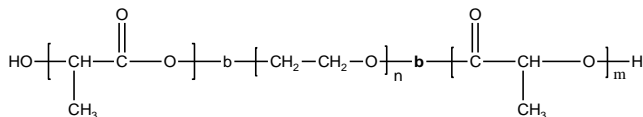


Sample Name:

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

Sample #: **P8477-LAEOLA (DL form)**

**Structure:**

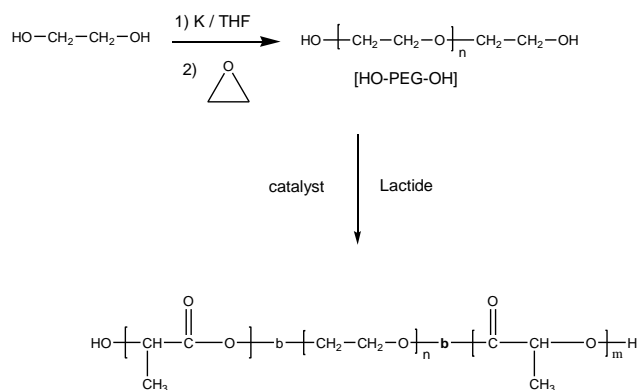


**Composition:**

Mn x 10 <sup>3</sup>	PDI
0.8-b-8.0-b-0.8	1.08

**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:



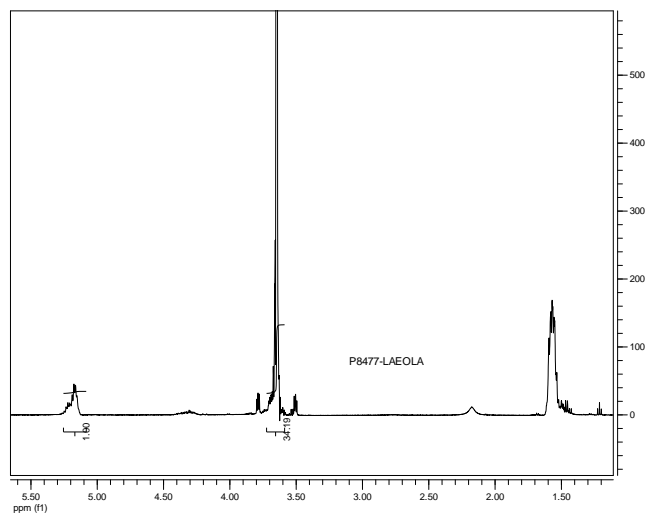
**Characterization:**

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:**

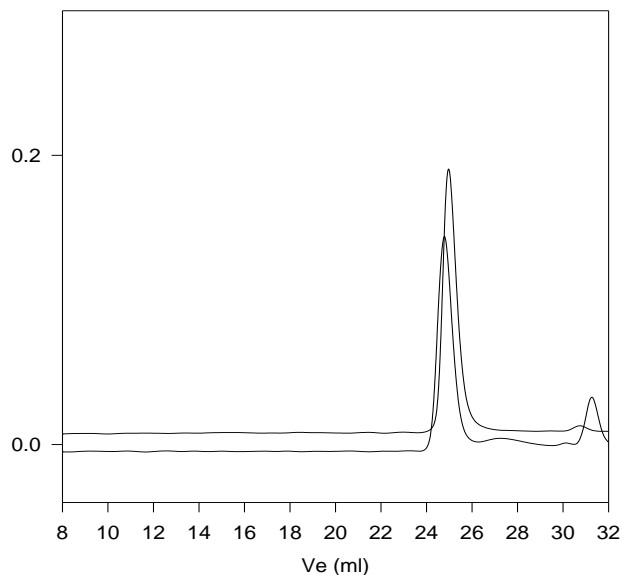
The polymer is soluble in THF, chloroform, DMF and toluene, however not soluble in hexane.

**NMR of Sample:**



**SEC of Sample:**

**P8477- 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(800)-PEO(8000)-b-PLA(800), PI=1.08
- Composition from <sup>1</sup>H NMR  
Dp: LA( 11)-EO(182)-b-LA(11)

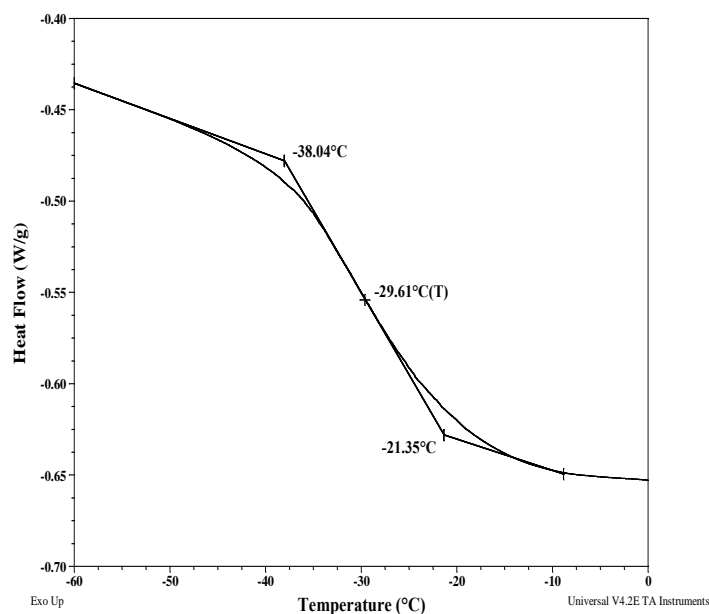
## Thermal analysis of the sample# P8477-LAEOLA

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		
$T_g$ : -30°C	$T_m$ : 37°C	$T_c$ : 01 & 10°C

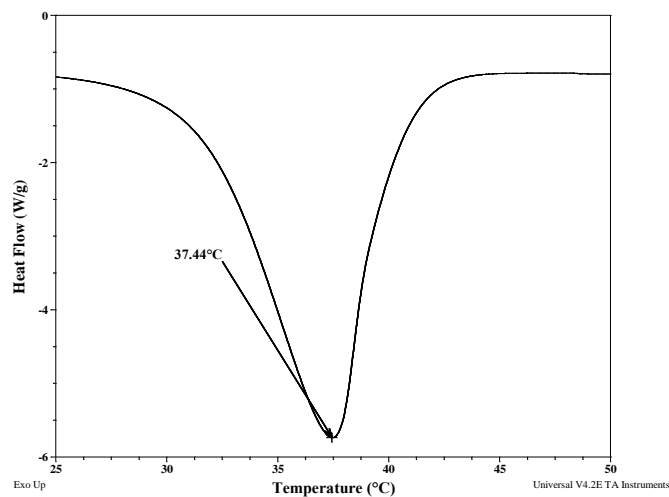
### For PEO block



## 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

