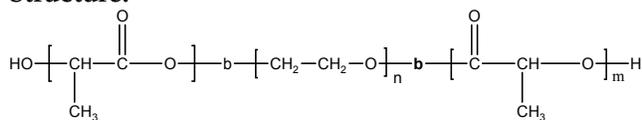


### Sample Name:

Poly(lactide(dl)-Co-Glycolide -b- ethylene oxide -b- lactide (dl)-co-glycolide)

Sample #: P9608-LAGLEOLAGL (DL form)

Structure:

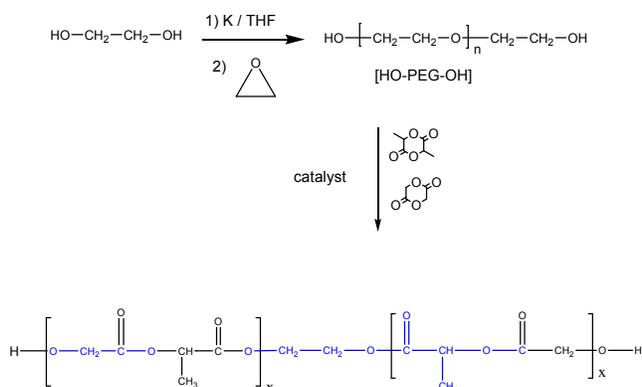


Composition:

Mn x 10 <sup>3</sup>	PDI
1.6-b-1.0-1.6	1.15
LA:GL ratio 3:1	

### Synthesis Procedure:

Poly(lactide-co-glycolide -b- ethylene oxide -b- glycolide-co-lactide) triblock copolymer was prepared by ring opening polymerization of ethylene oxide(EO) followed by living coordination polymerization of D,L-lactide(LA) and glycolide mixture using a Tin catalyst. The scheme of the reaction is illustrated below:



### Characterization:

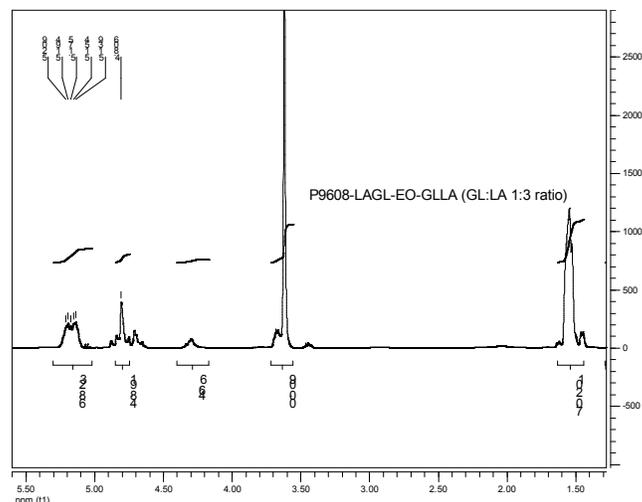
The molecular weight and polydispersity index of the poly(ethylene oxide) block was determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector. The composition of the lactide ABA triblock copolymer was determined using <sup>1</sup>H-NMR spectroscopy by comparing the integration of the lactide peaks (5.2ppm) with that of the ethylene oxide peaks (3.6ppm).

Purification of the obtained polymer: Product was precipitated in cold ether and check the absence of unreacted monomer by FTIR (absence of absorbance band at 934 cm<sup>-1</sup>).

### Solubility:

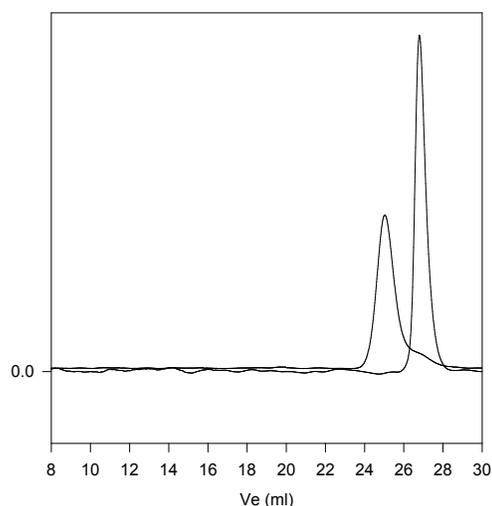
The polymer is soluble in THF, chloroform, DMF and toluene, but not soluble in hexane.

