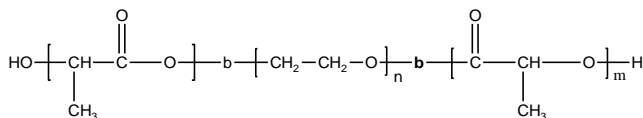


**Sample Name:**

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

**Sample #: P7091-LAEOLA (DL form)**

### Structure:

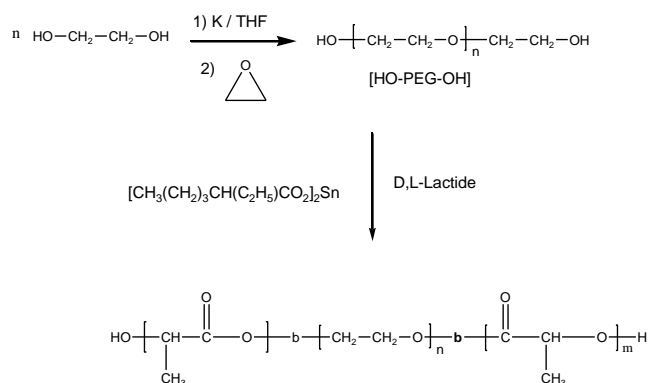


**Composition:**

Mn x 10 <sup>3</sup>	PDI
2.6-1.2-2.6	1.1

### 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:



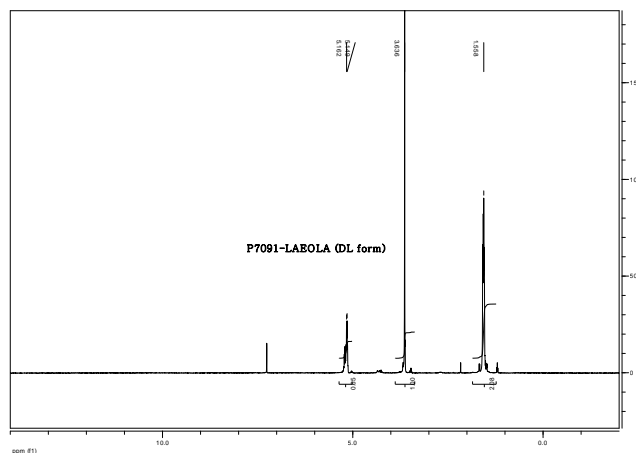
### Characterization:

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

**Solubility:**

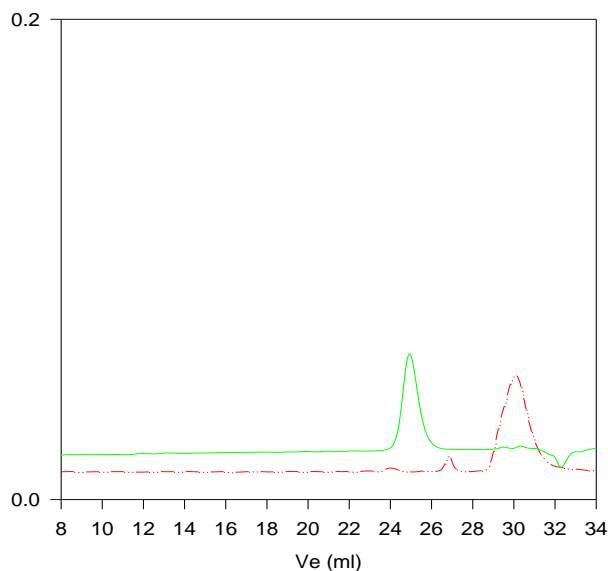
The polymer is soluble in THF, chloroform, DMF and toluene, however not soluble in hexane.

**NMR of Sample:**



**SEC of Sample:**

**P7091- LAEOLA (DL form)**



Size exclusion chromatography:

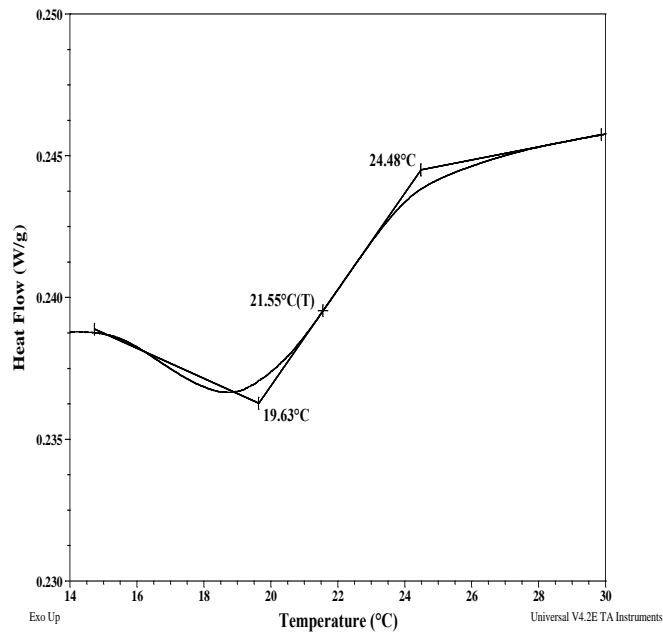
— Poly(ethylene glycol) diol,  $M_n=1200$ ,  $M_w=1400$ ,  $PI=1.2$

Block Copolymer PLA(2600)-PEO(1200)-b-PLA(2600), PI=1.1  
Composition from <sup>1</sup>H NMR  
Dp: LA(37 units)-EO(27 units)-b-LA (37 units)

Thermal analysis of the sample# P7091-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:



Thermal analysis results at a glance

For PLA block (DL)		
$T_g$ : 22°C	$T_m$ : -	$T_c$ : -
For PEO block		
$T_g$ : -24°C	$T_m$ : -	$T_c$ : -

For PEO block

