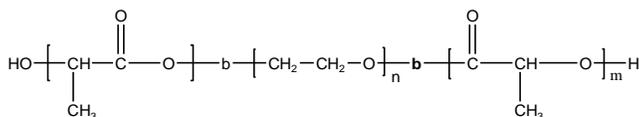


Sample Name:

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

Sample #: P8455-LAEOLA (DL form)

Structure:

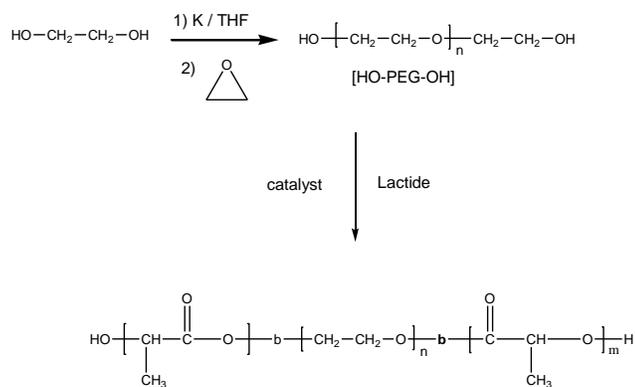


Composition:

$M_n \times 10^3$	PDI
1.8-b-8.0-b-1.8	1.06

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:



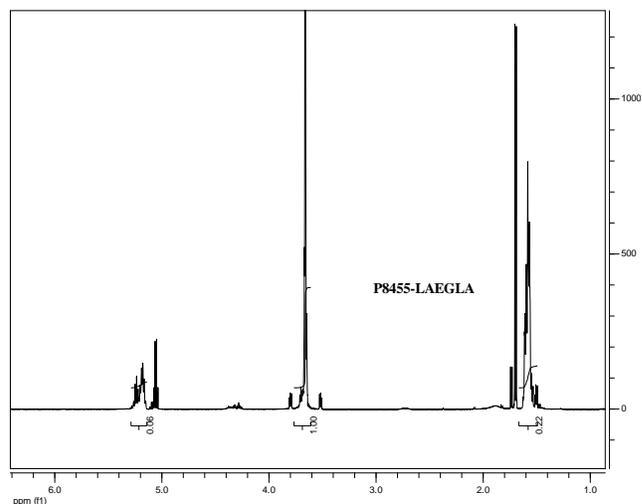
Characterization:

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

Solubility:

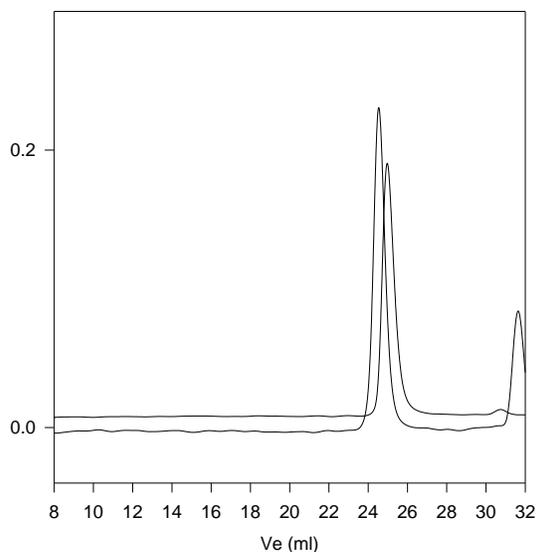
The polymer is soluble in THF, chloroform, DMF and toluene, but not soluble in hexane.

