermic peak.

Melting curve for PEO block