### NMR of Sample:



### SEC of Sample:

#### P9608-LAGLEOLAGL



Size exclusion chromatography:

— Poly(ethylene glycol) diol, M<sub>n</sub>=1000, M<sub>w</sub>=1100, PI=1.1

— Block Copolymer PLAGL(1600)-PEO(1,000)-b-PLAGL(1600), PI=1.15  
Composition from <sup>1</sup>H NMR

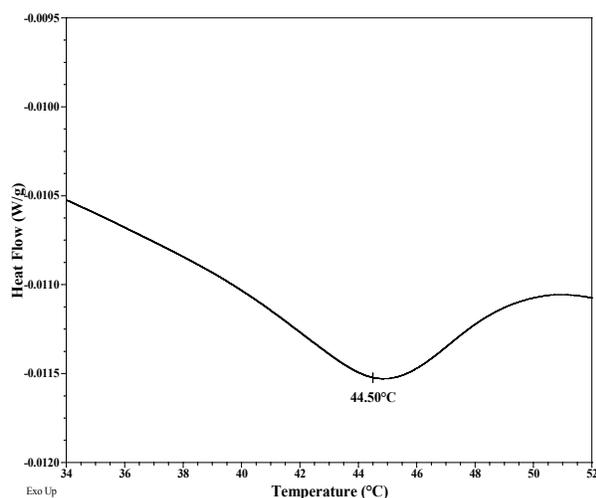
**Thermal analysis of the sample# P9608-  
LAGLEOLAGA (LA:GA 3:1 ratio) LA (dl form)**

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 ( $T_g$ ).

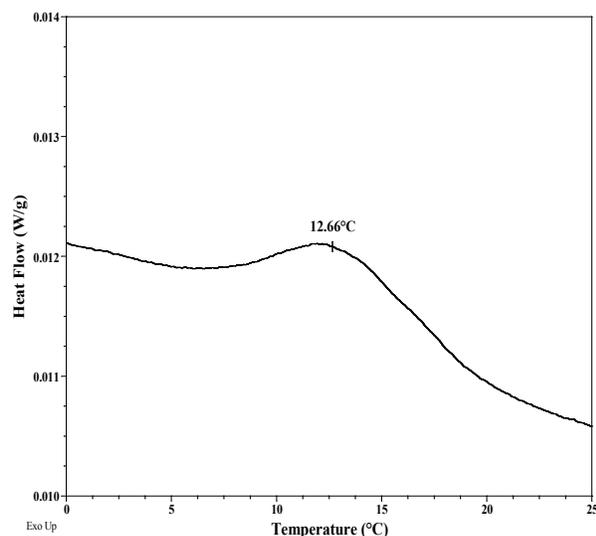
**Melting and crystallization curve for the sample**

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.

**For PEO block**



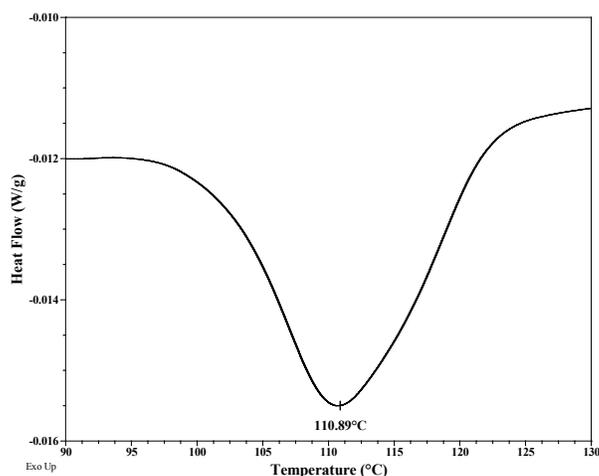
**Crystallization curve:**



**Thermal analysis results at a glance**

For PLA block		
$T_g$ : Not distinct	$T_m$ : 111°C	$T_c$ : 108°C
For PEO block		
$T_g$ : -61°C	$T_m$ : 44 °C	$T_c$ : 13 °C

**Melting curve for PLA block**



**Crystallization curve For PLA block**