NMR of Sample:



SEC of Sample:

P8455-LAEOLA (DL form)



Size exclusion chromatography:

— Poly(ethylene glycol) diol, $M_n=8000$, $M_w=8400$, $PI=1.05$

— Block Copolymer PLA(1800)-PEO(8000)-b-PLA(1800), $PI=1.06$

Composition from $^1\text{H-NMR}$

Dp: LA(25)-EO(182)-b-LA(25)

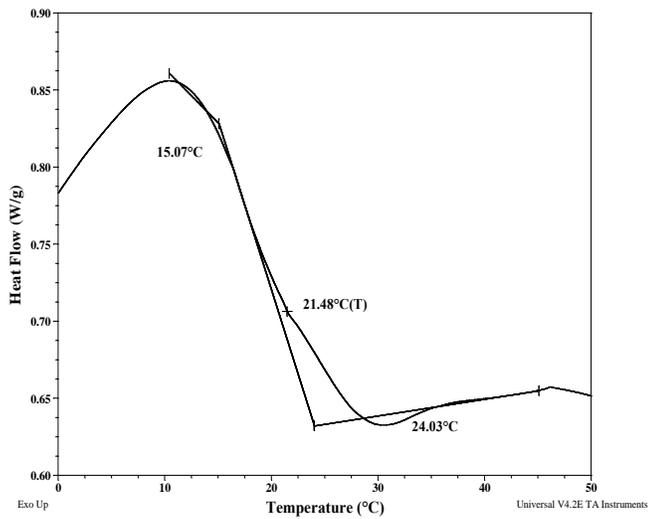
Thermal analysis of the sample# P8455-LAEOLA

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).

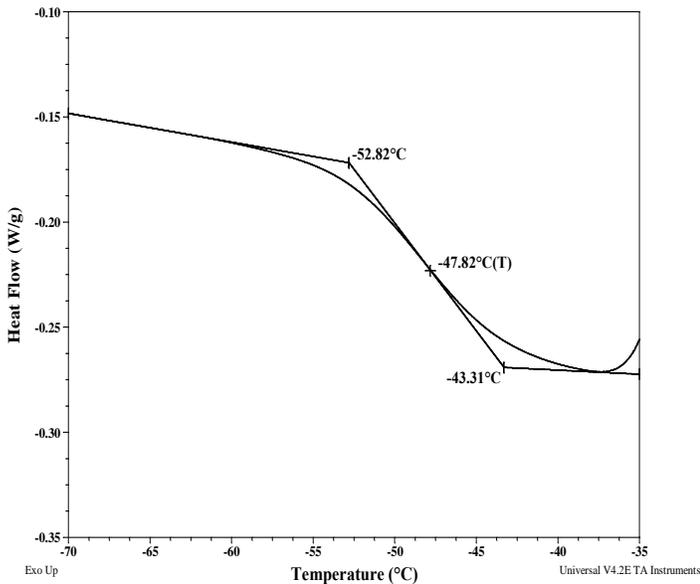
Thermal analysis results at a glance

For PLA block (DL)		
T_g : Not distinct	T_m : -	T_c : -
For PEO block		
T_g : -48°C	T_m : 49°C	T_c : -29°C & 14°C

For PLA block



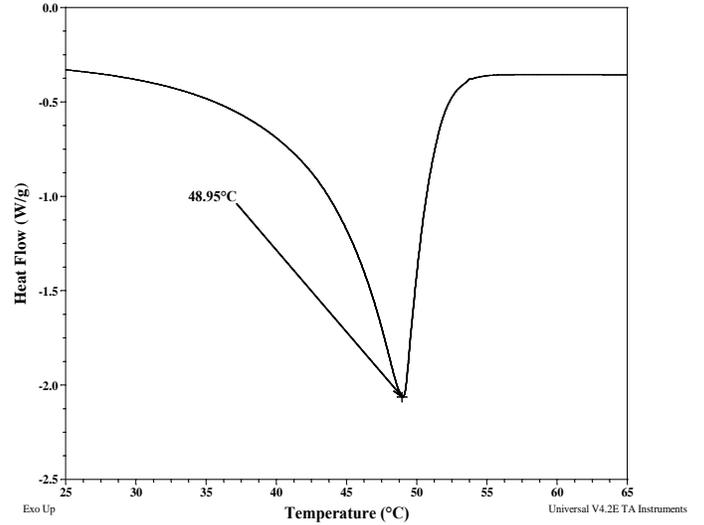
For PEO block



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

