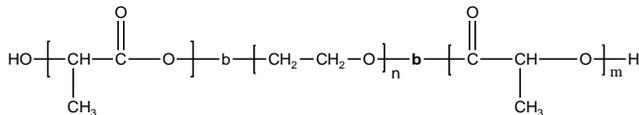


### Sample Name:

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

**Sample #: P8463-LAEOLA (DL form)**

### Structure:

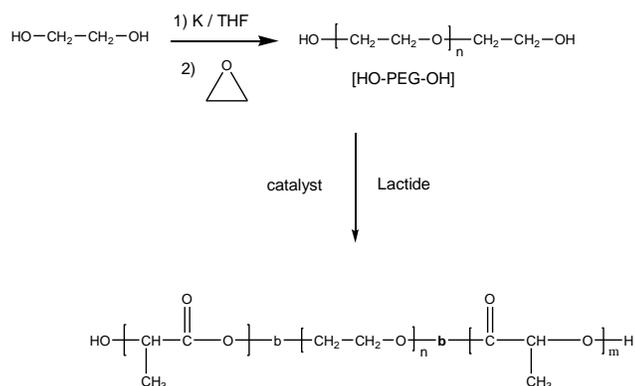


### Composition:

Mn x 10 <sup>3</sup>	PDI
2.0-b-8.0-b-2.0	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 tin catalyst. The scheme of the reaction is illustrated below:



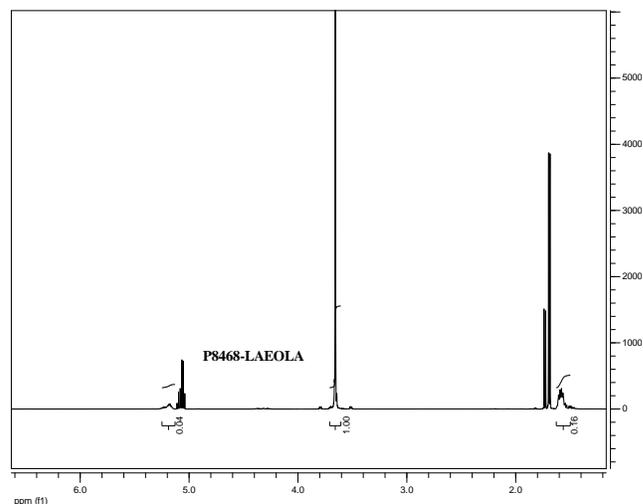
### Characterization:

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

### Solubility:

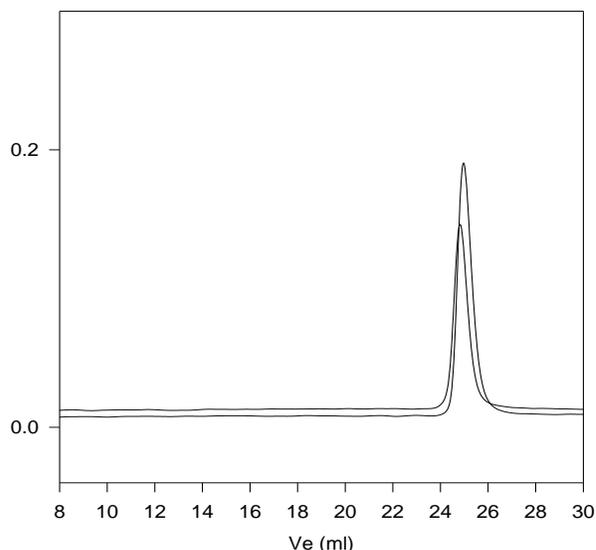
The polymer is soluble in THF, chloroform, DMF and toluene, however not soluble in hexane.

### NMR of Sample:



### SEC of Sample:

**P8468- LAEOLA (DL form)**



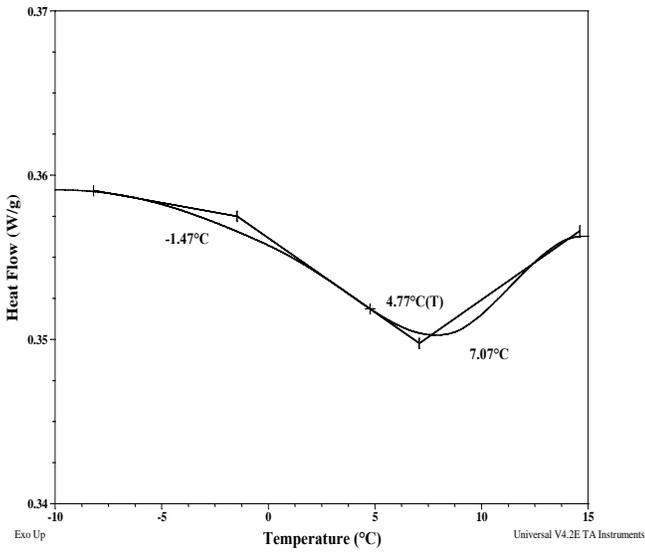
Size exclusion chromatography:

- Poly(ethylene glycol) diol, M<sub>n</sub>=8000, M<sub>w</sub>=8400, PI=1.05
  - Block Copolymer PLA(1000)-PEO(8000)-b-PLA(1000), PI=1.06
- Composition from <sup>1</sup>H NMR  
Dp: LA( 14)-EO(182)-b-LA( 14)

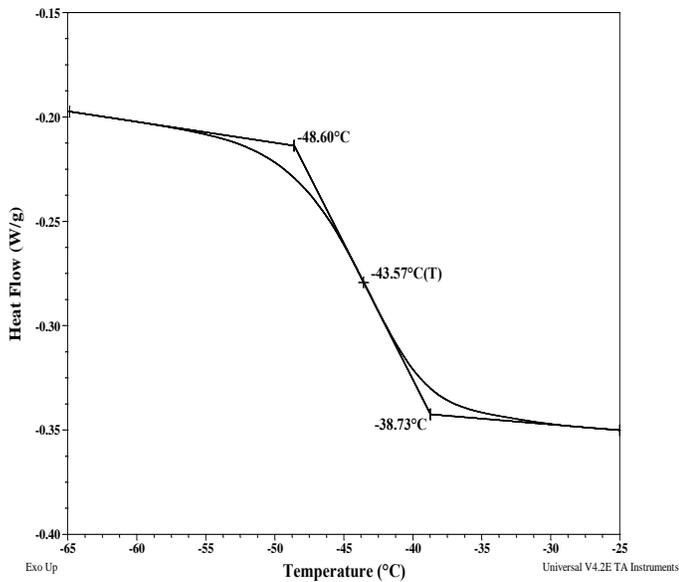
## Thermal analysis of the sample# P8463-LAEOLA

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)		
$T_g$ : 05°C	$T_m$ : -	$T_c$ : -
For PEO block		
$T_g$ : -44°C	$T_m$ : 36°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

